Determinants and Impact of Financial Literacy on Savings Behaviours among Households in Malawi

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In Partial Fulfillment of the Requirements

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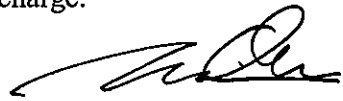
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Committee in charge:

Professor Cho, Man, Supervisor

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ABSTRACT

This paper empirically investigates the determinants of financial literacy and its impact on saving behaviors among Malawian households. The study uses data from the 2018 Malawi Financial Literacy and Consumer Protection Household Survey, commissioned by the Reserve Bank of Malawi in 2018. The empirical results show that location, gender, occupation, marital status, income level, financial education and ownership of bank account are statistically significant factors that influence the level of financial literacy in Malawi. Furthermore, the Probit regression results reveal a significant positive relationship between the level of financial literacy scores and household's saving behavior. The findings of this research call for enhanced efforts on the part of relevant policymakers to increase financial literacy as that is expected to improve saving level in a given country. In a Malawian point of view, it is recommended that the Ministry of Finance should expedite the launching of the National Financial Literacy Strategy, which is still in a draft stage but will have to guide the implementation of financial education programs in the country.

ACKNOWLEDGEMENT

Contents

1.0 INTRODUCTION

Recently, the topic of financial literacy has attracted considerable attention of various governments, international organizations and researchers. The importance of financial literacy has been extensively stated in policy and academic circles over the previous few years, with the focus on economic stability (Zinni 2013), wealth creation and making precautionary savings (Lusardi & Mitchell 2007; Alessie et al. 2011). Lusardi (2008) argue that unawareness about elementary financial knowledge can be easily attributed to the absence of retirement planning and lack of wealth. Furthermore, many researchers contend that financial literacy has a greater influence on participation of consumers in the formal financial sector (Cole et al. 2008; Christelis et al. 2010; Sevim et. al 2012). Shim et. al. (2010) also state that financial literacy is a useful means in attaining a successful adult life since it performs a vital role in expanding individuals' financial management and general life attitude. Chirwa and Mvula (2014) also note that with the growing complexity of the financial sector coupled with the comparative supremacy of financial institutions, the attainment of information by customers can safeguard exploitation of consumer rights.

Recently, several countries have developed national strategies on financial literacy and a number of international organisations have emphasised the need to strengthen financial literacy of the population. For instance, the Organisation for Economic Co-operation and Development (OECD) advocates for improvement of financial literacy levels of countries' populations and provides guidance and networking opportunities to facilitate this. Other international organisations promoting financial literacy comprise the UK's Department for International Development (DFID), the German Development Co-operation (GIZ), International Network for Financial Education

(INFE), Aflatoun International, the Alliance for Financial Inclusion (AFI), the Microfinance Centre (MFC), Microfinance Opportunities and the Commonwealth Secretariat.

The World Bank also highlighted in its diagnostic studies of a number of countries including Malawi, on the importance of developing national strategies to expand the population's financial literacy. In addition, it continues to offer capacity building programmes for several countries on developing financial literacy and consumer protection framework. Similarly, a number of countries in Africa have developed national[1] strategies on financial literacy or are undertaking wide-reaching programmes to strengthen financial literacy in their populations. The Central Banks or Ministries of Finance are spearheading financial literacy initiatives in most countries. In some cases, special agencies are being established to advance the financial literacy agenda as done in some developed countries.

Saving behavior is an urgent issue of many countries including Malawi as it ultimately affects the financial wellbeing of people and households. The 2018 Malawi Financial Literacy and Capability Household Follow Up Survey results indicated that only 29% of the Malawi adult population held bank savings/deposit accounts and 25% had informal savings accounts in Village Savings and Loan Associations (VSLAs). Whereas, 53% of the adult population was reported to save at home. In addition, the 2014 Malawi FinScope survey revealed that 27% of the adult population had access

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1. Zambia (2012), Uganda (2013), South Africa (2013), Rwanda (2013), Tanzania (2016), Kenya (2016), Nigeria, and Ghana

to banking services either directly or indirectly, with further 7% having some formal financial products (mostly microfinance related products). 49% of adults managed their lives without using any formal or informal financial product. The dearth of knowledge about financial institutions, products and services offered, and little income were mentioned as some of the causes for low saving behaviours. According to Lidi et al. (2017), savings are critical for individual welfare in that it assists households smoothen their consumption and finance fruitful investments in business and human capital. Srividya and Visalakshi (2013) also state that the domestic saving rate of any country has a direct association with the investment rate and banking sector's lending capability which serves as a significant economic development indicator.

