Explaining rural household financial health: Evidence from Kenya

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Abstracts
This paper uses binary logit model to estimate rural Kenya household financial health. The data used in this study are taken from Kenya financial access household survey 2019. The estimated results from logit model show that social-economic factors significantly explain rural Kenya financial health. Specifically, rural Kenya financial health is positively influenced by education level, wealth, joint financial decision, income, pension and national health insurance fund uptake. On the other hand, individuals who are low-income earners and are excluded from national health insurance fund and pension schemes are more likely to be financially unhealthy. Financial access, education level, wealth and joint financial decision significantly explains the variation in the financial health among women. Further, education level, wealth, financial decision, income, national health insurance fund uptake, and pension usage significantly contribute to the financial health of the youths. The study recommended increased financial access, literacy campaigns, universal health coverage among the households.

Keywords: Financial health; binary model; rural Kenya households
JEL Classification Codes: G02, C50

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1 Introduction

The concept of financial health has elicited considerable interest among policy makers across the globe. Kenyan financial health has evolved since the adoption of financial sector reforms in the 1980s. The Vision 2030 (Third Medium Term Plan 2018-2022) conceived financial health programs. The program was aimed at enhancing access, usage quality and impact of financial products. However, financial report shows that few Kenyans are able to implement financial planning beyond their daily needs (Financial Sector Deepening, 2009) According to a FinAccess report (2019), 83% of Kenyans have financial access. However, Kenyans financial well-being in 2019 stood at 22%, a 17% drop from 39% recorded in 2016. Kenyan rural households are less financially healthy (14.3%) than urban residents (32.5%) (FinAccess, 2019).

Financial health is operationalized as the ability of an individual to use financial services for managing daily needs, to cushion against shocks and in achieving main goals. It is measured through a multidimensional financial health index covering three dimensions: ability to manage everyday finances, ability to cope with risk and ability to invest in livelihoods and future (FinAccess, 2019). Financial health is concerned with making appropriate financial decisions, managing credit and debt and identifying products and services that are appropriate (Mason *et al*. 2000: Noctor *et al*.1992). Individual's knowledge on finance constitute aspect of financial health. Low financial health does not necessarily imply being on low income. An individual could be a high-income earner but of low financial health. Equally, households could be characterised by low income but have high financial health (Taylor, 2011).

Financial health of households is very important during economic slumps. Faced with economic shocks, financial management skills help households to counter uncertainty. Rural households are generally low-income earners compared to urban households. Most depend on agricultural activities which fetch low income. Kenyan rural households are no exception. Integrated household budget survey (2015) illustrates that 27.5% of rural households have regular income compared to urban households (59.9%). Rural households are equally disproportionally disadvantaged on non-regular income. More rural households (33.3%) than urban households (12.5%) have non-regular income.

These statistics demonstrates that rural households are at higher risk than their urban counterparts in the event of economic shocks. An improvement in rural Kenya household financial health will be important in cushioning them against unforeseeable economic shocks. This paper therefore significantly contributes to literature in twofold (1) there exist no known study that has investigated the determinant of financial health of rural Kenya households (2) Rural Kenya households are financially vulnerable in the face of shocks. Policies and programs that target rural household's financial health are therefore important for policy actors.

The remainder of this paper is structured as follows. In section two we present review of literature underpinning financial health. Section three entails methodology and data while section four captures the econometric result. Section five elucidates on discussions and conclusion.

2 Literature review

A number of theoretical literatures have emerged to explain the significance of financial health of households. The microeconomic models conceived by Modigliani and Brumberg (1954) and Friedman (1957) postulates that individuals prefer to smooth consumption over their lifetime. Rational individuals consume less during high income periods and saves to consume when income falls. Life-cycle hypothesis postulates that individuals save at early stage of their

careers and dissave at retirement age. According to Lusardi *et al*. (2014), consumption behaviour is influenced by income benefits, economic factors and preferences. These microeconomic models are premised on the notion that savings is necessitated by the desire to cushion against future economic shocks or income fall. The permanent income hypothesis proposed by Friedman (1957) postulates that consumption behaviour of individual is influenced by the permanent income. Permanent income constitutes both the persistent income and the transitory income. Therefore, individuals apportion their current consumption depending on the future expected income and windfalls. Permanent income hypothesis finds relevance in household financial health since individuals' current consumption is influence by their lifetime income thus are able to manage their current income to mitigate future income shock.

