International Journal of Consumer Studies

International Journal of Consumer Studies ISSN 1470-6423

Financial literacy and savings decisions by adult financial consumers in Zimbabwe

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Keywords
Financial consumers, financial literacy, savings behaviour, Zimbabwe.

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doi: 10.1111/ijcs.12318

Abstract

We use survey data from a sample of 4000 adult financial consumers in Zimbabwe to analyse the determinants of financial literacy and its effect on individual's savings decisions. Results show that women have lower financial literacy than men. Furthermore, individuals' residing in rural areas exhibit lower financial literacy compared with urban financial consumers. Financial literacy and financial services interventions targeting women and rural individuals should be strengthened. Econometric results show that financial literacy positively influences savings behaviour for both rural and urban individuals. Furthermore, financial literacy positively influences informal and formal savings. Policy interventions that foster financial literacy are needed to improve individuals saving behaviours.

Introduction

Financial markets around the world are increasingly offering new financial products and services (Lusardi and Mitchell, 2014). The substantial and widespread increase in a variety of financial instruments implies that people are today required to take increasing responsibility for managing how they borrow, save and invest (Sevim *et al*., 2012; Lusardi and Mitchell, 2014). Despite the increase in financial products, many of them are complex and difficult to understand, especially by the financially illiterate consumers. Financial literacy and education trainings have been undertaken to equip consumers with knowledge to make appropriate financial decisions. According to Lusardi and Mitchell (2014), financial literacy refers to people's ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt and pensions.

Financial literacy is related to financial behaviours and consequently to borrowing, saving and investments decisions of individuals (van Rooij *et al*., 2011a; Jappelli and Padula, 2013; Lusardi and Mitchell, 2014). People who make sound financial decisions and who effectively interact with financial service providers are more likely to hedge against financial and economic risks and improve their household's welfare. Improving financial literacy has therefore been identified as a public policy objective to improve welfare through better decision making (Huston, 2010; Lusardi and Mitchell, 2014). Furthermore, financial literacy trainings and interventions have been proposed to complement interventions that promote financial inclusion especially in developing countries. Recently, researchers have started to examine financial literacy and its implications on household financial decisions such as savings, borrowing, investing and debt behaviour (Lusardi and Mitchell, 2007; Cole *et al*., 2011; van Rooij *et al*., 2011a,b; Sevim *et al*., 2012; Jappelli and Padula, 2013; Landerretche and Martinez, 2013; Karlan *et al*., 2014; Sayinzoga *et al*., 2016; Gaudecker, 2015). For example, Jappelli and Padula (2013) using data from European countries predict that financial literacy and wealth are strongly correlated. Using survey data on India and Indonesia, Cole *et al*. (2011) show that financial literacy is a powerful predictor of the demand for financial services.

The majority of studies analysing the effects of financial literacy on financial outcomes have been confined to developed countries (Lusardi and Mitchell, 2007; Bucher-Koenen and Lusardi, 2011; van Rooij *et al*., 2011a,b; Jappelli and Padula, 2013; Landerretche and Martinez, 2013; Gaudecker, 2015). There are however, fewer studies analysing the effects of financial literacy on financial behaviours in developing countries (Cole *et al*., 2011; Sevim *et al*., 2012; Despard and Chowa, 2014; Doi *et al*., 2014; Karlan *et al*., 2014; Sayinzoga *et al*., 2016). In particular, little is known on how financial literacy influence savings behaviours of households in developing countries. Furthermore, the location and gender disaggregated effects of financial literacy on saving decisions have not been explored.

A good understanding of financial literacy in developing countries has been constrained by lack of comprehensive and reliable data. With the emergency of Global Financial Inclusion databases and Financial Access Surveys, it is now possible to assess how individuals in developing countries save, borrow and make financial decisions (Klapper and Singer, 2014). This

is of particular relevancy to understand how individuals living in environments characterized by low financial inclusion and poor financial institutions save.

We use data from FinScope Consumer Survey and make a contribution to the scanty literature on financial literacy in developing countries. The purpose of this article is threefold. First, we examine the determinants of financial literacy. Understanding the determinants of financial literacy is important to identify financial literacy areas that need improvement and priority segments of the population which could be targeted with specific interventions. Second, we analyse the effect of financial literacy on financial savings behaviour by financial consumers in Zimbabwe. Furthermore, understanding the effects of financial literacy on savings behaviour is critical for designing strategies that enhance savings culture. Third, we analyse the location and gender specific effects of financial literacy on savings decisions. We address the problem of causality between financial literacy and savings. We use an instrumental variables (IV) approach and use financial literacy at the regional level to estimate the effect of financial literacy on savings behaviour.