Researchers across different countries, have analyzed key determinants of saving behavior and have attempted to enhance our understanding of why people manage savings in different ways (Ando & Modigliani, 1963; Carroll & Samwick, 1998; Precious & Asrat,2014). According to Deaton (1989), there are several variables that determine saving rates, which among others, include demographic features, income dynamics, the quality of financial institutions, interest rates and investment opportunities. Despite having vast experimental findings on the key saving factors, little devotion has been given to the role of financial literacy in developing countries (Berman 2012; Mutsonziwa & Murendo 2016; Sayinzonga et. al 2016; Adetunji & David-West 2019; Morgan & Trinh 2019). Most studies concentrated on assessing financial literacy levels instead of influence on financial behaviors. Therefore, this paper intends to examine the determinants and influence of financial literacy on saving behaviors of households in Malawi. Using data from the 2018 Malawi Financial Literacy and Capability Follow Up Survey, we add to the limited literature

on the subject under study in Sub-Saharan countries. This study might be of particular importance for policymakers and international organizations who wish to expand financial capabilities among the Malawian population as it indicates the direction of financial educational awareness programmes.

The remainder of the paper is organized as follows; Chapter 2 presents literature review of the topic under study. Then, Chapter 3 discusses data and methodology employed for this study. The analysis and discussion on results findings are described in Chapter 4. Finally, Chapter 5 gives the conclusion and policy recommendation if any.

2.0 LITERATURE REVIEW

We commence this section by reviewing different definitions of financial literacy and discuss methods previously used by different scholars to measure financial literacy. We proceed by discussing the determinants of financial literacy before providing a synopsis of various underlying experimental investigations that attempt to explain the relationship of financial literacy and saving behavior.

2.1 Definition of financial literacy

Researchers have provided various definitions of financial literacy, but up to date, no single definition has been identified. Some authors have defined financial literacy more broadly as "a mixture of consumers' knowledge about financial products and their capacity to understand financial risks and chances, to make sound decisions, to know where to seek redress, and to adopt comprehensive actions to expand their financial wellness (World Bank et al 2009:16). Whereas Lusardi and Mitchel (2014) observe that a financial literate person should be able to synthesize

economic information and make informed decisions about prudently managing his finances. Servon et al. (2008:273), offer a similar definition of financial literacy as "a person's capacity to comprehend and utilize financial information". Recently, some notable organizations have broadly defined financial literacy as "a combination of understanding, ability, attitude and behavior required to make informed financial decisions and eventually attain personal financial security." (OECD/INFE 2016:47)). Hence, this notion of financial literacy is multifaceted as it encompasses several attributes. This notwithstanding, current literature posits that financial literacy is an element of financial capability. For purposes of our study we adopt the definition provided by OECD/INFE as it commensurate with the type of data we have.

2.2 Measurement of financial literacy

Two major methods have been used to quantify financial literacy namely; objective measures like test scores and self-assessments. For the self-assessments method, participants are requested to assess their literacy competencies in addition to providing information about their attitudes towards financial choices and knowledge. This method was used to compute financial literacy levels of the Germans, the Netherlands and the United States of America population (Lusardi et. al (2014). Using a scale from 1 to 7, where 1 means very low and 7 means very high, participants were requested to evaluate their general financial knowledge. However, Lursadi et.al (2014) observed a considerable discrepancy between individuals' self-assessed knowledge and their real knowledge. He contended that respondents are generally confident of their knowledge and ultimately tend to overate themselves despite having low financial literacy levels. The World Bank Group (2017) found similar results when measuring financial capabilities of the Zambian population.

The objective test approach evaluates the respondents' understanding of financial terms, acquaintance of numerous financial notions and capacity to utilize numerical skills in specific circumstances associated with finance (Kharchenko 2011). This approach is found to be a better assessment tool of respondents' financial knowledge than the earlier approach (OECD, 2005). However, the objective tests approach measure of the financial literacy is employed differently by various researchers as demonstrated in our subsequent discussion.

The most common measure of financial literacy in most studies base on the three questions which were developed and initially introduced by Lusardi and Mitchel (2006) in the 2004 US Health and Retirement Study and then replicated extensively in numerous nations (Beckman 2013; Klapper et. al 2015; Grohmann 2018). These questions examine comprehension of three vital financial concepts namely: simple and compounding interest rates, inflation and risk diversification. Chirwa and Mvula (2014) also replicated the methodology to evaluate financial literacy levels among the Malawian population.