Lower education level is associated with inadequate financial knowledge (Lusardi and Mitchell, 2007a, 2013). Lusardi *et al.* (2010) and Mahdavi (2012) showed that parent's education knowledge significantly predicts children financial literacy. Further studies (Shim *et al*., 2009; Lusardi et al. 2010) illustrated that parent's financial behaviour influence individual financial knowledge. Household gender significantly contributes to financial health. Mahdavi (2012) asserts that women with good education qualification have good understanding of financial transactions. Retirement planning and benefits, and wealth accumulation determined financial health of individuals (Ameriks *et al.* 2003; Lusardi & Mitchell, 2007a, b; 2009). Individuals with lower education qualification and with low income are less likely to be financially literate (Campbell, 2006)

Taylor (2011) observed that age, household size, individual wealth status, employment status and housing tenure are key determinants of household financial health. Young unemployed single adults have lower financial health. Individuals working in financial sector and are head of households are associated with higher financial health. Households with only one spouse working reduce the financial health of the working partner. Asset ownership is associated with financial health. For example, individuals who are not home owners have lower financial health than home-owners. Johnson *et al.* (2007) showed that education attainment increases the probability of individual being financially healthy. Financial satisfaction among households is positively associated with financial capability (Shim *et al*.2014). However, Weida *et al. (*2020) found that financial health is distinct from other measures of economic security, such that behavior and planning indicate more of a family's ability to be financially 'healthy' and have better physical and mental health outcomes than other individual measures of income poverty.

3 Methodology

3.1 Model

In this study, we employ the logit model to explain the determinants of financial health of rural households in Kenya. The adoption of logit model is informed by the binary response nature of financial health of households. Individuals could either be financially healthy or not. This phenomenon is mathematically captured as:

$$Y_i = \beta X_i + \mathcal{U}_i \qquad (\mathbf{1})$$

Let y* be an unobserved or latent variable given as;

$$\begin{cases} y = 1, if\ , y^* > 0 \\ y = 0, otherwise\ /\ if\ , y^* \leq 0 \end{cases}$$

This implies that y represents financial health status of individuals in rural Kenya households (y=1 if individual is financially healthy, 0 otherwise). Equation 1 represents a binary choice model involving the estimation of the probability financial health of individual in rural Kenya given a set of control variables (X). The mathematical form is denoted as:

$$Prob(Y_i = 1) = F(\beta' X_i) \quad (2)$$

$$Prob(Y_i = 0) = 1 - F(\beta' X_i) \quad (3)$$

Where: Y_i is the observed response for the i^{th} individual who is either financially healthy or not. This implies Y_i= 1 for an individual who is financially healthy and Y_i= 0 for an individual who is not financially healthy. X_i is a set of independent variables such as education level, gender, age, age squared, financial inclusion, wealth status and employment status associated with the i^{th} individual, which determine the probability of financial health of individual, (P). The function, F may take the form of a normal, logistic or probability function. The logit model uses a logistic cumulative distributive function to estimate, P as follows:

$$P(Y = 1) = {e^{\beta' X}}/{1 + e^{\beta' X}} \quad (4)$$

$$P(Y = 0) = 1 - {e^{\beta' X}}/{1 + e^{\beta' X}} = {1}/{1 + e^{\beta' X}} \quad (5)$$

The probability model is a regression of the conditional expectation of Y given X (Green 2008):

$$E\left(\frac{Y}{X}\right) = 1[F(\beta' X_i)] + 0[1 - F(\beta' X_i)] = F(\beta' X_i) \quad (6)$$