The remainder of this article is organized as follows. In the next section, we present literature on the linkages between financial literacy and financial behaviour. We then discuss the empirical model specification and estimation issues, followed by a description of the methodology used. Empirical results are presented and discussed. The last section concludes and discusses policy implications.

Financial literacy and financial behaviour

An emerging body of empirical studies find that low financial literacy is associated with inefficient financial portfolio allocations and low wealth accumulation (van Rooij *et al*., 2011a,b; Sevim *et al*., 2012; Jappelli and Padula, 2013; Karlan *et al*., 2014; Lusardi and Mitchell, 2014). van Rooij *et al*. (2011b) analysed the relation between financial literacy and wealth using data from Dutch Household Survey. The financial literacy module contained questions on the ability to perform simple calculations and to understand compound interest, inflation and money illusion, and advanced questions on functioning of stock market, characteristics of stocks, mutual funds, equity premiums and the benefits of diversification. The study found that financial literacy is associated with higher wealth, higher probability to invest in the stock market and higher probability to plan for retirement. van Rooij *et al*. (2011a) using the same data concludes that individuals who attain higher levels of financial literacy are more likely to think about retirement. Jappelli and Padula (2013) used data from 14 European countries (Austria, Belgium, Denmark, France, Greece, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, Czech Republic, Poland and Ireland) on Survey of Health, Ageing and Retirement to analyse the effect of financial literacy on wealth and saving. Using the stock of financial literacy early in life as an instrument to control for potential endogeneity of financial literacy, the study found that financial literacy is positively correlated with wealth and savings decisions. Calcagno and Monticone (2015) used the 2007 Unicredit Customers Survey data to investigate the effect of financial literacy on the demand for financial advice vs. delegation in Italy. The empirical findings confirm that financial literacy increases the probability of consulting a financial advisor.

In developing countries, studies on the effects of financial literacy are still few. Using experimental data from Indonesia and India, Cole *et al*. (2011) found that financial literacy positively influences the demand for financial services. The study demonstrates that financial literacy increases the probability of opening a bank savings account. Sevim *et al*. (2012) estimate the effect of financial literacy of Turkish financial consumers on the borrowing behaviour. The authors found that individuals with higher financial literacy were less likely to exhibit excessive borrowing. This suggest that policy efforts to increase financial literacy may have important implications in the prevention of excessive borrowing. Sayinzoga *et al*. (2016) used a field experiment and found that financial literacy is an important determinant of financial decision making among farmers in Rwanda. The results reveal that financial literacy training increased savings and encouraged nonborrowing farmers to take up loans.

Methodology

Data

Data used in this article came from the FinScope Consumer Survey commissioned by FinMark Trust to assess financial access in Zimbabwe. The survey assesses how adult individuals source their incomes and manage their financial lives. The survey collected information on demographics, individual attitudes and perceptions regarding financial products and services and use of financial products and services. The survey was conducted by Research Continental-Fonkom in July and August 2014. The sampling frame and weighting of the data was conducted by Zimbabwe National Statistics Agency. The study was based on a nationally representative sample of adults who are 18 years or older. A total of 4000 face-to-face interviews were conducted and the sample is representative at national, urban/rural and provincial levels and is shown in Table 1.

Table 1 Survey sample disaggregated by location

		Rural		Urban	
Province	Total	n	%[a]	n	%[a]
Bulawayo	216	–		216	100
Manicaland	536	435	81	101	19
Mashonaland Central	345	332	96	13	4
Mashonaland East	427	384	90	43	10
Mashonaland West	452	339	75	113	25
Matabeleland North	210	180	86	30	14
Matabeleland South	203	165	81	38	19
Midlands	470	341	73	129	27
Masvingo	442	389	88	53	12
Harare	699	50	7	649	93
Total	4000		65		35

[a]Denotes percent over total of each location.