Later studies, have built on this and have added questions aimed to measure financial knowledge, financial behavior and financial attitude, ultimately to be used to generate a score to show financial literacy level. Generally, it covers various themes relating to longer-term financial planning, keeping track of finances, making-ends meet, and product choice. For instance, Berman et. al (2012) used 12 questions to measure financial literacy in Chile. Atkison and Messy (2016) also used a set of 21 questions in a survey commissioned by the OECD/INFE to assess financial literacy in 30 countries. This OECD/INFE financial literacy measurement toolkit has been extensively recognized as a significant means to inform financial education policy. By employing Principal

Component Factor analysis, Mutsonziwa and Murendo (2016) also used 21 questions to measure financial literacy in Zimbabwe. Morgan and Trinh (2019) followed similar methodology to assess financial literacy in Vietnam, Cambodia and Laos PDR. Whereas the Consumer Financial Protection Bureau (CFPB) uses 10 standard questions to evaluate financial wellbeing of individuals in the United States of America. The number of questions used to measure financial literacy depends on the complexity level of financial schemes in various countries. As noted by Chirwa and Mvula (2014), developed countries tends to have a larger number of questions in relation to developing countries which have concentrated formal financial sectors and more informal financial transactions.

Having discussed definition and measurement of financial literacy, we now proceed to discuss the empirical literature of the topic under study.

2.3 Determinants of financial literacy
A number of researches on the determinants of financial literacy have extensively been conducted across the world (Berman 2012; Chirwa & Mvula 2012; Mutsonziwa & Murendo 2016; Yoshino et.al 2017; Morgan & Trinh 2019). Most studies revealed factors that significantly influence financial literacy which included age, nature of occupation, race, level of education, income, gender, location, financial education, marital status, having saving account and watching television/listening to radio. Further, the results generally showed positive correlation with most of the explanatory factors save for few instances.

2.4 Empirical literature of impact of financial literacy

A plethora of studies have attempted to investigate the impact of financial literacy on financial behaviors of household members in developed countries (Lusardi & Mitchel 2007; van Rooij 2011; Jappelli & Padula 2013; Nicolini & Haupt 2019). For example, financial literacy is found to be positively correlated with wealth and savings decisions among the investigated individuals from 15 European countries (Jappeli & Padula 2013). Similarly, financial literacy is found to be highly connected to the individual's daily financial management skills (Hilgert, et al. 2003). Other studies also report a direct association between financial literacy and active involvement in the formal financial sectors and saving for emergencies (van Rooij, Lusardi & Alessie, 2011; Berhman 2012). Phillippas and Avdoulas (2020) used data of university students who survived the financial crisis in Greece and observe that a financially literate person is better prepared to manage unanticipated financial shocks. Low financial literacy is also linked to poor credit management behaviors manifested through payment of high transaction costs and fees in addition to over-indebtedness (Tufano 2009a; Utkus & Young 2011; Mottola 2013).

Studies investigating the influence of financial literacy on saving behaviors are still scant in developing countries (Berman 2012; Mutsonziwa & Murendo 2016; Sayinzonga et. al 2016; Adetunji & David-West 2019; Morgan & Trinh 2019). Most studies focused on assessing financial literacy levels instead of influence on financial behaviors in developing countries. In Asia, using data from Laos PDR, Vietnam and Cambodia, Morgan and Trinh (2019) examined the drivers and impact of financial literacy on other financial behaviors. As expected, the authors found that financial literacy is directly connected to the saving behavior of respondents even when they corrected for probable endogeneity of the financial literacy. Berhman et. al (2012) also found

similar results when they examined the implications of financial literacy on wealth generation among households in Chile. Zakaria et. al (2017) in their study in Malaysia, also reported a positive significant relationship between financial literacy and savings and investments.

Whereas in Africa, using a sample of 22000 individuals in Nigeria, Adetunje and David-West (2019) examined the effects of financial literacy on inclusive finance. The study revealed that financial literacy is a key factor of saving methods in both formal and informal financial sectors. The results are consistent with the study conducted by Mutsonziwa and Murendo (2016) in Zimbabwe, when they analyzed drivers and impact of financial literacy on the household's decision to save. The authors found that financial literacy plays a bigger role in encouraging positive saving behaviors of individuals in both rural and urban setting. Lastly, using a field experiment, Sayinzoga et al. (2016) found that both savings and motivation of farmers to access loans improved in Rwanda after undergoing financial literacy training sessions. The results also revealed that financial literacy levels greatly influence individual's sound financial choices.

This section reviewed different researches conducted across the world on the topic under study, and found that the existence of the positive relationship between financial literacy and financial behaviours. Going forward, we discuss the data sources and study methodology employed before delving into data analysis.