Since the model is non-linear, the parameters are not necessarily the marginal effects of the various independent variables. The relative effect of each of household's characteristics on the probability of individual being financial healthy in rural Kenya is obtained by differentiating equation (6) with respect to X_{ij} and this results in equation (7) (Greene, 2003):

$$\frac{\partial P_i}{\partial X_{ij}} = \left[\frac{\lambda^{\beta' X}}{(1 + \lambda^{\beta' X})}\right]\beta = F(\beta' X)[1 - F(\beta' X)]\beta \quad (\mathbf{7})$$

The parameters were estimated using maximum likelihood method. Linear Probability Model (LPM) is associated with the problem of heteroscedasticity hence this is mitigated by use of maximum likelihood method. The empirical model for the logit estimation is specified as follows:

$$log\frac{P_i}{1 - P_i} = \delta + \beta X_i + \mathcal{U}_i \quad (8)$$

Where;

$log\frac{P_i}{1-P_i}$ = The log-odds in favour of financial health of individuals in rural households

X_i = Vector of control variables that determine the financial health behaviour of members of rural Kenya households. X_i is defined as follows:

X_1 = Age of individuals (Years)

X_2= Age squared (Years)

X_3 = Gender

X_4= Literacy (Education level)

X_5 = Financial inclusion

X_6 = Household head

X_7= Age group

X_8= Asset ownership (Land)

X_9= Household size

X_{10}= Wealth quintile

X_{11}= pension

X_{12}= Financial decision at large

X_{13}= Income group

X_{14}= Religion

X_{15} =National health insurance fund usage (NHIF)

The empirical estimation of the model was done using STATA (Version 15)

3.2 Data

Data used in this study was sourced from Kenya financial access household survey 2019. The survey was jointly conducted by Kenya National Bureau of Statistics (KNBS), Financial Sector Deepening Trust (FSD) Kenya and the Central Bank of Kenya (CBK). Sample for survey comprised 11,000 households. Returned questionnaires were obtained from 8,669 respondents making a response rate of 89 per cent at the national level. Rural household constituted 58.35% of the sample while 41.65% returned questionnaires were from urban households' samples. Household financial health index was measured by summing equally weighted score of 11.3 points assigned to nine survey questions that map to the three dimensions of financial health (FinAccess, 2019). An individual is considered to be financially healthy if he/she satisfied at least six of the nine questions. The financial health dimension questions is summarised in the table 1.

TABLE 1: Financial health and its dimensions

Financial health dimensions	Questions
Ability to invest in livelihoods and the future	Invest: saving for old age
	Invest: money aside for productivity
	Invest: set money aside for future
Ability to cope with risks	Risk: kept money aside for future
	Risk: could raise lump sum in 3 days
	Risk: never went without medicine
Ability to manage day to day	Manage: never went without food
	Manage: plan for allocating money
	Manage: no trouble making money last

Source: FinAccess household survey report 2019

4 Empirical result

4.1 Descriptive statistics

Table 2 presents the frequency and measures of central tendency in terms of mean for the independent and dependent variables. The average age for the rural household sample was 41.6 years with a standard deviation (STD) of 18.1. Age distribution showed that 4.9% of the rural sample aged 16-17 years, 18-25 years was 15.8%, 26-35 years (24.3%), 36-45 years (18.5%), 45-55 years (13.08%) and those aged above 55 years were 23.23%. In rural household sample, 41.4% were male while female constituted 58.6%. Majority of the rural households (48%) had primary education qualification, 25% had secondary education level, and 20.3% had no formal education while 6.4% had tertiary qualification. Only 11.6% (STD=0.321) of sample from rural Kenya household were financially healthy. Overall, 82.3% (STD=0.380) of rural household had financial access. The sub-sample falling in the lowest wealth quintile was 36.27% (STD=0.48), second lowest wealth quintile (25.3%), middle wealth quintile (0.17%), second highest wealth quintile (12.1%) while highest wealth quintile was 8.7% (STD=0.28).

