Financial Decision-Making Dynamics Among Women and Financial Health in Kenya: Propensity Score Matching

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Abstract

Women empowerment and participation in decision-making is essential for promoting socioeconomic development and gender equality. While concerted efforts have been made to reduce gender inequality and promote women empowerment, women still lag behind men in key decision making. This paper analyzes how financial literacy and other factors influence financial decision making among women, and whether women's participation in financial decision-making improves household financial health. The empirical analysis was conducted using propensity score matching using data from the Financial Access (FinAccess) survey 2021. The results show that a financially literate woman, or a rural woman was more likely to make key financial decisions jointly with spouse compared to a counterpart who was either financially illiterate or an urban resident. The results also indicate that a woman that made key financial decisions jointly with spouse was significantly more likely to be financially healthy compared to a counterpart that did not. The results suggest that access to financial education empower women to effectively participate in (joint) decision-making on financial related matters, which ultimately improves household's welfare.

Keywords: Women empowerment; decision-making; financial literacy; propensity score matching; Kenya

JEL Classification Codes: J16

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1   Introduction

Effective participation in decision-making is essential for promoting gender equality and socioeconomic development in line with the Sustainable Development Goal (SDG5). While concerted efforts have been made to reduce gender inequality and promote women's empowerment, women still trail men in participating effectively in key decision-making at various levels including the family level. Based on Kenya's FinAccess Household Survey 2021, only 39.1 percent of women independently made their own financial decisions while 50 percent received financial advice from family and friends. Women's involvement in financial decision making is influenced by various factors such as education level (Bernasek et al.,2002, Mahdavi et al., 2014, Fonseca et al,.2012).

Compared to men, women are disadvantaged in terms of financial-decision making (Jensen, 2022). Some studies have shown that women are more risk averse than men when it comes to financial decision (Berggren *et al.* 2010). Equally, women lag behind men in terms of their overall financial health, with an overall score of 48.1 percent, compared to 58.3 percent for men (Sabril *et al.*,2020). That notwithstanding, gender dynamics in financial decision making has not received much attention, despite the implications of such dynamics at all levels. For instance, independent financial decision making among women has been associated with an improvement in household's wellbeing (Sabri *et al.* 2020).

This study contributes to the literature by analyzing the gender dynamics and factors that influence women's financial decision-making at the household, focusing on formal education and financial literacy. Furthermore, we go a step further to assess to whether women's participation in financial decision making translates to better or improved financial health of the households. Whereas women's ability to make independent financial decisions is important, the quality of such decisions matter. The independence of financial decisions is more impactful if it translates to sound or improved financial health of the household. Financial health is conceptualized as a household's ability to comfortably achieve living requirement and possessing adequate income and savings or the ability to achieve financial security and making financial choice without any restraints (Carton *et al.* 2022). A financially health household is capable of circumventing economic insecurity emanating from food insecurity, housing insecurity, energy poverty, and income volatility (Wandeda et al.,2022, Weida et al.,2020).

To unravel the dynamics of financial decisions among Kenyan women, the study utilized FinAccess Household Survey 2021. We identify three key financial decision-makers at the household level, namely; the woman/self, spouse(husband), and joint(wife and husband). To infer causality, and simultaneously address endogeneity, we employ propensity score matching in two separate regressions. In the first regression, we present three models with the dependent variable being self, spouse, or joint financial decision-maker. Next, we employ key financial decision-maker in explaining a woman's financial health.

The empirical results show that a financially literate woman, or a rural woman was more likely to make key financial decisions jointly with spouse compared to a counterpart who was either financially illiterate or an urban resident. The analysis further shows that a woman that made key financial decisions jointly with spouse was significantly more likely to be financially healthy compared to a counterpart that did not. The results suggest that access to financial education

empower women to effectively participate in (joint) decision-making on financial related matters at the household level, which ultimately improves financial health and welfare of the household.

The remainder of this study is organized as follows. While section 2 reviews the literature, section 3 describes the methodology. Section 4 reports and discusses empirical findings. Section 5 concludes with recommendation.

