Enablers and Barriers to Consumer Financial Health: What Influences Consumer Financial Health?

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Abstract

It has been widely established that financial inclusion plays a key role in facilitating economic growth, reducing inequality and improving overall societal welfare in the economy. With this established nexus, many countries have channelled their concerted efforts on financial inclusion, and rightly so. The Kenyan financial system has been a notable champion and firm believer in financial inclusion in the Sub-Saharan African region. Their commitment has led to notable increases in access to financial services for its people, especially for low-income and marginalised households. Despite the high levels of access to financial services, recent data indicates that 'consumer financial health' is very low as only fifth of Kenyan adults are said to be in a state of financial health. Against this background and in line with both knowledge economy and financial inclusion literature, our study seeks to indagate the enablers and barriers to consumer financial health. Our work attempts to contribute to the limited literature on this phenomenon especially. We employ the probit model and benefit from the latest Kenya National FinAccess Survey. We establish positive and significant results from: trust in financial services; household income; being close to a financial service facility; having a financial life and financial literacy. On the other hand, negative effects established from: belonging to minority group; high household dependency; low-income households and another household member using mobile money services. The study offers recommendations disaggregated by supply, demand, and regulatory side.

Keywords: *Financial health, financial wellbeing, financial services, financial inclusion, probit*

Introduction

Many scholars have postulated the positive impact that financial inclusion has on economic growth and poverty reduction through channels such as facilitating savings, payments, and investments at household and business levels (Demirgüç-Kunt et al., 2015). Therefore, in pursuit of achieving increased job opportunities and alleviation of poverty, world economies have taken financial inclusion seriously as a global agenda.

At the national level, the majority of the countries that are members of the Alliance for Financial Inclusion (AFI) promote broadening access to appropriate financial services among their citizenry (AFI, 2014). Over the years, local and international organisations have heavily invested in this idea of improving financial inclusion (FinAccess, 2009).

Soursourian and Dashi (2015) observe that financial resources channelled to the financial inclusion cause have been increasing over the years. They note that, as of the end of 2014, the funding was estimated to be standing at 31 billion US dollars. On a positive note, there have been substantial targets that have been achieved as agreed upon in the Maya Declaration[1] especially by countries that are a part of the Alliance of Financial Inclusion. Many of these countries have achieved a move on targets such as consolidation of regulatory frameworks, policies on agent banking, consumer protection, mobile financial services, financial integrity as well as financial literacy (AFI, 2014).

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[1] This is a financial inclusion commitment that was launched in 2011 at the Global Policy Forum in Riverian Maya, Mexico. The declaration recognises financial as an important global agenda that has the potential of contributing towards achieving united Nationals Sustainable Development Goals (SDGs) especially Goal 1(poverty alleviation) (AFI, 2014).

Additionally, financial service providers have also been doing their part. For example, they have been innovating financial services delivery channels such as mobile money platforms, agent banking, and microfinance institutions. The main attribute of the delivery channels is that they are easier and cheaper to use, therefore, they attract the poor and marginalised members of the financial system. Further, in addressing barriers of discrimination based on demographic characteristics, Know-Your-Customer requirements have been widely reviewed by many members of the AFI (Aduda & Kalunda 2012).

It has been argued that, over the years, technological advancements have been the major driver of global financial inclusion (Grace et al., 2003; Waverman et al., 2005). Kaffenberger (2014) notes that the Kenyan telecom company, Safaricom has led the growth and revolutionisation of the use of technology since its introduction of the mobile money platform in 2007. The impact of this innovation can be observed in the increase in global financial inclusion numbers from 51 percent in 2011 to 62 percent in 2014 (*Demirgüç-Kunt* et al., 2015).

Motivation, Objectives and Contribution

Despite the milestones being witnessed in the financial inclusion sphere, recent literature is casting questions on how much impact it is having on improving the living conditions of ordinary citizens. It is being argued that the country is still experiencing high levels of unemployment especially for the youth, and poverty levels are equally high. The poor and marginalised in the economy have not utilised investment initiatives to enable them to come out of poverty (Balwanz, 2012; KNBS, 2014; the Republic of Kenya, 2013). As indicated above, figures of the aggregate[1] financially included individuals have been improving; 26 percent in 2006, 66.7 percent in 2013, and 75 percent in 2016 (FinAccess, 2006; FinAcess, 2013; *Demirgüç-Kunt* et al., 2015; FinAcess, 2015). In the same period, individuals living under the poverty line marginally reduced from 47 percent to 42 percent (World Bank, 2014). Additionally, the youth unemployment rate moved up from 12.5 percent to 25 percent between 2006 and 2013 (Mutia, 2014). Other extant literature highlights that Kenya performs relatively poor to other low-income nations in terms of decreasing the levels of unemployment (Mutia, 2014; the Republic of Kenya, 2013b; World Bank, 2014).