On the average, 48.9% (STD=0.499) of the individuals in rural household make own financial decision on the amount of money spent on expenditure, 10.8% of the financial decision is made by spouses, 22.28% of financial decision is jointly made with spouse and 17.9% of the households jointly make financial decisions with relatives. In the rural household sample, majority (29.7%) have income range 3001-7500 Kenya Shillings while only 3.6% had income above one mullion Kenya shillings. Majority of the rural households are christians (87.52%) while Muslims comprised 10.8% and other religion constitutes 1.6%. Majority of the rural Kenya households (78.11%) have never used national health insurance fund (NHIF) with only 17.56% are currently using NHIF. Similar trend depicts in pension fund with a majority (91.73%) of rural households indicating having never used pension fund. Only 5.4% of the rural Kenya households currently use pension funds.

TABLE 2: Descriptive statistics of the variables in the sample

Variable	Obs	Mean	Std.Dev.	Min	Max
age	5,058	41.63741	18.10103	16	95
Age Distribution					
16-17 Years	5,058	0.049427	0.216779	0	1
18-25 Years	5,058	0.158363	0.365117	0	1
26-35 Years	5,058	0.243377	0.429163	0	1
36-45 Years	5,058	0.185647	0.38886	0	1
45-55 Years	5,058	0.130882	0.337304	0	1
Over 55 Years	5,058	0.232305	0.422344	0	1
Gender (0"Female" 1"Male")	5,058	0.413998	0.492597	0	1
Education Level					
No formal education	5,058	0.203836	0.402888	0	1
Primary	5,058	0.480032	0.499651	0	1
Secondary	5,058	0.250297	0.433227	0	1
Tertiary	5,058	0.064255	0.24523	0	1
Other	5,058	0.001582	0.039743	0	1
Financial Health (1=yes,0=no)	5,058	0.116647	0.321031	0	1
Financial Access (1=yes,0=no)	5,058	0.823843	0.380991	0	1
Household head	5,058	0.547647	0.497774	0	1
Land Ownership	5,057	0.695669	0.460169	0	1
Wealth quintile					
Lowest	5,058	0.362792	0.480853	0	1
Second lowest	5,058	0.253658	0.435147	0	1
Middle	5,058	0.174377	0.379471	0	1
Second highest	5,058	0.121392	0.326614	0	1
Highest	5,058	0.087782	0.283005	0	1
Financial decision					
Self/own	5,057	0.489223	0.499933	0	1
Spouse	5,057	0.108167	0.310622	0	1
Jointly with spouse	5,057	0.222859	0.416206	0	1
Jointly with relative	5,057	0.179751	0.384018	0	1
Income group(Ksh)					
0-100	4,954	0.014736	0.120505	0	1
101-1500	4,954	0.187323	0.39021	0	1
1501-3000	4,954	0.219217	0.413758	0	1
3001-7500	4,954	0.297134	0.457042	0	1
7501-15000	4,954	0.154623	0.361581	0	1
15001-30000	4,954	0.063585	0.244037	0	1
30001-70000	4,954	0.022406	0.148015	0	1
70001-200000	4,954	0.003835	0.061817	0	1
200001-400000	4,954	0.000404	0.020091	0	1
Above 1000000	4,954	0.036738	0.188137	0	1
Religion					
Christians	5,058	0.875247	0.330471	0	1

Muslims	5,058	0.108541	0.311093	0	1
Other religion	5,058	0.016212	0.126302	0	1
National Health Insurance Fund					
Currently use	5,058	0.175564	0.380486	0	1
Used before	5,058	0.043298	0.203547	0	1
Never used	5,058	0.781139	0.413515	0	1
Pension					
Currently use	5,058	0.054962	0.22793	0	1
Used before	5,058	0.027679	0.164067	0	1
Never used	5,058	0.917359	0.275367	0	1

4.2 Regression analysis

Table 3 provides odd ratio and marginal effect of explanatory variables on the probability of financial health in rural Kenya. The model included reference category to avoid falling into dummy variable trap. The coefficient of age is not statistically significant; however, age squared is statistically significant at 10% level and has a positive sign. The coefficients for Primary, secondary and tertiary education attainment are statistically significant and have a positive effect on the probability of financial health of an individual. The coefficients of wealth quintiles are statistically significant at 1% level and have positive effect on the log odd of financial health. Joint financial decision with spouse is statistically significant at 5% level and positively impact the probability of financial health of individual. The coefficients of income category of KSh15001-30000, KSh30001-70000 and KSh70001-200000 are statistically significant and positively influence the log odd of financial health. The coefficient of other religion and individuals who have used pension fund before significantly impact the likelihood of individual being financially healthy and the effect is positive. Contrastingly, coefficients of income category 101-1500, those who have used NHIF and pension fund before are statistically significant but have negative effect on the probability of individual being financially healthy.