Measurement of financial literacy and savings

Financial literacy

In literature, there are several widely used definitions of financial literacy. However, all of them generally imply the ability of individuals to obtain, understand and evaluate information required to make decisions to secure their financial future as best as possible (Huston, 2010; Despard and Chowa, 2014; Fernandes *et al*., 2014). Financial literacy was measured by a series of questions that asked the individuals' perception of finances (financial attitude), financial matters (financial confidence), savings and awareness of financial terms (financial knowledge) (See Appendix). The perceptions on finance is measured through response to questions that pertain to how respondents deal with money in their daily lives. A total of six items are used to understand for example whether respondents track their income and expenditures. The response to each question is given a score of one if it indicates desirable financial behaviour; zero otherwise. The individuals' attitude to financial matters is measured using five items to capture the extent of respondents' belief in financial planning, and making provisions for the future. The responses are measured using a dummy variable, where one indicates desirable financial behaviour, zero otherwise. The perceptions on savings of respondents is measured using nine items to capture the extent of respondents' belief in propensity to save. The response to each question is given a score of one if it indicates desirable propensity to save; zero otherwise. The respondents' knowledge of financial terms was measured by asking whether they know what capital markets, stock exchange, shares and unit trust are. A correct answer was recorded as one and zero otherwise.

This study uses a composite score for measuring financial literacy. From the series of scale items related to financial literacy, principal component factor analysis was used to sort out and classify these variables and compute financial literacy index (Sevim *et al*., 2012). Only factors with eigenvalues greater than 1 were retained and the Cronbach's alpha value of 0.79 confirm the factor's internal consistency (Vyas and Kumaranayake, 2006; Sevim *et al*., 2012; Field, 2013). The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.82, indicating that the sample was adequate for factor analysis (Field, 2013). The Bartlett test for sphericity was 2900 ($P = .000$), indicating that the hypothesis variance and covariance matrix of variables as an identity matrix were rejected; therefore, factor analysis was appropriate. Three factors had an eigenvalue equal to or greater than 1.0 explaining a total of 93% of the variance. (Sahn and Stifel, 2000; Vyas and Kumaranayake, 2006; Field, 2013). The first, second and third factors explained 44.92%, 30.85% and 17.70% of total variance respectively. The first factor explaining 45% of the variation is assumed to be our measure of financial literacy (Sahn and Stifel, 2000). A positive financial literacy index means that the individual has a higher financial literacy. It is important to note that in the definition of financial literacy topics such as taxes, insurance and investing were not covered because of lower tax collection rates and less access to formal employment, insurance and personal investment markets in developing countries (Despard and Chowa, 2014).

Savings

Our main interest is to explain how financial literacy influences individual savings. We measure savings as a dummy variable recorded as one if individual saved in the past 12 months. Savings is not simply a binary choice because individuals can choose from an array of products, which can be classified as formal (savings with formal financial institutions, such as a bank, MFI and rural cooperative) vs. informal savings (savings informal or unregistered institutions and mechanisms, for example community savings group, under the mattress or in jewellery or livestock) (Dupas and Robinson, 2013; Karlan *et al*., 2014; Klapper and Singer, 2014). To measure the individual saving portfolios, our dependent variable is specified in three levels (a) none; (b) formal savings and (c) informal savings (Klapper and Singer, 2014).

Estimation strategy

Determinants of financial literacy

To quantify the determinants of financial literacy, the following ordinary least squares (OLS) model is estimated:

$$\mathrm{FL} = \beta \boldsymbol{X} + \varepsilon \tag{1}$$

where FL is financial literacy. $\boldsymbol{X}$ is a vector of regressors influencing financial literacy and β is a vector of parameters to be estimated. Guided by literature, for example, Jappelli and Padula (2013), the following explanatory variables are used: continuous variables for age, its squared term, gender, household size, head monthly income, completed level of education, rural (vs. urban) residence, access to information (Television, radio and mobile phone ownership), mobile money use, bank account ownership, savings club membership.

Effect of financial literacy on savings behaviour

To quantify the effect of financial literacy on savings behaviour, the following model is estimated:

$$S = \delta \mathrm{FL} + \beta \boldsymbol{X} + \varepsilon \tag{2}$$

where S is the dummy variable of whether individual saved in the past 12 months or not. FL is financial literacy and the parameter δ measures the effect of financial literacy on savings behaviour. $\mathbf{X}$ is a vector of regressors influencing the outcome variable, and β is a vector of parameters to be estimated.