3.0 DATA AND METHODOLOGY

3.1 Data Sources

We use data from the 2018 Household Financial Capability Follow-up Survey commissioned by the Reserve Bank of Malawi to assess financial literacy levels, financial inclusion and consumer rights knowledge in Malawi. In addition to demographics, the survey also collected information on individuals' skills, perceptions and attitudes towards finance management, planning for future, usage of financial services and products. A2F Consulting Group in collaboration with Shawa Diamonds conducted this survey. The survey was designed to be a general representative of adult Malawians who are of the age of at least 18 years and responsible for their own personal finance or their entire households. A total of 4729 households were drawn based on the 2008 Malawi Population and Housing Census, the most recent census then in Malawi.

3.2 Construction of Financial Literacy Scores

As already aforementioned, literature suggests various methods to measure financial literacy. In this study we follow the approach used by the OECD/INFE (2015a) to compute the financial literacy index with minor customization to suit our data.

The score for **financial knowledge**(literacy) is constructed from questions capturing respondent basic understanding and capacity to perform simple financial calculations, for instance, division, simple and compound interests, the concept of inflation, actual and percentage discounts' differences, risk and financial diversification. A total of seven questions are used to measure financial knowledge. A score of one is assigned if each question is answered correctly; zero otherwise. Appendix A table 1 provides the list of questions under discussion.

Financial behavior and **financial attitude** score capture "financially savvy" behavior and assesses the participant's perceptions about money, saving, and spending as presented in table 2

of the appendix A. The score is derived from eight questions concerning general household personal finance attributes, and ranges between 0 and 9.

The sum of the two scores is considered as the overall **financial literacy score**, and has values ranging from 1 and 16. Each of the two scores are assigned equal weights and averaged to generate a composite score. The analysis is first performed on the respective two groups of financial literacy scores followed by the analysis of the overall financial literacy score.

3.3 Methodology
We investigated determinants of financial literacy using the following ordinary least squares (OLS) regression model estimator:

$$FL_i = \alpha_0 + X_i \alpha_1 + \mu \tag{A}$$

where FL is the respondent's financial literacy score, X_i is a vector of explanatory variables influencing the predicted variable and μ is an error term. Explanatory variables include occupation, gender, level of education, monthly income, location, marital status, financial education. Although much personal information is provided in the survey, age variable was erroneously missed in the data set. Both categorical and dummy control variables are used in this study. The dummy explanatory variables are described in detail as follows;

Gender which takes a value of one for males and zero otherwise.

Location is assigned a value one for urban residence and zero for rural residence.

Bank account ownership has a value of one if a participant maintains a bank account and zero otherwise.

Savings group member takes a value of one if a participant belongs to the savings club and zero otherwise

Financial education is assigned a value of one if a participant received any kind of financial education information for the past five years and zero otherwise.

Marital Status is also takes a value of one if a respondent was married and zero otherwise.

Education level variable has four categories namely; received no education, primary education, secondary education and tertiary education.

Variable on *Occupation* contains four groups corresponding to participants' main job description for the past months. The categories include; formal sector employment, informal sector employment, self-employment (including own farm, unpaid family worker) and not employed (studying, looking for work, retired, sick, waiting for the busy season).

Income variable contains four categories corresponding to the amount received monthly by the respondent. The four categories include those respondents receiving less than K75,000, between K75,000 and K130,000, K130,000 and K225,000 and receiving more than K225,000.

We estimated the following equation to analyze the effect of financial literacy on saving behavior:

$Save_i = \beta_0 + \beta_1 FL_i + \beta_2 X_i + \mu$ **(B)**

Where $Save_i$ is a dummy variable recorded as one if the participant had saved some money after paying for foodstuff plus other necessary items and zero otherwise. Different researchers observe that individuals can save using different methods grouped as formal (having saving accounts in

formal financial institutions such as banks, microfinance agencies and financial cooperatives) and informal (community saving groups, holding cash at home, giving a family member to save, jewelry, livestock or property) (Klapper & Singer 2014; Mutsonziwa & Murendo 2016; Morgan & Trinh 2019). Whereas, FL_i is the respondent's financial literacy score same as in equation 1 and B_1 is the parameter that measures the effects of financial literacy on saving behaviors. X_i is a vector of control variables influencing the dependent variable as stated above and μ is an error term. Both saving club membership and bank account ownership, have been included in the regression equation in order to assess how they affect savings behavior. We used financial knowledge score in some specifications instead of the financial literacy score in order to check for robustness.