Table 4 provides the regression output for the male individuals. Evidently, financial access, wealth quintile, financial decision with a spouse, income, and pension coverage significantly explains the financial health of male individuals. We note that only financial access, education level, wealth quantile, and joint financial decision significantly explains the financial health of the female individuals (Table 5). Table 6 further shows that education level, wealth, financial decision, income, NHIF usage, and pension usage significantly contribute to the financial health of the youths.

TABLE 3: Logistic model regression results

VARIABLES	Odd ratio	Marginal effect
age	0.9409	-0.003
	(0.0407)	(0.002)
Age squared	1.0006*	0.000029*
	(0.000343)	(0.00002)
Age distribution		
16-17 Years	1.1956	0.009
	(0.4773)	(0.022)
18-25 Years	1.7230	0.0302
	(0.888)	(0.0326)
26-35 Years	1.4802	0.0213
	(0.9863)	(0.0406)
36-45 Years	1.985	0.0422
	(1.583)	(0.0610)
45-55 Years	1.503	0.0219
	(1.358)	(0.0539)
Gender		
Male	0.911	-0.0045
	(0.112)	(0.00592)
Education Attained		
Primary	1.583*	0.226*
	(0.419)	(0.0132)
Secondary	1.911**	0.0368**
	(0.536)	(0.0184)
Tertiary	2.269***	0.0555***
	(0.705)	(0.278)
Other education qualification	1.746	0.0349
	(2.275)	(0.1025)
Financial Access	1.173	0.0074
	(0.259)	(0.00981)
Household head	0.844	-0.0083
	(0.127)	(0.00752)
Land ownership	1.018	0.00087
	(0.129)	(0.00614)
Wealth quintile		
Second lowest	2.923***	0.0679***
	(0.718)	(0.0183)
Middle	5.818***	0.1495***
	(1.412)	(0.02833)
Second highest	10.376***	0.257***
	(2.548)	(0.0404)
Highest	15.373***	0.354***
	(3.915)	(0.0499)
Financial decision		
Spouse	1.222	0.01051
	(0.244)	(0.0112)
Jointly with spouse	1.335**	0.0151**

	(0.184)	(0.0077)
Jointly with relative	0.978	-0.001
	(0.206)	(0.0101)
Income group		
KSh 101-1500	0.417*	-0.0339*
	(0.207)	(0.0154)
KSh 1501-3000	0.529	-0.0266
	(0.258)	(0.0176)
KSh 3001-7500	0.929	-0.0034
	(0.440)	(0.0224)
KSh 7501-15000	2.142	0.0475
	(1.014)	(0.0372)
KSh 15001-30000	3.804***	0.111***
	(1.835)	(0.0620)
KSh 30001-70000	5.799***	0.1822***
	(2.996)	(0.0909)
KSh 70001-200000	7.778***	0.243***
	(5.732)	(0.153)
KSh 200001-400000	0.508	-0.02508
	(0.296)	(0.01611)
Religion		
Muslims	1.286	0.0134
	(0.298)	(0.0134)
Other religion	2.629**	0.0722**
	(1.223)	(0.0495)
National Health Insurance Fund		
Used before	0.550**	-0.0229**
	(0.147)	(0.00806)
Never used	0.846	-0.00845
	(0.117)	(0.00736)
Pension		
Used before	1.638*	0.0297*
	(0.479)	(0.0214)
Never used	0.563***	-0.03485***
	(0.104)	(0.0139)
Constant	0.053***	
	(0.048)	
Observations	4,952	
Log likelihood = -1242.7765		
LR chi2 (36) = 1103.44		
Prob > chi2 = 0.0000		
Pseudo R2 = 0.3075		