Fernandes *et al*. (2014) highlights that incentives to invest in financial literacy may affect the relation between literacy and saving and therefore there exists endogeneity of financial literacy with respect to saving decisions. Hence, to obtain unbiased estimates of the effect of financial literacy, an estimation approach that accounts for the potential endogeneity of financial literacy is needed. Lusardi and Mitchell (2014) highlights that most authors have used instrumental variables (IV) estimation to assess the impact of financial literacy on financial behaviour and results tend to be convincing. For our case, we therefore, estimate Equation (2), using instrumental variables probit regression (IV probit). Finding an appropriate instrument is a challenge in empirical research. Potential instruments that

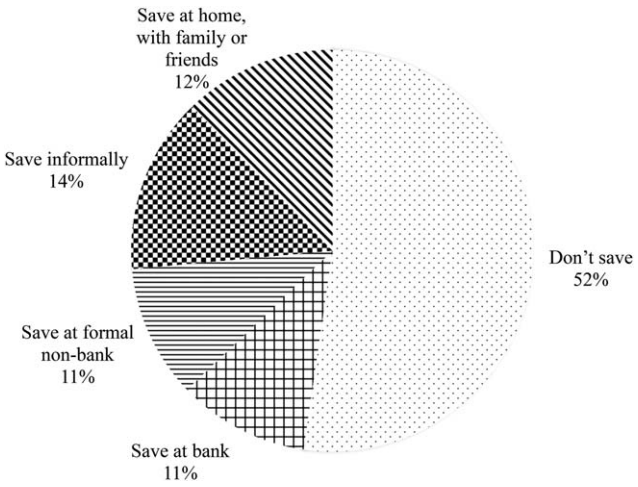

Figure 1 Proportion of individuals using different saving mechanisms.

were tested include the average financial literacy at regional level, trust in advisors and trusts in banks and whether the respondent worked in managerial or professional occupation (Fernandes *et al*., 2014).

Based on literature (e.g. Klapper and Singer, 2014; Prina, 2015) and our data set, the following variables are included in the regression: age, its squared term, gender, household size, head monthly income, completed level of education, rural (vs. urban) residence, access to information (Television, radio and cell phone ownership). Prina (2015) found that access to the bank account positively influenced household saving behaviour in Nepal. In our regression, we included variables that capture access to financial products – mobile money use, bank account ownership and savings club membership to assess how they affect savings behaviour. Following, Bilgic *et al*. (2013) we calculated the variance inflation factors (VIFs) for all explanatory variables. All VIFs are very small, ranging from 1.06 for household size to 1.66 for television ownership, suggesting multicollinearity was not an issue among explanatory variables in the equations.

Effect of financial literacy on savings portfolio

In effect of financial literacy on savings behaviour section, we discussed the econometric approach to analyse the effect of financial literacy on savings decision. However, individuals usually adopt different savings portfolios in an effort to maximize returns. As discussed earlier, savings is not simply a binary choice because individuals can choose from an array of formal and informal saving mechanisms (Karlan *et al*., 2014; Klapper and Singer, 2014). To account for individual's choice of savings portfolio, we use multinomial logit regression for estimation. In the regressions a choice between three outcomes is classified: (a) none; (b) formal savings and (c) informal savings (Klapper and Singer, 2014).

Results and discussion

Descriptive results

Figure 1 shows the different saving mechanisms utilized by individuals in Zimbabwe. Fifty two percent of the individuals did not save. Eleven percent saved through the bank and this implies that they own a savings account. About 11% of the individuals saved through other formal mechanisms and these may include saving through mobile money, cooperatives and microfinance institutions. The remainder of the individuals saved through informal mechanisms (14%) and saved at home, with family or friends (12%). Merging the different saving mechanisms into formal and informal, results show that 22% of the adult population relied on formal saving mechanisms and 26% resorted to informal saving portfolios. The reasons for not saving are linked to the poor economic situation prevailing in the country.

To gain important insights about which people most lack financial knowledge, we perform a disaggregated assessment of financial literacy. In the following subsection, we briefly review evidence of financial literacy by saving status, location and gender. Individuals that saved through any mechanism have on average financial literacy index of 0.37 which is significantly higher compared with the index score of −0.34 for those that did not save. The mean difference of 0.71 is statistically significant at the 1% level based on *t*-test results. These results suggest that individuals that have higher financial literacy are more likely to save than those with low financial literacy. While these descriptive differences cannot be interpreted as causal impacts, they provide an indication that there may be structural differences in savings behaviours between those that higher financial literacy and those with low financial literacy. In the following sections, we use econometric techniques to identify the effect of financial literacy. Rural individuals have lower financial literacy of −0.16 compared with 0.31 for individuals residing in urban locations. Financial literacy scores disaggregated by gender of respondent, show that women have lower financial literacy of −0.07 than 0.09 for men. Lusardi and Mitchell (2014) and Jappelli and Padula (2013) found similar results with regard to gender. These results make rural individuals and women ideal targets for financial education programs.