The latest FinAccess survey establishes that financial health amongst the Kenyan adult population is still low. In the survey, only a fifth of the adult population was established as being financially healthy. Financial health is very important if the benefits of access and usage of financial services is to be fully realised in the economy. According to Central Bank Kenya and FSD Kenya (2018) financial health refers to the ability of Kenyans to use financial services for managing daily needs, protecting themselves from shocks, and facilitate the achievement of their main goals in life. It is measured through a multidimensional financial health index covering three dimensions: the ability to '*manage everyday finances*', '*ability to cope with risk*' and '*ability to invest in livelihoods and future*'. This index is the first of its kind, therefore, possesses an interesting opportunity to explore its drivers.

Against this background, this paper explores the enablers and barriers of consumer financial health in the financial system. Our work enables us to understand the underlining conditions to why financial inclusion is not having an impact on the aspects highlighted above. Specifically, we achieve this through investigating drivers of the state of consumer financial health. In turn, we use factors that were significant in driving recommendations for policy, regulation, and intervention design.

To the best of our knowledge, there is limited extant literature that explores drivers of consumer financial health in the financial system. Therefore, our work has great potential of immensely contributing to the building of literature in this area. In the 2018 FinAccess survey, they establish the percentage of consumers who can be deemed to be in the state of financial health but do not attempt to explore what drives this state. Therefore, in this study, we seek to establish what factors are influential. Further, we want to moderate for other factors and observe how these influencers behave.

This research aimed at investigating the enablers and barriers to achieving a state of financial health in the financial system. The concept of financial health is a different way of looking at the impact of financial service utilisation. It focuses on the effect that financial services have on consumer welfare. Our study contributes to literature in two ways, the jurisdiction (Kenya) considered, and the variables employed are unique from what extant literature has modelled. In our study, we expand the scope of the dependent by considering informal, semi-formal and formal financial services such as Savings Groups, community lenders, family and friends,

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[1] Adults with access to either a formal or informal financial service. The figures are lower when disaggregated into formal and informal categories.

mobile money, and formal institutions products. These financial service types are very predominant in the Sub-Saharan African region but have not been exhaustively modelled leading extant literature knowledge that does not fully explain the phenomenon in an African context. This study will help build more knowledge on the African context thereby improving the incorporation of knowledge in the design and consolidation of financial products aimed at improving consumer welfare. This study contributes to the emerging literature on techniques of measuring the impact of financial service use. According to the Kenya Central Bank and FSD Kenya financial health refers to the ability of Kenyans to use financial services for managing daily needs, protecting themselves from shocks, and helping them achieve their main goals in life. To the best of our knowledge, there is no study n this study, we employed a basic probit model in our empirical investigation.

Further, our study also uses a new dimension (index) of the dependent variable, financial health that was first included in the survey that we used in this study. Before that, there was no survey in Kenya and to the best of our knowledge Sub-Saharan African region that specifically collected data on financial health. Therefore, I work helps in starting the conversation on this using a very good derivation or index of the phenomenon under consideration. The financial health index incorporates all the main aspects: management of everyday finances, ability to cope with risk, and ability to invest in livelihoods and future. The later component, 'invest in livelihoods and future' has been individually considered in current literature that looks at the impact of financial services on consumer welfare. Therefore, we have the advantage of investigating the phenomenon in a holistic way through the new components being introduced in the financial health index

In our empirical analysis, we establish a positive and significant influence from the following explanatory variables: trust in financial services; household income; being close to a financial service facility; having a life goal that needs finances and being financially literate. On the other hand, the following have a negative significant effect: being from a minority group; a household with high dependency ratio; identifying as economically most vulnerable and another household member using mobile money services. Our work has significant policy implications, in that, to improve the impact of financial services on consumers, we need to understand the underlining factors that enable the effective realisation of such a status. This work will inform the design of appropriate policy, regulatory and project interventions by key players in the financial system.

Our study takes the following flow: The "Literature Review" will consider a review of the literature and discusses what we know about the phenomenon under study. In the "Data and Methodology" section, we detail the design of the research project, data employed and the variables selected for the study. The "Results" section will present the results and offer a detailed discussion. Lastly, the study will offer conclusions and recommendations on the study findings.

Literature Review

There is limited literature on financial health in Kenya and other African countries at large. The main literature that we seek to build on is that of the Kenya FinAccess 2018. The study also explores extant literature on financial wellbeing, a relatively more explored phenomenon that is highly connected to financial health.