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

TABLE 4: Logistic model regression results for Males

VARIABLES	(1) Odd ratio	(1) Marginal effects
Age	0.99355	-0.00646
	(0.07087)	(0.0713)
Age squared	1.000029	2.89e-05
	(0.000523)	(0.000523)
Financial Access	1.67155***	0.514***
	(0.31878)	(0.191)
Land ownership	1.13800	0.129
	(0.213815)	(0.188)
Age distribution		
16-17 Years	0.69769	-0.360
	(0.52668)	(0.755)
18-25 Years	0.826317	-0.191
	(0.7966)	(0.964)
26-35 Years	0.91889	-0.0846
	(1.1277)	(1.227)
36-45 Years	.820781	-0.197
	(1.185615)	(1.444)
45-55 Years	.541834	-0.613
	(.8703903)	(1.606)
Education level		
Primary	.7551676	-0.281
	(.1832535)	(0.243)
Secondary	.9090746	-0.0953
	(.28149)	(0.310)
Tertiary	2.758901	1.015
	(2.1291)	(0.772)
Wealth quintile		
Second Lowest	1.22308	0.201
	(.24727)	(0.202)
Middle	1.5768*	0.455*
	(.40533)	(0.257)
Second highest	3.514***	1.257***
	(1.4110)	(0.401)
Highest	4.4352***	1.490***
	(2.4321)	(0.548)
Financial decision		
Spouse	1.043855	0.0429
	(.48250)	(0.462)
Jointly with spouse	1.5081*	0.411*
	(.33306)	(0.221)
Jointly with relative	1.27343	0.242
	(.71607)	(0.562)
Income group		
KSh 101-1500	2.11316	0.748
	(1.39821)	(0.662)
KSh 1501-3000	3.360821*	1.212*
	(2.20472)	(0.656)
KSh 3001-7500	3.26629*	1.184*
	(2.1080)	(0.645)
KSh 7501-15000	12.5316***	2.528***

	(8.7457)	(0.698)
KSh 15001-30000	17.7496***	2.876***
	(15.3554)	(0.865)
Religion		
Muslims	0.817160	-0.202
	(0.22048)	(0.270)
Other religion	1.0101	0.0100
	(1.17452)	(1.163)
National Health Insurance Fund		
Used before	0.90825	-0.0962
	(0.438641)	(0.483)
Never used	0.76633	-0.266
	(.23913)	(0.312)
Pension		
Used before	0.245821*	-1.403*
	(0.206351)	(0.839)
Never used	0.286051*	-1.252*
	(0.214602)	(0.750)
Constant	2.377	2.377
	(1.591)	(1.591)
Observations	2,714	2,714

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

TABLE 5: Logistic model regression results for females

VARIABLES	(1) Odd ratio	(1) Marginal effect
Age	1.065317	0.0633
	(.0559997)	(0.0526)
Age Squared	.9994532	-0.000547
	(.0003802)	(0.000380)
Financial Access	1.307598 *	0.268*
	(.1826585)	(0.140)
Land ownership	1.118619	0.112
	(.151973)	(0.136)
Age distribution		
16-17 Years	1.78e-06	-13.24
	(.0008885)	(497.9)
18-25 Years	1.46e-06	-13.44
	(.00072)	(497.9)
26-35 Years	5.72e-07	-14.37
	(.0002849)	(497.9)
36-45 Years	7.04e-07	-14.17
	(.0003506)	(497.9)
45-55 Years	4.87e-07	-14.54
	(.0002424)	(497.9)
Education level		
Primary	.8828626	-0.125
	(.1407986)	(0.159)
Secondary	1.122432	0.115
	(.298111)	(0.266)
Tertiary	3.859972 *	1.351*
	(2.87362)	(0.744)
Wealth quintile		
Second Lowest	1.902323 ***	0.643***
	(.29743)	(0.156)
Middle	3.38012***	1.218***
	(0.7506934)	(0.222)
Second highest	9.862601 ***	2.289***
	(4.011565)	(0.407)
Highest	2.508***	2.508***
	(0.533)	(0.533)
Financial decision		
Spouse	1.292125	0.256
	(.2297494)	(0.178)
Jointly with spouse	1.501412 **	0.406**
	(.2565595)	(0.171)
Jointly with relative	3.159174 **	1.150**
	(1.69371)	(0.536)
Income group		
KSh 101-1500	.7022801	-0.353
	(.3598163)	(0.512)
KSh 1501-3000	.7848084	-0.242
	(.400142)	(0.510)
KSh 3001-7500	1.27089	0.240
	(.653597)	(0.514)
KSh 7501-15000	1.949492	0.668
	(1.0928)	(0.561)
KSh 15001-30000	3.764147	1.326
	(3.311271)	(0.880)
Religion		
Muslims	1.17384	0.160