Table 2 presents the descriptive statistics of explanatory variables included in the econometric models differentiated by savings status. For some of these variables, we observe significant differences between those that save and not. On average, individuals that did not save reside in households with bigger family sizes. There are also significant differences with respect to location, education levels and access to information. Better educated individuals, those residing in urban locations and those with better access to information are likely to save. Individuals that save have access to financial products such as mobile money, savings account and belong to savings club.

Econometric results

Determinants of financial literacy

In Table 3, we report OLS regression for financial literacy. The age squared coefficient is negative and significant suggesting that older individuals have low financial literacy. Jappelli and Padula (2013) suggest that this could be because older generations have less financial literacy than the younger ones. Women have lower financial literacy than men and this resonates with Jappelli and Padula (2013), who find that women are less

Table 2 Descriptive statistics of explanatory variables

				Mean by saving status		
Variable	Description	Min	Max	Saved	Did not save	Differences
Age	Age of household head (years)	18	85	40.299	39.932	−0.37
Age squared	Age of household head squared (years)	324	7225	1847.174	1878.201	31.03
Gender	Gender of household head (male = 1)	0	1	0.453	0.400	−0.05***
Household size	Household size (number of individuals)	1	10	4.472	4.757	0.29***
Location	Location of household (urban = 1)	0	1	0.428	0.271	−0.16***
Head monthly income (USD)	Head monthly income from all sources	1	6000	263.195	112.525	−150.67***
Education	Secondary education and above	0	1	0.701	0.530	−0.17***
Television	Household own television (dummy)	0	1	0.553	0.308	−0.24***
Radio	Household own radio (dummy)	0	1	0.623	0.524	−0.10***
Mobile phone	Household own mobile phone (dummy)	0	1	0.887	0.769	−0.12***
Mobile money use	Household use mobile money	0	1	0.661	0.397	−0.26***
Savings club	Membership in savings club	0	1	0.287	0.027	−0.26***
Savings Account	Own savings account	0	1	0.236	0.031	−0.21***
Observations				*1907*	*2091*	

***indicates the corresponding mean differences are significant at the 1% level.

financially skilled. Individuals living in urban areas have higher financial literacy than those in rural areas. With regards to gender and location, the policy implication is that financial literacy education and interventions targeting women and rural individuals should be strengthened in Zimbabwe. Education and television ownership positively affect financial literacy and this highlights the importance of information access. Bucher-Koenen and Lusardi (2011) also report that financial literacy and education are highly correlated. The use of financial products, mobile money and savings products positively influence financial literacy. As people begin using financial services, they become more familiarized with them and knowledgeable about them through learning by doing and this influences financial literacy.

Effect of financial literacy on savings behaviour

The results of the IV probit and probit model are shown in Table 4. In both specifications, financial literacy has a positive and significant effect on saving behaviour. The probit estimates may be biased for various reasons. First, it may be that it is savings that affects financial literacy rather than the other way around: Those who have saved have acquired financial literacy, and our estimates are biased upward. Second, there might be an omitted variable bias because of missing information on motivation to think about financial topics, which biases our estimates upward. Third, there can be measurement error in the financial literacy variables that can bias the estimates downward (Bucher-Koenen and Lusardi, 2011). Overall, the bias in the probit estimation could be positive or negative. In order to address these potential problems, we use IV estimation. We use mean financial literacy at ward level as an instrument for financial literacy (Fernandes *et al*., 2014). In the IV probit model, the parameters ath(ρ) is insignificant, indicating that there is no selection on unobservables (Miyata *et al*., 2009; StataCorp, 2013). We, therefore, rely on probit regression for estimation presented in column 6. Our econometric results show that financial literacy positively influences individual's savings decisions. An increase in financial literacy by one index point increases the probability of saving by 17% points. This results demonstrate that financial literacy is important for fostering savings.