In the FinAccess 2018 survey, an index on financial health was introduced. Consumer financial health is defined as the ability of Kenyans to use financial services for managing daily needs, protecting themselves from shocks, and facilitate the achievement of their main goals in life. It is measured through a multidimensional financial health index covering three dimensions: the ability to 'manage everyday finances', 'ability to cope with risk' and 'ability to invest in livelihoods and future'. The FinAccess survey establishes that only a fifth of the Kenyan population could be deemed to be in a state of financial health (CBK and FSDK, 2018). However, it does not take the next step of empirically investigating the key influencers/drivers of consumer financial health. Financial health can be argued to be one way of looking at the impact of financial services on consumer welfare in a different way, hence, its investigation being critical in enhancing our knowledge on the phenomenon and its impact on consumer's wellbeing [optimisation of return on use of financial services].

Several empirical analyses have been done on financial capability and the use of appropriate investment opportunities in the financial system. These studies have established that a consumer's financial capability has a positive effect on the use of investment initiatives in the financial system. These studies have used different approaches, data, and case studies.

In Kenya, Ellis et al. (2010) investigated the nexus between financial inclusion and an individual's financial capability. Specifically, the research examines a consumer's borrowing and savings behaviour, why they invest, constraints to financial service access they experience, service type across consumers, and how these are influenced by different individual characteristics. They observe that financial capability has a significant role in

an individual's perception and use of financial services mentioned above. They establish that individuals with low financial capabilities were less likely to use and take advantage of the services in improving their welfare.

Further, Githui and Ngare (2014) observe that an individual's financial decision is highly driven by their level of financial capability. The existent literature is consistent on this nexus as many more other studies have concluded the same (Agarwal et al., 2009; Ellis et al., 2009; Lusardi and Mitchell, 2011).

In Stella et al. (2022), they explore the impact of financial literacy for corporate social responsibility (CSR) during the COVID-19 crisis. They establish that highly educated consumers that are employed were more sensitive to corporate social responsibility in their utilisation of financial services. Further, they establish that with a high level of financial literacy and financial happiness are highly sensitive to all CSR components (philanthropic, ethical, economic and legal social responsibilities).

Financial wellbeing is the human state that offers an opportunity to comprehesively meet their financial liabilities, feel safe today and in the future, and make choices that allow them to enjoy life (Consumer Financial Protection Bureau, 2017). Therefore to fully understand the fininacial wellbeing, extant literature (Cárdenas et al., 2021, Mahendru et al., 2020) argue   for a combination of the control over finances, financial resilience and security, as well as financial freedom of making decisions to enjoy life and achieve financial goals.

Further, extant literature (Gradín et al., 2008; Ferreri Carbonell, 2005; Diener, 1993; Noll & Weick, 2015) has explored the impact of income and expenditures on an individual's wellbeing. Literature has established that income and expenditures have an impact on financial wellbeing of individuals. They further argue that consumption expenditures depend on lifestyle, which is directly influenced by inequality, income level, and limited resources.

Dorsey et al. (2020) in their paper establish primary barriers to financial well-being in healthcare, including power inequities and consumer inaction. It also highlights opportunities for consumers to proactively improve their financial outcomes within the existing healthcare structure through collaboration with various stakeholders.

Johnson et al. (2019) Barriers to financial health include financial stress, low wages, and social determinants of health (SDoH). Enablers include comprehensive financial wellness programs, data analytics for needs assessment, and employer support that addresses basic needs and enhances financial knowledge and skills.

Kaur et al. (2022) Key enablers of financial well-being include financial knowledge, self-efficacy, and healthy financial behaviors. Barriers may involve socio-economic factors and financial socialization, which exhibit high dependence and driving power, impacting individuals' financial health and well-being significantly

Guo et al. (2023). Barriers to financial health for low-income entrepreneurs include limited access to mainstream financial products and high-risk alternative financial services. Enablers include improved financial knowledge, skills, and access to beneficial financial services, which promote overall financial well-being and security.

In the latest literature on financial wellbeing, they stretch the domination of individualized behavioral approaches to its research. The studies (Islam et al., 2017; Shkvarchuk & Slav'yuk, 2021; Kannadas, 2021; Brüggen et al., 2017) highlight the psychological aspects of reflection, perception, and decision-making in uncertainty. They argue that financial wellbeing is the perceptive projection of current and desired living standards defined by financial freedom.

Some scholars have argued that assessment of financial wellbeing is a complex phenomenon that requires adaptation for the countries with different socio-demographic groups and for different socio-economic conditions. For that matter, Sehrawat et al., (2021) argues that the methodologies for asessing the relationship between financial behavior (fulfilment of financial obligations, financial planning, savings, and monitoring), financial awareness (perception, objective financial knowledge, experience, and certainty), and features (time perception, impulsiveness, social status, locus of control, and general condition) of an individual ought to developed. Our study conforms to this argument by Sehrawat et al., (2021) and seeks to disaggregate our investigation into the three key components they advocate for in their study.