Several studies have reported existence of endogeneity of financial literacy with regard to saving behaviors, resulting in biased estimates (Behrman et al. 2010; Calcagno & Monticone 2011; Jappeli & Padula 2011; Lusardi & Mitchel 2014; Mutsonziwa & Murendo 2016; Morgan & Trinh 2019). The problems of endogeneity may emanate from reverse causality or unobservable factors that affect both financial literacy and saving behaviors. However, it is very challenging to find a suitable instrument for the causal relationship of financial literacy and saving behaviours. Previously, researchers have used various instrumental variables (IV) in order to deal with the endogeneity problems. For instance, Van Rooij et. Al (2012) used knowledge on the financial education that participants attained in school to instrument for financial complexity. Whereas, Agnew et. al (2013) used financial experiences of respondents' relations and parents as an instrument for financial sophistication. In his study, Arrondel (2012), used financial literacy information of parents as an instrument for respondents' financial sophistication whilst controlling

for possible inheritance of financial collections. Some researchers used the average financial literacy score of the respondent at specified geographical level as an instrument variable (; Mutsonziwa & Murendo 2016; Morgan & Trinh 2019). However, in this study we fail to account for the endogeneity due to unavailability of suitable instrument in the dataset.

4.0 RESULTS AND DISCUSSION
4.1 Descriptive Statistics
Table 1 presents sample descriptive statistics for variables included in the regression models. More than half of the respondents were females (58%) and 51% lived in rural areas. At least 81% of the respondents were literate (able to write and read) and that 55% had received some type of financial education information through various channels in the past five years. About 64% of respondents indicated that they had saved surplus money after they had paid for food and extra essential stuffs. This notwithstanding, the percentage of people saving money differed across demographics. For instance, a higher proportion of females (54.4%) reported to have saved money compared to their male counterparts (45.6%). Similarly, the number of respondents saving money in urban residence was higher (54%) than those staying in rural communities. The majority of respondents who saved money had completed primary education (39.4%) and secondary education (33.6%). A fascinating result appears with regards to the respondents' type of occupation, with those self-employed having a higher proportion (64%) and lowest among employed both in the formal and informal sectors. About 27% of the respondents indicated that had a saving account with commercial banks whereas 31% reported that they belonged to saving groups.

Table 1. Descriptive Statistics of explanatory variables

Variable	Obs	Mean	Std.Dev.	Min	Max
Urban	4731	.494	.5	0	1
Male	4726	.42	.494	0	1
Marital status	4731	.745	.52	0	3
Literacy level	4726	.803	.435	-8	1
Monthly Income	4731	180000	4680000	0	3.00e+08
Financial education	4731	.554	.497	0	1
Own saving account	4731	.27	.444	0	1
Saving group member	4731	.311	.463	0	1
Education level	4726	8.396	5.734	0	23

Table 2 presents financial literacy scores distribution across demographics. The mean financial literacy score of the respondent is 9.7 with the financial knowledge score of 4.2, financial behavior and attitude score of 5.6 which is considered to be low as categorized by OECD (2016). The financial literacy scores seem to differ across demographics as shown in table 2. With regard to gender, males have higher average financial literacy score (10.3) compared to their female counterparts (9.32). The financial literacy score breakdown by location reveals that respondents staying in urban residences have higher financial literacy score (10.4) than those staying in rural residences (9.1). The results also indicate that financial literacy scores rises with increasing level of education. Respondents with upper education scored highly compared to other lower groups.

The occupation category that performed best is those employed in the formal sector with an average score of 11.6, seconded by those employed in the informal sector (9.5) followed by those under self-employment (9.4) and lastly those with no employment (9.20). The results also show financial literacy has a positive relationship with income of people.

Table 2: The distribution of financial literacy and saving behaviors across demographics

Variable		Financial knowledge	Financial behavior and attitude	Financial literacy	Saving Money (%)
All		4.20	5.60	9.73	64.10
Gender	Male	3.90	5.42	9.32	45.57
	Female	4.56	5.74	10.30	54.43
Location	Rural	3.78	5.29	9.10	45.68
	Urban	4.58	5.81	10.39	54.32
Education level	No education	2.82	4.34	7.12	5.60
	Primary Education	3.68	5.27	8.96	40.17
	Secondary education	4.68	5.94	10.62	32.42

	Tertiary education	5.36	6.30	11.66	21.80
Occupation	Employed formal sector	5.30	6.30	11.59	17.10
	Employed informal sector	4.34	5.24	9.55	6.93
	Self employed	3.96	5.50	9.44	64.58
	Not employed	3.93	5.26	9.2	11.41
Marital Status	Married monogamous	4.24	5.65	9.89	69.13
	Polygamous	5394	5.4	9.34	2.65
	Informal union	3.90	4.35	98.24	0.00
	Not married	4.00	5.37	9.4	28.22
Income	<K75,000.00	3.89	5.29	9.17	68.77
	K75,000-130,000	4.82	6.31	11.13	11.77
	K130,0001-K225,000	5.22	6.37	11.60	10.23
	>K225,000,000	5.35	6.49	11:83	9.2

4.2 Econometric Results

4.2.1 Determinants of financial literacy

Table 3 presents ordinary least squares (OLS) regression estimation results for the determinants of

financial knowledge, financial behavior and the overall financial literacy score. The estimation

results indicate that urban households' residents have an average financial literacy score of 0.50 points higher than the score of rural residents. This may be attributed to larger exposure to financial concepts and facilities in urban areas in relation to rural counterparts. In terms of gender, the results reveal that male respondents have a mean financial literacy score of 0.49 points higher, compared to their female counterparts. Income is also found to have a direct association with financial literacy scores, positing that those who earn higher income have higher financial literacy scores.