Gender seems to have any significant effect on savings decisions. Male individuals are more likely to save than their female counterparts. Women lack access to production and financial resources and financial services. This implies that interventions to increase financial literacy and financial service such as savings have to pay attention on women. In Table 6, we further analyze the gender dissagregated effects by running the econometric models separately for male and female individuals. Household size negatively influences the likelihood to save. Income and access to financial saving products – mobile

Table 3 Determinants of financial literacy – OLS regression

	Coef	Std. err.
Age	0.016***	0.005
Age squared	−0.000***	0.000
Gender	0.152***	0.030
Household size	0.001	0.007
Location	0.114***	0.037
Head monthly income	0.000***	0.000
Education	0.278***	0.036
Television	0.226***	0.038
Radio	0.041	0.030
Mobile phone	0.014	0.040
Mobile money use	0.114***	0.033
Savings club	0.217***	0.036
Savings Account	0.406***	0.043
Constant	−0.939***	0.115
Observations	*3390*	
F statistic	*78.63***	
R-square	*0.21*	

*, **, *** indicates the corresponding coefficients are significant at the 10%, 5% and 1%. levels respectively.

Table 4 Estimated effects of financial literacy on savings decision

	IV Probit					
	Savings		Financial literacy		Probit model	
	Coef	Std. err.	Coef	Std. err.	AME	SE[a]
Financial literacy	0.498*	0.267			0.167***	0.012
Age	0.021**	0.010	0.016***	0.005	0.009***	0.003
Age squared	−0.000	0.000	−0.000***	0.000	−0.000*	0.000
Gender	0.145**	0.068	0.148***	0.030	0.062***	0.020
Household size	−0.042***	0.012	0.000	0.007	−0.017***	0.005
Location	−0.101	0.072	0.080**	0.037	−0.037	0.026
Head monthly income	0.001***	0.000	0.000***	0.000	0.000***	0.000
Education	0.009	0.098	0.276***	0.035	0.013	0.024
Television	0.137	0.089	0.229***	0.037	0.062**	0.025
Radio	0.067	0.054	0.041	0.030	0.028	0.021
Mobile phone	0.185***	0.069	0.017	0.040	0.074***	0.027
Mobile money use	0.243***	0.064	0.114***	0.032	0.100***	0.021
Savings club	1.438***	0.119	0.218***	0.040	0.462***	0.018
Savings account	0.714***	0.151	0.415***	0.045	0.274***	0.030
Ward financial literacy			0.724***	0.113		
Constant	−1.181***	0.336	−0.930***	0.112		
Observations	*3390*				*3390*	
Wald chi^2	*793***				*802***	
Pseudo R-square	–				*0.27*	
Log pseudo likelihood	*5864.733*				*−1720.66*	
ath(ρ)	*−0.066*	*0.226*				
lnsigma	*−0.196***	*0.012*				

[a]Robust standard errors are reported. For probit models the marginal effects are for discrete change of dummy variable from 0 to 1. *, **, *** indicates the corresponding coefficients or average marginal effects (AME) are significant at the 10%, 5% and 1% levels respectively.

Table 5 Estimated effects of financial literacy on savings decision by location

	Rural		Urban	
	AME	SE[a]	AME	SE[a]
Financial literacy	0.179***	0.015	0.129***	0.019
Age	0.010**	0.004	0.007	0.006
Age squared	−0.000*	0.000	−0.000	0.000
Gender	0.048*	0.025	0.078**	0.032
Household size	−0.012**	0.006	−0.022***	0.008
Head monthly income	0.000***	0.000	0.000*	0.000
Education	−0.018	0.028	0.103**	0.047
Television	0.080**	0.032	0.031	0.039
Radio	0.037	0.025	0.015	0.032
Mobile phone	0.060**	0.030	0.130**	0.058
Mobile money use	0.079***	0.026	0.137***	0.036
Savings club	0.517***	0.024	0.360***	0.024
Savings account	0.213***	0.051	0.277***	0.032
Observations	*2230*		*1160*	
Wald chi^2*(11)*	*482****		*287****	
Pseudo R-square	*0.24*		*0.29*	
Log pseudo likelihood	*−1158.02*		*−551.24*	

[a]Robust standard errors are reported. For probit models the marginal effects are for discrete change of dummy variable from 0 to 1. *, **, *** indicates the corresponding average marginal effects are significant at the 10%, 5% and 1% levels respectively.