In Sehrawat et al., (2021), they argue that "financial behavior is proven to be a key factor in financial wellbeing as it defines financial stress and financial awareness for determining wellbeing in the future". Hence, to acheieve financial wellbeig, management of financial stress, the regulation of income and expenditures, and improvement

of financial awareness are important (Rahman et al., 2021). Extant literature (Kavita et al., 2021; Rushchshyn, 2021; Gerrans et al., 2013; Graziano et al., 2013) establsihes that, financial behavior is the result of individual reactions to behavioral factors such as future security, savings, investment, credit discipline, financial consciousness. This traits are also found in behavious as Magni et al. (2022) establish in the study on firm performance and delisting. Further literature establishes that there exists of gender differences in financial wellbing subjective perception, that is, financial knowledge has a key role among the factors of financial wellbeing and satisfaction with its level for men, while financial condition for women.

Data and Methodology

In our empirical analysis, we employ the Kenya FinAccess Household Survey for 2018. The data under consideration is cross-sectional in nature. The FinAccess, also called FinScope Surveys aims at generating information to help in understanding demand-side dynamics in the financial sector, specifically looking at access to, and utilisation of financial services in the Kenyan market (Central Bank of Kenya and FSD Kenya, 2018).

The FinAccess Household Survey is a nationally representative survey with a sample size of 8,665 respondents (each representing one household). The survey only considers adult (age 18 and above) respondents. The survey is conducted by the Central Bank of Kenya and other major stakeholders in the financial sector. The survey pays great attention to the quality of the data collected. Over the years, methods and techniques have been refined for a better outcome of data collection (Central Bank of Kenya and FSD Kenya, 2018).

Model specification

Our empirical analysis employs a probit model in understanding factors that influence consumer financial health. In an econometric analysis, probit models are usually used to determine the probability that a unit with certain characteristics belongs or does not belong to the category of entities being studied.

In this study, the financial health variable is taken as the dependent variable. When an individual is established to be in the state of financial health, it takes 1 and 0 otherwise. Assuming status of an individual's financial health depends on a latent variable y* determined by exogenous variables included in vector X′, we have:

$$y_i^* = X_i'\beta + \mu_i \tag{1}$$
$$y_i^* = 1 \ s_i y_i' > 0; \ y^* = 0 \ s_i y_i^* \leq 0 \tag{2}$$

Subscript i is characteristics of individuals, vector β represents the parameters of the model and μ is the normal distribution error term with mean 0 and variance 1. A critical threshold y_i is assumed, based on which, if y_i^* over y_i then the individual is financial included.

Where Z is the standard normal variable, Z ~ N $(0, \sigma^2)$ and the cumulative normal distribution function is given by;

$$P_i = P(y_i = 1 | X') = P(y_i \leq y_i^*) = P(Z_i \leq \beta X_i') = F(\beta X_i') \tag{3}$$

$$F = \left(\frac{1}{\sqrt{\pi}}\right) \int_{-\infty}^{\beta X_i'} e^{\frac{z^2}{2}} dt \tag{4}$$

(Greene, 2012)

Functional model

Equations (5) below highlight the functional and estimable forms of the probit model under consideration in our empirical analysis.

$$FinHealth_i = \alpha + \beta Trust_i + \gamma x_i + \varepsilon_i \tag{5}$$

Where:

$FinHealth_i$: Denotes the financial health variable

$Trust_i$: Three types of trust in financial institutions; x_i indicates the rest of explanatory variables in our estimation; ε_i is the error term; and α, β and γ are the model parameters.

Variable Description

Dependent Variable

Financial health: According to CBK and FSD Kenya (2018), financial health refers to the ability of Kenyans to use financial services for managing daily needs, protecting themselves from shocks, and in helping them achieve their main goals in life. 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. Table 1 below summarises the financial health dimensions that were considered.

Table 1: Questions used in Financial Health Index Generation

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

Source: FinAccess survey 2018

In the generation of the index, equally weighted score was assigned to nine questions (that capture the three dimensions of financial health) in the FinAccess survey. For each respondent, the scores are summed up, and one is deemed to achieve the state of financial health when they satisfy a minimum of six of the nine questions (they are deemed to have passed the test).

Following the above classification, a dummy variable was generated taking the value of 1 for respondents who achieved the minimum of six marks out of the available nine, and 0 otherwise. Respondents in the '1' category were considered to be in the state of financial health at the time of the survey. Our study considers this dummy as our dependent variable.