With respect to marital status, the mean financial literacy score for respondents that are married are 0.29 points higher than the mean of those that are unmarried. The results also demonstrate that education of respondents has higher influence on financial literacy. For instance, those respondents with tertiary education have financial literacy scores 2.5 points higher than those without any education with the difference being significant at 1% confidence interval. Additionally, financial education was found to be positively linked with financial literacy, with respondents having financial literacy scores of 0.64 points higher than those who did not receive some financial education information in the past five years. The findings resonate well with many other studies, including Morgan and Trihn (2019), Lusardi (2011), Murendo and Mutsonziwa (2017), Chirwa and Mvula (2014), Yoshino et. al (2017).

The nature of employment also plays a vital role in financial literacy, with respondents employed in the formal sector having financial literacy scores 0.59 points higher than those unemployed respondents. Self-employed respondents also scored 0.42 points higher than those unemployed at the confidence level of one percent. However, financial literacy scores for respondents employed

in the informal sector were not statistically significant. Owning a bank account and belonging to savings group is also positively connected to financial literacy at the confidence level of one percent.

Columns 2−3 show the estimation results for the determinants of the two categories of the constructed financial literacy score namely, financial knowledge and financial behavior. Generally, the estimation results from these two categories resonate well with the overall financial literacy score save for the varying magnitude of the coefficients.

Table 9: Determinants of Financial Literacy and Financial Knowledge

VARIABLES	(1) Financial literacy	(2) Financial knowledge	(3) Financial behaviour
Urban area	0.504***	0.335***	0.169***
	(0.0739)	(0.0424)	(0.0553)
Male	0.485***	0.371***	0.114**
	(0.0715)	(0.0411)	(0.0536)
Income(K75000-1300000)	0.612***	0.104	0.508***
	(0.125)	(0.0720)	(0.0939)
Income(K130000-225000)	0.768***	0.296***	0.472***
	(0.144)	(0.0829)	(0.108)
Income (> K225,000)	0.894***	0.325***	0.569***

	(0.156)	(0.0895)	(0.117)
Married monogamous	0.285***	0.130***	0.155***
	(0.0734)	(0.0421)	(0.0550)
Primary education	1.359***	0.658***	0.701***
	(0.123)	(0.0705)	(0.0920)
Secondary education	2.426***	1.354***	1.073***
	(0.136)	(0.0778)	(0.102)
Tertiary education	2.538***	1.559***	0.979***
	(0.170)	(0.0978)	(0.128)
Received Financial Education	0.638***	0.279***	0.359***
	(0.0699)	(0.0401)	(0.0523)
Formal sector employment	0.588***	0.396***	0.191*
	(0.146)	(0.0836)	(0.109)
Informal sector employment	0.210	0.316***	-0.106
	(0.153)	(0.0880)	(0.115)
Self-employed	0.416***	0.171***	0.245***
	(0.103)	(0.0593)	(0.0774)
Own saving account	0.860***	0.375***	0.485***
	(0.0950)	(0.0545)	(0.0711)
Belong to saving group	0.624***	0.109**	0.516***
	(0.0739)	(0.0424)	(0.0554)
Constant	6.024***	2.285***	3.739***

	(0.151)	(0.0870)	(0.113)
Observations	4,726	4,726	4,726
R-squared	0.310	0.299	0.150

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

4.2.2 Effect of Financial Literacy on Savings Behavior (marginal effects)

Table 4 shows the regression results that explain the relationship between financial literacy and saving behaviors using Probit estimation in the models 1-3. We find correlation between financial literacy and saving behavior positive and statistically significant at one percent confidence level. Respondents with higher scores have high probability of saving, and an extra score of financial literacy results to a 21.9% likelihood of saving some money. The result is similar with studies conducted by Lusardi (2011), Yoshino et. al (2017), Morgan and Trinh (2019) in Lao PDR, Vietnam and Cambodia where the figures ranged from where the figures ranged from 7-10 percentage points. The results also reveal both positive and negative marginal effects on urban households and male headed households respectively although not statistically significant. All income indicators marginal effects show that they are statistically significant at one percent level. Households with an average monthly income of more than K225,000 are more likely to save by 59% compared to those receiving less than K75,000. Despite that all education indicators are positively related with saving behavior, only primary and secondary school marginal effects are found to be statistically significant at 10% and 1% interval respectively (increasing the likelihood by 9.1%). Married respondents are found to be less likely to save although their marginal effects are not statistically significant at all levels. Although not found statistically significant,