Table 6 Estimated effects of financial literacy on savings decision by gender of respondent

	Female		Female	
	AME	SE[a]	AME	SE[a]
Financial literacy	0.174***	0.017	0.159***	0.018
Age	0.004	0.005	0.012**	0.005
Age squared	−0.000	0.000	−0.000**	0.000
Household size	−0.023***	0.007	−0.010	0.007
Location	−0.060*	0.034	0.003	0.042
Head monthly income	0.000***	0.000	0.000**	0.000
Education	0.028	0.033	−0.003	0.035
Television	0.035	0.035	0.097***	0.037
Radio	0.009	0.028	0.049	0.031
Mobile phone	0.007	0.036	0.167***	0.042
Mobile money use	0.124***	0.029	0.064**	0.032
Savings club	0.529***	0.022	0.355***	0.033
Savings account	0.302***	0.044	0.240***	0.041
Observations	*1923*		*1467*	
Wald chi^2*(11)*	*486.09****		*335.22****	
Pseudo R-square	*0.30*		*0.23*	
Log pseudo likelihood	*−931.049*		*−775.198*	

[a]Robust standard errors are reported. For probit models, the marginal effects are for discrete change of dummy variable from 0 to 1. *, **, *** indicates the corresponding average marginal effects are significant at the 10%, 5% and 1% levels respectively.

Table 7 Effect of financial literacy on savings portfolio

	Formal		Informal	
	Coef	Std. err.	Coef	Std. err.
Financial literacy	0.976***	0.077	0.645***	0.054
Age	0.108***	0.020	0.036**	0.015
Age squared	−0.001***	0.000	−0.000*	0.000
Gender	0.493***	0.110	−0.111	0.090
Household size	−0.093***	0.027	−0.057***	0.022
Location	0.106	0.137	−0.328***	0.118
Head monthly income	0.003***	0.000	0.001***	0.000
Education	0.591***	0.145	−0.007	0.102
Television	0.701***	0.137	0.137	0.112
Radio	0.099	0.113	0.087	0.090
Mobile phone	0.431**	0.180	0.389***	0.117
Mobile money use	1.233***	0.127	0.184**	0.092
Constant	−6.347***	0.492	−1.750***	0.339
Observations	*3390*			
Wald chi^2(24)	*751****			
Log pseudo likelihood	*−2859*			

*, **, *** indicates the corresponding coefficients are significant at the 10%, 5% and 1% levels respectively.

money, saving club and savings accounts positives influences individuals' savings behaviour. These results highlight the importance of promoting financial products in developing countries.

Individuals who lack financial literacy most often reside in remote areas (Servon and Kaestner, 2008), and are less likely save through banks. In addition, banking infrastructure is poor in rural areas compared with urban areas. We therefore estimated savings decisions and savings portfolios separately for rural and urban individuals. Results show that an increase in financial literacy positively influences the propensity to save for both rural and urban individuals (Table 5). One index point increase in financial literacy increase the probability to save by 18 and 13 percent points for rural and urban individuals respectively.

In our earlier analysis, we used a dummy variable to capture gender effects. However, this may potentially masks the gender disaggregated effects of financial literacy. Table 6 shows the gender disaggregated effects of financial literacy on savings behaviour. Financial literacy increases the probability to save by 17 and 16% points for female and male individuals respectively. Results show that financial literacy plays a positive role on female and male individual's decisions to save. This results underscores the importance of gender disaggregated analysis. Male individuals of older generations are likely to save than those of younger generation. For female individuals, larger household sizes are associated with a lower probability of saving. Household income, mobile money use, savings club and savings account increase the probability of saving for both male and female individuals. These results highlight that policy efforts that promote mobile money use, savings clubs and savings account play an important role on male and female individuals' saving decisions. Access to information through television and mobile phone increase the likelihood to save for male individuals only. This result could be due to the fact that women have limited assets and access to information than man because of various social and economic discriminations.

Effect of financial literacy on savings portfolio

The multinomial logit regression estimates of the effect of financial literacy on savings portfolio are shown in Table 7. Individuals who did not save are used as the base category. Our econometric results presents an interesting story. Financial literacy increases the likelihood to save by 98 and 65% points through the formal and informal savings mechanisms respectively. These results imply that there is scope to promote intervention that enhance financial literacy, even for the majority of rural individuals who use informal savings portfolios. The age squared coefficient is negative and significant suggesting that as individuals become older the propensity to save falls. This resonates with Jappelli and Padula (2013), who suggested that older households have less incentive to invest. The gender variable is only significant in the formal savings portfolio, suggesting that male financial consumers are likely to save through formal mechanisms. Household size is negative and highly significant in both savings portfolios, indicating that households of bigger sizes are more likely not to save. The location variable is negative and highly significant in the informal savings. This implies that individuals residing in rural areas tend to save informally. Lack of banking infrastructure – both physical banks and mobile banks in rural areas forces individuals to rely on informal saving schemes. Furthermore, the collapse of the financial system and hyperinflationary environment in Zimbabwe over the past 10 years could have acted as a disincentive for individuals to save through formal channels.