Explanatory Variables

Table 2: Summary of Independent Variables

Factor or Variable	Variable/Proxy in Regression	Definition/Source/Notes
Trust in financial institutions	- Trust formal - Trust Semi-formal - Trust informal - Has no trust (*base category*)	Dummy variables generated from question "*which financial institution do you trust the most?*" 1 is given for the most trusted financial institution and 0 otherwise. Three categories[1] generated: trust formal, semi-formal and informal financial institution respectively.
Educational status	No education (*base category*)	Dummy for respondents 'without education', with primary and secondary education respectively are generated using question "*highest level of formal education completed*"
	Primary education	
	Secondary education	
	Tertiary education	Dummy for respondents with certificate, diploma, degree, PhD and other higher-level qualification
Economic status	Total household income	This variable was captured from the variable total income.
	Most vulnerable consumers	Using **vulnerability index** from the FinAccess a dummy was generated for most vulnerable respondents
Household characteristics	Rural location, female house head, married head, identify as minority, Household size, Age, Youth respondent,	In this category of variable, we generate dummy variables for each factor accept age and household size which are taken as continuous variables
Proximity to financial institution	Time to financial institution – 10 to 30 minutes	Here we consider proxies of an individual's proximity to financial facilities
	Time to financial institution – under 10 minutes	
	No cost to financial institution	
Exposure and Experience with financial institutions	Household financial decision maker	This category of variables looks at an individual's experience and exposure to financial services. We sought to understand how these experiences and exposure impact on the consumer's financial state.
	Able to cope with risks	

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[1] Where formal institutions include commercial banks, insurance companies and, MFIs; semi-formal includes Savings and Credit Associations, banking, and mobile money agents; informal includes informal savings groups, shop lenders, and Rotating Savings and Credit Associations (ROSCAs).

Factor or Variable	Variable/Proxy in Regression	Definition/Source/Notes
	Another member as, bank account, SACCO account, mobile money account, mobile banking, informal group member	
	Source of financial information – dummy for informal	
	Has access to mobile internet	
	Has a life goal with financial need	
Type of financial service accessed	Formal, semi-formal or informal services	Here we consider the type of financial services being utilised.

Sources: Author's own work

Test for Multicollinearity – VIF

Using the VIF procedure, in this section we test our model for multicollinearity among explanatory variables. Due to its influence on the standard errors, the component that determines which of our explanatory variables are significant in our estimation, the presence of multicollinearity is an issue of concern. The following three-step procedure is observed in investigating multicollinearity using the VIF: firstly, generate correlation tables among all the model variables to establish any signs of multicollinearity. Secondly, conduct a regression of explanatory variables, and thereafter, calculate the variance inflation factor (VIF) and the tolerance values. In the VIF, the increase in the variance of estimated coefficients is measured and compared to a situation where correlation is absent among model explanatory variables. There is a general rule of thumb that a VIF score of 5 or higher (or tolerance scores of 5 or less) raises concerns in terms of multicollinearity among explanatory variables (Allison, 2012; Menard, 2002; Menard, 2010).

In our model estimation, we establish VIF values below 4, hence, the model can be considered acceptable (we are confident our results are not inefficient due to collinearity)

Summary Statistics

Table 3: Summary statistics

Explanatory Variable	Mean	Standard Deviation	Explanatory Variable	Mean	Standard Deviation
Trust in financial institution (base=no trust)			**Type of financial services accessed**		
Trust formal financial institution	0.397	0.489	Formal services	0.338	0.473
Trust semi-formal financial institution	0.339	0.473	Semi-formal institution	0.256	0.436
Trust informal financial institution	0.110	0.313	Informal services	0.106	0.308
Educational status (base=no education)					
Primary education	0.333	0.471	**Financial Health**	0.211	0.377
Secondary education	0.397	0.489	**Household characteristics**		
Tertiary education	0.208	0.406	Rural dweller	0.583	0.493
Economic status			Female household head	0.578	0.494
Total household income	221.6	701.7	Married household head	0.585	0.493
Most vulnerable consumers	0.362	0.481	Minority group	0.276	0.447
Proximity to financial institution			Household size	3.973	2.322
Time to financial inst. 10-30minutes	0.284	0.451	Household financial decision-maker	0.498	0.500
			Dependency (proxy- number of school		
Time to financial inst. Under 10minutes	0.571	0.495	children)	1.751	1.823
				39.322	
No cost to financial institution	0.786	0.410	Age		17.050
			Youth	0.358	0.480
Number of observations	**8,623**				

In our summary statistics, we observed that 21 percent of the sampled population had attained the state of financial health (dependent variable). In terms of key explanatory variables (financial institution most trusted), 39.7 percent had trust informal financial services, 33 percent in semi-formal services, and 11 percent in informal financial services. When it comes to the education variable, 33 percent had primary education, 40 secondary, and 20 percent had attained tertiary education. Other explanatory variables are outlined in table 3 above.