respondents who received some financial education information have more likelihood to save money by 0.43 percentage points. As regards, to type of employment, respondents working in both formal and informal sectors are found to be less likely to save money although not statistically significant, whereas self-employed respondents are found to have higher probability to save (19.3 percentage points) at one percent confidence level. Having a bank account is found to be positively associated with saving decisions despite not being statistically significant. Interestingly, those respondents belonging to Saving groups are more likely to save money by 23% at one percent confidence level. Interesting results worth noting is when we do not control for financial knowledge scores (model 2). Some explanatory variables notably, bank account ownership and tertiary education become statistically significant at both 10% and 1% confidence levels in influencing saving behaviours.

Table 5: Effects of financial literacy on saving decisions

	Probit Estimation (Marginal Effects)		
	(1)	(2)	(3)
VARIABLES	Savings	Savings	Savings
Financial literacy		0.335***	0.219***
		(0.0132)	(0.00943)
Financial knowledge	0.0980***		0.0925***
	(0.0146)		
Financial behaviour		-	
location	0.111***	0.0685	0.0336

	(0.0431)	(0.0460)	(0.0451)
Gender	0.0132	-0.00415	-0.0554
	(0.0423)	(0.0449)	(0.0440)
Income(K75000-1300000)	0.387***	0.259***	0.281***
	(0.0780)	(0.0830)	(0.0813)
Income(K130000-225000)	0.600***	0.533***	0.506***
	(0.0969)	(0.104)	(0.101)
Income (> K225,000)	0.698***	0.603***	0.589***
	(0.107)	(0.115)	(0.113)
Married	0.0368	-0.00592	-0.00709
	(0.0428)	(0.0456)	(0.0449)
Primary education	0.320***	0.179**	0.125*
	(0.0694)	(0.0742)	(0.0729)
Secondary education	0.633***	0.446***	0.302***
	(0.0793)	(0.0846)	(0.0826)
Tertiary education	0.467***	0.286***	0.111
	(0.102)	(0.109)	(0.106)
Received Financial Education	0.145***	0.0521	0.0421
	(0.0407)	(0.0434)	(0.0427)
Employed formal sector	-0.0352	-0.0916	-0.135
	(0.0878)	(0.0934)	(0.0915)
Employed informal sector	0.0214	0.0614	-0.00252

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	(0.0884)	(0.0940)	(0.0923)
Self-employed	0.249***	0.203***	0.193***
	(0.0596)	(0.0636)	(0.0625)
Own saving account	0.237***	0.109*	0.0897
	(0.0580)	(0.0618)	(0.0607)
Belong to saving group	0.345***	0.195***	0.233***
	(0.0438)	(0.0467)	(0.0459)
Constant	-0.947***	-2.218***	-2.139***
	(0.0933)	(0.112)	(0.110)
Observations	4,726	4,726	4,726

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: dy/dx for factor levels is the discrete change from the base level.

5.0 C0NCLUSION

This paper uses cross-sectional data from the 2018 Household Financial Capability Follow-up Survey to investigate the determinants and effects of financial literacy on households saving behaviours. Our results reveal that 64% of individuals in Malawi save money. Whereas, 22% of individuals saved formally (banks, financial cooperatives and MFIs) and the rest of respondents adopted informal methods of saving, for instance with Village Loan Associations, at home, with friends or relatives.

Generally, the results are similar to those other studies in different countries albeit few differences. The overall financial literacy score for Malawi was found to be 9.7 which is considered low compared to other countries as reported by OECD (2016). However, the results seem to be positive in Malawian context considering that the financial market is concentrated and also that levels of per capita income is low. Further, the study reveals a positive and highly significant correlation between financial literacy and gender, location, education level, monthly income level, occupation, financial education, bank account ownership and belonging to saving club.

The study also reveal that financial literacy has statistically significant implications on saving behaviors of households. Households having higher financial literacy scores have higher probability of saving than those with lower scores, even when education and income indicators are controlled. Further, the results reveal that those people with higher income and higher education levels have higher probability to save money. As regards to nature of occupation, those households with self-employment are found to be more likely to save compared to other categories. Whereas belonging to a saving club also increase the likelihood to save money.