	(.2448062)	(0.209)
Other religions	4.073675	1.405
	(4.258836)	(1.045)
National Health Insurance Fund		
Used before	.6350251	-0.454
	(.2421767)	(0.381)
Never used	.9685327	-0.0320
	(.235092)	(0.243)
Pension		
Used before	.3686953	-0.998
	(.43339)	(1.175)
Never used	.2972094	-1.213
	(.3084374)	(1.038)
Constant	14.98	14.98
	(497.9)	(497.9)
Observations	4,013	4,013

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

TABLE 6: Logistic model regression results for Youth (Aged 18-45)

VARIABLES	(1) Odd ratio	(1) Marginal effect
Financial access	1.378157	0.321
	(.2784437)	(0.202)
age	1.029084	0.0287
	(.0608654)	(0.0591)
Age squared	.9992223	-0.000778
	(.0009122)	(0.000913)
Education level		
Primary	1.021456	0.0212
	(.2920241)	(0.286)
Secondary	1.258245	0.230
	(.3686187)	(0.293)
Tertiary	1.687808 *	0.523*
	(.5134315)	(0.304)
Other	4.411272	1.484
	(6.679254)	(1.514)
Wealth quintile		
Second Lowest	2.891081***	1.062***
	(.790598)	(0.273)
Middle	4.491726 ***	1.502***
	(1.221036)	(0.272)
Second highest	8.720545***	2.166***
	(2.35156)	(0.270)
Highest	13.01835 ***	2.566***
	(3.537533)	(0.272)
Financial decision		
Spouse	1.441646***	0.366***
	(.1897558)	(0.132)
Jointly with spouse	1.231197 **	0.208**
	(.1213725)	(0.0986)
Jointly with relatives	.7032388	-0.352
	(.2225536)	(0.316)
Income group		
KSh 101-150	.2810562 **	-1.269**
	(.1733114)	(0.617)
KSh 1501-3000	.2557095 **	-1.364**
	(.1520315)	(0.595)
KSh 3001-7500	.3971842	-0.923
	(.2305723)	(0.581)
KSh 7501-15000	.6450099	-0.438
	(.3733724)	(0.579)
KSh 15001-30000	1.180254	0.166
	(.687624)	(0.583)
	2.169404	0.774
	(1.300713)	(0.600)
KSh 3001 - 7500	4.129314*	1.418*
	(3.002078)	(0.727)
KSh 15001 - 30000	0.7207708	-0.327
	(0.4302313)	(0.597)
Religion		
Muslims	.7791048	-0.250
	(.1386413)	(0.178)
Other reliion	2.350262	0.855
	(2.571189)	(1.094)
National Health Insurance Fund		
Used before	0.6668782 *	-0.405*

	(0.1582843)	(0.237)
Never used	0.8964661	-0.109
	(0.1028647)	(0.115)
Pension		
Used before	1.060039	0.0583
	(0.291377)	(0.275)
Never used	0.5440536***	-0.609***
	(0.0710769)	(0.131)
Land ownership	1.057074	0.0555
	(.0968661)	(0.0916)
Constant	-2.702**	-2.702**
	(1.136)	(1.136)
Observations	4,598	4,598