Potential Endogeneity Problem

In our model estimation, there is a potential problem of endogeneity in our (mis)trust explanatory variable. In a regression, if the researcher wants to make causal inferences between the dependent and explanatory variables, the latter needs to be exogenous, meaning, it should not be driven by the unobserved factors in the estimation. Endogeneity occurs when explanatory variables in the estimation are correlated with the error term (Green, 2012). In our estimation, endogeneity could come from two main sources outlined below.

Firstly, it might be present due to the omission of key explanatory variables (this is called "omitted variable bias") and insufficient sample size. When key variables in the estimation are omitted, this might lead to endogeneity as the predictors will end up being correlated with the error term (Green, 2012). In our case, this might mean that our three "trust" explanatory variables (trust formal, trust semi-formal and trust informal) might be correlated with the error term in the estimation. In our study, this source of endogeneity had a very negligible chance of being the source because of the sufficient number of explanatory variables that have been included, and the large sample size that was used in the FinAccess survey 2018 (which used a sample size of 8,623 respondents). In our research, we have included explanatory variables that have already been modelled in the current literature, and new variables, which formed part of our contribution to literature as highlighted in this study. Therefore, we have sufficient explanatory variables to avoid the occurrence of endogeneity due to "omitted variable bias". This technique of avoiding endogeneity due to omitted variables by including sufficient predictors is called 'measure-the-measure' (Hausman, 1983).

Secondly, the other potential source of endogeneity is what is referred as "simultaneity bias". This occurs when the dependent variable is also a predictor of the independent variable and does not just simply respond to it. In our study, there is a chance that our key explanatory variables, financial service most trusted (trust formal, trust semi-formal and trust informal), individuals with goal that require finances, and financial literacy proxy (ability to plan and cope with risk) are influenced by the dependent variable, financial health. Specifically, there is the possibility that those who are financially healthy are more likely to trust financial institutions relative to individuals who are not. Further, those who are financially healthy are more likely to have a goal that requires finances and are more likely to have good financial planning skills and risk coping mechanisms.

The above is a more plausible source of endogeneity in our model unlike the omitted variable bias. However, to solving this source of endogeneity might require the use of an instrumental variable approach. This approach isolates exogenous variations in the explanatory variable of concern (Green, 2012). However, it is generally difficult to find appropriate IVs in many set-ups, and unfortunately, after a hard consideration, our research failed to find an appropriate IV that could be used in ensuring that this potential problem does not affect our results.

Given the above discussion that has demonstrated that we cannot completely rule out the potential problem of endogeneity caused by "simultaneity bias", our results should be considered to be reflecting correlations and not causality.
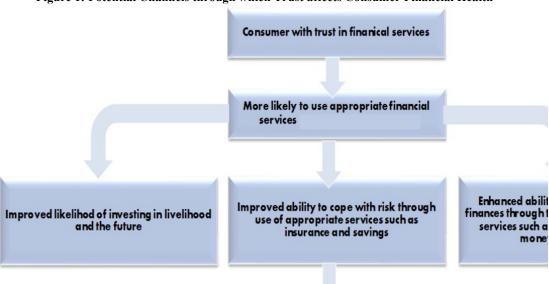
Results and Discussion

Table 4: Probit Regression Estimations (Marginal Effects)

Probit estimation					
Explanatory variable	Marginal effect	Robust std. error	Explanatory variable	Marginal Effect	Robust std. error
Trust in financial institution (base=no trust)			**Exposure and experience with fin. Institution**		
Trust formal financial institution	0.045***	0.014	Able to cope with risks	0.232***	0.006
Trust semi-formal financial institution	0.038***	0.014	Another HH member has bank account	0.005	0.008
Trust informal financial institution	0.020	0.016	Another HH member has SACCO account	0.016*	0.008
Educational status (base=no education)			Another HH member has mobile money account	-0.029***	0.009
Primary education	-0.017	0.017	Another HH member has mobile banking	0.024***	0.008
Secondary education	-0.018	0.016	Another HH member has informal group account	-0.011	0.012
Tertiary education	0.004	0.017	Source of financial information -informal	-0.007	0.006
Economic status			Access mobile internet	0.009	0.007
Total household income	0.036***	0.004	Has life goal that needs finances	0.057***	0.006
Most vulnerable consumers	-0.121***	0.011	**Household characteristics**		
Proximity to financial institution			Rural location	0.006	0.007
Time to financial inst. 10-30minutes	0.021*	0.010	Female household head	-0.001	0.006
Time to financial inst. Under 10minutes	0.014	0.009	HH marital status - married	0.012*	0.007
No cost to financial institution	-0.005	0.010	Minority group	-0.025***	0.008
Age	0.002*	0.001	Household size	-0.002	0.002
Dependency (proxy- number of school children)	-0.006*	0.003	Household financial decision-maker	-0.004	0.007
Number of observations	8623				
Pseudo R-square	0.522				
Prob> chi-square	0.000				
Wald chi-square χ^2(35)	4121.52				