The results posit the importance of designing and developing deliberate policies aimed to promote financial literacy levels across all segments of the Malawian population. The efforts will go a long way to have positive impact on saving behaviors of most Malawian households. To this end, the Ministry of Finance and Economic Development should expedite launching of National Financial Literacy Strategy (Strategy) which is still in draft form but will have to guide implementation of various financial literacy programmes in Malawi. Further to this, a monitoring and evaluation framework should be developed to track progress of financial literacy initiatives to be implemented.

Whilst waiting for the launching of the Strategy, deliberate efforts should be made on improving financial literacy of people when accessing financial services and products. For instance, financial institutions should be compelled to offer financial education highlighting the importance of saving during the opening of bank accounts. This will assist to instill financial discipline among people when maintaining the bank account.

The findings revealed that a small percentage of people in Malawi save their money with commercial banks and higher charges of maintaining bank accounts was cited as one of the reasons for the low uptake. The Reserve Bank of Malawi, as a regulator should therefore issue regulation to prohibit commercial banks impose charges and other fees on saving accounts. This will entice financial consumers to keep their money with banks as they will be guaranteed of their money growing overtime unlike the present scenario where it depletes due to account maintaining fees. This will also enable commercial banks to have capacity to lend out money for investment purposes.

Considering that financial literacy is expensive and requires sustainability, there is need to establish a financial literacy basket fund. All stakeholders concerned with financial literacy initiatives should contribute towards this fund for implementation purposes. The Reserve Bank should also consider introducing financial literacy levy to all financial service providers in the country which will go towards the implementation of financial literacy initiatives. Financial institutions are likely to benefit from financial literacy programmes being implemented as the numbers accessing their products will increase overtime.

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7.0 APPENDICES

Appendix 1. Financial Knowledge questions asked in the survey

Knowledge	Questions	Response choices
Division	1.Imagine that five sisters are offered a gift of MK1,000. How much does each one receive if they have to portion the money equally?	MK| __ | __ | __ | __ |
Inflation	2. What if the sisters decide to wait for one year to receive their portion of the MK1,000 and inflation remains at 3%. After one year, will they manage to buy:	1.in excess of they could today? 2.The equal amount? 3. Below what they could buy today? 4. It depends on the kinds of stuff that they are willing to buy
Simple interest	**3** Assume you deposit MK1000 into a savings account with an assured interest rate of 2% per annum. Neither you deposit any money into this account nor withdrawal any amount and no extra fees are charged. How much would the account have after payment of the interest at the end of the first year?	MK| __ | __ | __ |

Compound interest	**4** And at the end of five years, how much would the account have if previous interest is taken into consideration when calculating the new interest ? Would it be:	1. Over MK1100 2. Exactly MK1100 3. Below MK1100 4. Difficult to tell from the given options
Absolute and Percentage Discounts	5. Suppose that two different shops are selling a radio of the same model at retail price of MK1000. One shop offer MK150 as a discount where the other offer a 5% discount. Which one is a better transaction - a deduction of MK150 or 5%?	1. MK150 discount 2. They are equivalent 3. A 5% discount
Insurance	6. Which of the subsequent statements best explains the main functions of insurance products?	1. To accrue savings 2. To safeguard against risk 3. To transfer money 4. Other (specify)
Risk Diversification	7. Assume you have cash to invest. Is it wise to purchase shares of several companies just a single company?	1. Invest in the shares of one company 2. Buy shares of several companies

Appendix 2: Financial behavior and attitudes questions

	Questions in the survey	Comment
Budget	When you receive money, do you plan how it will be used?	A value of one is assigned when the response is yes otherwise 0
Keep track of finances	Do you <u>always</u> keep to the plan you make for using your money?	A value of one is assigned when the response is yes otherwise 0
Active saving	What do you and your household do with any money you have left over?	A value of one is assigned when a respondent answers yes on options that depict saving, otherwise zero
Making ends meet	What do you and your household do when you run short of money for food or other necessary items?	A value of one is assigned when an individual responds to the given options that do not depict borrowing, otherwise zero
Setting of long term financial goal	I try to save money for the future	1 is assigned when respondent answers yes 0 otherwise

Product Choice	1. Did you consider any alternatives before you decided which financial PRODUCT to access?	one if yes and zero otherwise
Financial attitude	To what level do you agree/disagree with the following statement?	
	I only focus on the short term than saving for the long term	**1** is assigned if respondent answered agree to some extent/strong agree **0** otherwise
	I only pay attention on the short term than saving for the long term	**1** is assigned if respondent answered agree to some extent/strong agree **0** otherwise
	I am disciplined when it comes to managing finances	**1** is assigned if respondent answered agree to some extent/strong agree **0** otherwise