Conclusion and policy implications

This study uses data from the FinScope Survey to assess the determinants of financial literacy and its effect on individual savings behaviour. Our results show that 52% of the individuals in Zimbabwe did not save. Eleven percent saved through the bank while 11% saved through other formal mechanisms and these may include saving through mobile money, cooperatives and microfinance institutions. The remainder of the individuals saved through informal mechanisms, for example at home, with family or friends.

Education and access to information through television ownership positively influence financial literacy. Access to financial products such as mobile money and savings positively influence financial literacy. Individuals living in urban areas have higher financial literacy than those in rural areas. We utilized alternative econometric techniques to analyse the effect of financial literacy on saving behaviour. Based on probit and IV probit, results show that financial literacy has a positive and significant effect on savings behaviour. Financial literacy increases the probability to save by 17 and 50% points based on the probit and IV probit regression results. Our results also suggest that financial literacy is important for savings decisions of both rural and urban individuals. Financial literacy increases the probability to save by 17 and 15% points for female and male individuals respectively. Furthermore, financial literacy positively influence both informal and formal savings decisions.

The analysis carried out in this article is relevant for both scholars and policy makers because it addresses timely policy issues and contributes to the recent literature on the importance of financial literacy and savings behaviour in developing countries. Interventions that promote financial information access are crucial for enhancing financial literacy. Policy efforts that promotes financial literacy are crucial as this has a positive effect on individual saving behaviour. Financial literacy is important for promoting savings behaviour for both rural and urban financial consumers as well as female and male individuals. We show that there is scope for interventions that increase financial literacy among rural individuals and women, segments of the society who often lack access to financial resources. Furthermore financial literacy is crucial for informal and formal saving decisions.

Acknowledgements

The authors acknowledge FinMark Trust for providing access to the Zimbabwe 2014 FinScope Consumer Survey data set used for this article. The authors take responsibility for all remaining errors.

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Appendix

Descriptives statistics of variables used to construct financial literacy by saving status

	Saved	Did not save	Differences
Perception on finances			
You like to be in control of your finances and money	0.958	0.896	−0.06***
Your current financial situation is not ideal	0.791	0.830	0.04***
Your dealing with finances is stressful or is a burden	0.757	0.799	0.04***
On any given day, you know what your financial situation is	0.741	0.571	−0.17***
You keep track of your income and expenditure on a monthly basis	0.576	0.340	−0.24***
You adjust your expenses according to your income	0.888	0.748	−0.14***
Perception on financial matters			
You would like to use your cell phone /internet to transfer money or make payments	0.623	0.508	−0.11***
You try to plan ahead in terms of money matters	0.852	0.610	−0.24***
You make provision for the future	0.681	0.377	−0.30***
When you have a budget/plan on how to spend your money and stick to it	0.558	0.371	−0.19***
You sometimes buy luxuries before you buy/pay for necessities	0.121	0.100	−0.02**
Perception on savings			
You go without certain things to be able to save	0.729	0.482	−0.25***
You believe you have to save for difficult times – even if income is low	0.827	0.604	−0.22***
You believe it is better to save where your money is safe than take risks to make more	0.798	0.593	−0.20***
Putting money in a special place or account for the money to be safe	0.892	0.886	−0.01
Putting money aside to stop it being spent immediately to use later when needed	0.907	0.883	−0.02**
Putting money aside so that you have some money at the end of week/month	0.876	0.835	−0.04***
Putting money away so that the total amount increases over time as more is put away	0.816	0.817	0.00
Putting money aside for you to use later for a specific purpose	0.924	0.856	−0.07***
Putting money aside so that you have money at old age/so that your family is secure later in life	0.766	0.746	−0.02
Aware of the following terms			
Capital markets	0.240	0.093	−0.15***
Stock exchange	0.429	0.195	−0.23***
Shares	0.503	0.266	−0.24***
Unit trusts	0.281	0.101	−0.18***
Observations	*1907*	*2091*	

, * indicates the corresponding mean differences are significant at the 5% and 1% level respectively.