***Significance to 1%; **Significance to 5%; *Significance to 10%

In our estimation, we establish that individuals with trust in formal and semi-formal financial services are more likely to achieve a state of financial health relative to their counterparts without trust. These individuals with trust in the two respective types of financial institutions are established to be more likely to be financially healthy by 4.5 percentage points for formal and 3.8 percentage points for semi-formal institutions. Trust in informal financial institutions is established to be insignificantly related with an individual's state of financial health. Nevertheless, two significant types of trust in financial institutions demonstrate the key role that consumer trust in financial institutions plays in financial service utilisation.

Figure 1: Potential Channels through which Trust affects Consumer Financial Health

Source: Author's own work

As can be seen in figure 1 above, trust in financial services potentially affects consumer health through three main channels. As established extant literature, trust in financial services is positively associated with the use of appropriate financial services. Given this background, trusting financial services potentially positively contributes to the following three channels: i) Improved likelihood of investing in livelihood and the future ii) Improved ability to cope with risk through the use of appropriate financial services such as insurance and

savings, and iii) Enhanced ability to manage everyday finances through the use of trusted financial services such as bank services, mobile money, e-wallets, etc.

Considering the components/variables in Figure 1 are part of the financial health index, the other option of conducting our estimation was through running the analysis on each of the above components as dependent variables. However, this was not feasible as the number of '1s' and '0s' in each of the variables was extremely disproportional to facilitate such direct estimations. Hence, this approach was not considered in our study. Further, considering this index as a whole is extremely important for future studies on this topic, and tracking of the change in the index figures in the next FinAccess survey.

Further, we observe that individuals who are in minority segment of the Kenyan society are 2.5 percentage points less likely to be in a state of financial health compared to their counterparts from majority groups. This dummy was created using language; those that spoke languages outside English and Kiswali are assigned the minority status. This was borrowed from the financial inclusion literature (CBK and FSDK, 2015). This result is consistent with the wider literature (Cooksey et al., 1994; Kanying, 2006; Ogot, 1995; Ochieng, 1995; Republic of Kenya, 2005) on social and economic marginalisation of minority groups in Kenya and the African continent at large.

Under the economic status category, the following proxy's total household income and a dummy for most vulnerable are established to be significant. On total household income, we establish that increase in income enhances the likelihood of being in a state of financial health. Further, individuals that are identified as most vulnerable using the PPI[1] index are observed to be less likely to be in a state of financial health by 12.1 percentage points compared to those that are least vulnerable. These results confirm the importance of economic status in an individual's likelihood of attaining financial health.

In the above proxies, we observe that, on average, a consumer with financial resources is highly likely to achieve a state of financial health. Nevertheless, as highlighted in extant literature (Carpena et al., 2011; CBK and FSD Kenya, 2015), good financial management and decision-making is key in complementing this observed positive impact that financial resources have on a consumer's state of financial health.

In terms of the influence of an individual's proximity to financial facility, we used the approximate time it takes an individual to access a financial institution. Our empirical analysis establishes that those within 10-30minutes (very close to the facility) of reach to financial institutions are more likely to be in a state of financial health by 2.1 percentage points compared to their counterparts above 30 minutes of reach to a financial facility. This result enforces the importance of proximity in the use of financial services as already established in the existent financial inclusion literature (Filipaik, 2015; CBK and FSDK, 2015). Further, this supports financial stakeholder arguments of increasing access in the market, especially in rural areas. This has over the years led to enhanced access to financial services in rural areas (FinAccess, 2015; CBK and FSDK, 2018). In this variable, proximity to the financial facility also refers to semi-formal financial services such as mobile money services which people in rural areas access widely. Therefore, this variable captured both urban and rural dwellers in terms of the effect of proximity on their state of financial health.

The youth are observed to be more likely to be financially healthy relative to older individuals by 1.4 percentage points. A youth was defined as anyone at the age of 30 years old or below. This result is encouraging as the youth are one of the most marginalised segments in most African economies despite being in the majority and critical in the economic growth of these countries.

Further, we establish that individuals that have a goal that needs finances to be realised are more likely to be in a state of financial health in society relative to their counterparts who have goals that do not need finances. The former group was established to be 5.7 percentage points more likely to be in a state of financial health. This result makes sense as those with a goal that needs finances are expected to be more likely to interact with financial service providers and be more financially prudent, relative to their counterparts with no goal that needs finances.

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[1] Poverty Probability Index (PPI): A poverty measurement tool designed by Innovation for Poverty Action, which uses 10 questions about a household's characteristics and asset ownership which are scored to compute the likelihood that the household is living below the poverty line.