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

5 Discussion

The coefficient for age squared is statistically significant at 10% and positive. The result implies that the probability of individuals becoming financially healthy increases by 0.0029% as they grow older. Empirical research has predicted that financial knowledge increase with age since financial literacy is accumulated over time through education and life experience (Lusardi *et al*., 2010). The probability of individuals with primary education becoming financially healthy is 22.6% more than individuals without any formal education. The probability of financial health of rural households increases with a change in acquisition of both secondary and tertiary education. Literature has documented strong association between wealth accumulation and education (Bayer *et al*., 1993). Individuals with higher education level have higher financial literacy and are more likely to be financially healthy. As individuals gain education knowledge, they acquire numerical skills, saving skills and are aware of many investments' opportunities.

There exists significant and positive association between wealth and the probability of being financial health. Individuals who fall in the four wealth quintiles (second lowest, middle, second highest and highest) are more likely to be financially healthy than individuals in the lowest wealth quintile. Evidently, the coefficients of wealth quintile increase as we move to higher wealth quintile. This implies financial health increases with an increase in individual's wealth status. This finding agrees with Ameriks *et al*. (2003) and Lusardi *et al*. (2007a, b; 2009) who found that financial health is associated with higher levels of retirement planning and wealth accumulation in retirement. Financial decision is an important determent of financial health of an individual in rural areas. The econometric result shows that individuals who make financial decisions jointly with their spouses are more likely to be financially healthy than individuals who make their own financial decision. This finding is statistically significant at 5% level. Higher income is associated with an increase in probability of being financially healthy. According to Vyvyan *et al.* (2014), sufficient income for the provision of basic needs is connected to emotion and mental factors that improves individual financial health.

Kenya rural households who no longer utilize national health insurance fund are less likely to be financially healthy than their counterparts who currently use NHIF. Individuals without NHIF are more likely to incur catastrophic expenditure when faced with health shocks. Interestingly, individuals who ceased to use pension funds are more likely to be financially healthy than individuals who are enlisted with pension packages. Individuals with pension plans are risk averse since future income flow is predetermined and certain. They are therefore less likely to take precautionary measures on their current expenditure.

There is enough evidence at 1% level of significance to conclude that access to finance significantly contributes to the financial health of male individuals. The probability of male individuals with access to finance becoming financially healthy is 51.4% more than male individuals without financial access. The coefficients of wealth quintiles (middle, second lowest, and highest) are statistically significant in explaining the financial health of male individuals. Notably, the probability of financial health of male individuals increases as they move to higher wealth quintile as shown by the increase in magnitude of marginal effect. Male individuals who make joint financial decision with their spouses are 41.1% more likely to be financially health. Equally, male individuals who no longer benefits from pension schemes are less likely to be financially health. Female individuals with financial access are 26.8% more likely to be financially healthy. Tertiary level of education attainment, increase in wealth, and joint financial decision increases the probability of youths becoming financially healthy. However, econometric results show that an increase in income, lack of NHIF usage, and lack of pension significantly leads to the probability of youths being not financially healthy.

5.1 Conclusion

Age squared, education level, wealth quintile, financial decision, high income and pension use were all found to have a statistically significant and positive relationship with financial health of Kenya rural households. Contrastingly, the other covariates, namely: lower income category, lack of use of NHIF and pension fund had significantly negative association with financial health.

These findings inform a number of policy implications for the study:

- High wealth quintile and high income are significant predictors of financial health. Thus, poverty reduction programmes should be channelled towards improving the economic condition of the vulnerable rural households. Economic stimulus packages that create employment opportunities should be adopted.
- Polices should that encourage education attainment (Primary, secondary and tertiary) should be adopted. School feeding programs, fee waiver and compulsory education should be adopted at the lower education level
- Lack of use of national health insurance fund and pension fund was found to negatively impact on financial health. Affordable national health insurance schemes that target rural households should be rolled. Pension plans should be prorated to take care of working household members at advanced age even after retirement.
- Joint financial decision with spouse positively predicts financial health of households. Programs that create awareness among family members on the benefits of consultative financial decision should be adopted.
- Government of Kenya should waiver monthly NHIF contribution for the youths to increase NHIF uptake among the youths.

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