In trying to assess the role that multiple use of financial services within a household might have, we created dummy variables for all the services used in a household, in instances where more than one person had a financial service. The following dummy variables are established to be significant: another household member has a mobile money wallet, mobile banking service, and a SACCO account. For households where another individual has a mobile banking service, we establish that they are more likely to be in a state of financial health by 2.4 percentage points compared to their counterparts without another person with such a service. In the same vein, households with another person with a SACCO account have a positive effect on the state of being financially healthy as they are established to be 1.6 percentage points relative to those without. On the other hand, those in a household where another individual has a mobile money account are established to be less likely to be in a state of financial health by 2.9 percentage points relative to their counterparts who have no person with another service, and or, have a person with another service apart from a mobile money account.

Additionally, the following control variables are significant: Married individuals are established to be more likely to be financially healthy relative to their single counterparts. Further, dependency levels measured through a proxy of children in the household were established to have a marginal negative effect of 0.06 percentage points in influencing an individual's financial health. Households with higher dependency (number of children) are less likely to be in a state of financial health.

In assessing the impact that financial literacy has on the state of financial health, our empirical estimation used a proxy of the ability to plan and cope with risks. A dummy was generated for all respondents with the ability to plan and cope with risks (unplanned events). We establish that individuals who are financially literate (measured through this proxy) are 23.1 percentage points more likely to achieve the state of financial health relative to their counterparts who are not financially literate.

Conclusions and Recommendations

This study aimed at investigating the enablers and barriers to achieving a state of financial health in the financial system. The concept of financial health is a different way of looking at the impact of financial service utilisation. It focuses on the effect that financial services have on consumer welfare. Our study contributes to literature in two ways, the jurisdiction (Kenya) considered, and the variables employed are unique from what extant literature has modelled. In our study, we expand the scope of the dependent by considering informal, semi-formal and formal financial services such as Savings Groups, community lenders, family and friends, mobile money, and formal institutions products. These financial service types are very predominant in the Sub-Saharan African region but have not been exhaustively modelled leading extant literature knowledge that does not fully explain the phenomenon in an African context. This study will help build more knowledge on the African context thereby improving the incorporation of knowledge in the design and consolidation of financial products aimed at improving consumer welfare.

According to the Kenya Central Bank and FSD Kenya financial health refers to the ability of Kenyans to use financial services for managing daily needs, protecting themselves from shocks, and helping them achieve their main goals in life. In this study, we employed a basic probit model in our empirical investigation. The interesting part of the estimation was the use of the new concept, financial health, and new informative variables that we generated.

In our empirical analysis, we establish a positive and significant influence from the following explanatory variables: trust in financial services; household income; being close to a financial service facility; having a life goal that needs finances and being financially literate. On the other hand, the following have a negative significant effect: being from a minority group; a household with high dependency ratio; identifying as economically most vulnerable and another household member using mobile money services.

The results of our empirical estimations have implications on possible interventions by financial inclusion stakeholders. In this section, we highlight some of the possible interventions that can be considered.

Managerial: Financial sector stakeholders should seek to enhance consumer trust in financial services through the strengthening of consumer protection platforms, scaling up of financial education activities, and increased research on (mis)trust in financial services and how it moderates consumer behaviour. This will help with providing conducive environment for financial knowledge provision, consumer assurance of protection leading to enhanced trust and appropriate utilisation of appropriate services.

Social: In terms of the negative impact that comes from identifying as belonging to a minority group, financial inclusion stakeholders should continue and scale up their activities in poor and highly marginalised communities. There should be a multi-faceted approach as the problems these populations face are diverse. Further, there is

also need for enhanced decentralisation in national planning initiative to ensure inclusion of communities that are marginalised. Central governance system in Africa has proved difficulty, hence, a lot of countries are rolling out decentralised planning systems to ensure plans that are country driven, local social and economic solutions, and ultimately community accountability.

Economic: Another key outcome is that of the positive effect that comes from a consumer's proximity to a financial service point. This result further confirms what is widely accepted in the general financial inclusion literature, that being close to a financial service point has great benefits. With this said, stakeholders should promote economic empowerment programmes that enable people to improve their financial resources, education levels, access appropriate financial services, and thereby, attain improved financial health. Lastly, the establishment of the positive impact that comes with financial literacy on consumer financial health is important in financial policy design and implementation. This result offers further proof of the relevance of an individual's financial literacy levels on the appropriate use of financial services. Therefore, financial education in primary, secondary school curriculum and wider community education initiatives will have a great influence on this result.

Potential Research

- Conduct a similar empirical analysis after some of the recommendations have been put into effect. This would help assess the gains being made on improving the segment of the adult population that is in the state of financial health.

Funding declaration

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