2   Literature Review

The Extant literature demonstrates that financial decision among women is an outcome of several covariates that includes; age, education level, marital status, employment status, income, financial inclusion, as well as economic shocks (Doss,1996, Zhou et al.,2018). Zhou et al. (2018) argued that income significantly influences the financial decision-making of households. In particular, spouses with higher earnings tends to be the financial decision maker. Women with a higher level of education possess a good understanding of financial products and can make informed decisions on investments (Zhou *et al*.,2018).

Kurian *et al*. (2022) observed that financial decision among households in India is controlled by migrants since they are the most significant contributors to household income. In the absence of migrants, the financial decision is made by the older member of the households. Women are mostly left to manage household expenses and the education of children. The study further reveals that financial decision is largely consultative but male households have the final say in case of disagreement revealing power dynamics in households.

Lundberg *et al*. (1994) proposed three models that underpin family decision-making namely; a common preference model, a noncooperative game model, and a cooperative game model. Under the cooperative game model, both parties' interests are not compromised. Each party has an equal stake in the decision-making process and all opinions are respected. However, in the noncooperative game model, only one party dominates the decision-making and independently decides on the finances of the households. Individual characteristics like the status and capability of both parties determine who makes the financial decision of the households.

Compared to their husbands, and despite an increase in their employment rate, married women lag behind in financial decision-making power (Zhou *et al*.,2018). This is attributed to the fact that married women's status in society and family remains below that of their husbands and therefore they rely on their husbands economically to various degrees hence women are usually disadvantaged on the negotiation table (Zhou *et al*.,2018, Brines et al., 1994, Lenno *at el*.,1994). Studies have also shown that women often play the role of emotional caretaker of the household which is less related to economic activities thereby making married women have less decision-making power than their husbands (Isambert-Jamati. 1961, Steil. 1997).

The study by Rosen et al. (1983) indicates that women are more likely to be involved in the financial decision of the households when the wife is working for financial reasons. Equally, good financial behavior is associated with sound financial knowledge and higher income (Zakaria et al.,2012). Household income, gender, educational attainment, and nature of business correlate positively with the financial behavior of rural households in Kenya (Kibet *et al*.,2009).

Household financial health is key in protecting households against economic shocks such as unemployment, poverty, sickness, and even destitution in retirement (Goldsmith, 2000). A study by Joo et al. (2003) sought to identify the variables that affect household financial health. According to the survey's findings, financial contentment is directly influenced by factors including education level, financial literacy, risk, financial capability, financial activity, and financial demands. The findings demonstrated a negative association between financial risk tolerance and financial stress and financial satisfaction and a positive relationship between strengthening financial behaviors and high levels of knowledge and financial abilities. Age, sex, race, marital status, ownership of a property, family income, and the number of dependents did not significantly affect financial health in this study.

Financially independent women can enjoy good health as well as contribute to economic growth, poverty reduction, productivity growth, and efficiency improvement. Additionally, because of the numerous roles that women play daily, including those of consumers, household managers, employers in both the private and public sectors, and business owners, sound financial management skills as well as prudent saving and investing practices are crucial for achieving greater financial wellbeing (Sabri *et al*.,2020). Equally, an employee's financial well-being is considerably influenced by the level of financial education (Kamakia *et al*. 2017).

There exist scanty studies that explain financial decisions making among women. Additionally, no attempt has been made to analyse the nexus between financial decision among women and financial health of households in Kenya. This study therefore makes a contribution by filling these gaps in the literature.

3   Methodology and Data

In making any decision, an individual pick an alternative that guarantees a better expected outcome that leaves them better off (O'Donoghue *et al*.,2018). Therefore, self-financial decision is preferred to joint financial decision if it makes the individual better off than if the decision maker decides to involve a household member. Equally, women would prefer to make an independent financial decision if they perceive that decision to be of greater economic benefits to the household's members. Women would opt for joint financial decision if the utility derived is greater. In a noncooperative equilibrium, taking the behavior of household's members into consideration, one of the members will voluntarily offer his or her discretionary economic resources in exchange for the harmony of the family.

The utility-maximization of the households then is determined by how they control the economic resources. Thus, for household members, the Neumann-Morgenstern utility function is given as:

$$U^h(x_h, q_1, q_2) \qquad\qquad (1)$$
$$U^w(x_w, q_1, q_2) \qquad\qquad (2)$$

Where x_h and x_w are household's discretionary economic resources reflecting their financial decision-making power while q_1 and q_2 are the households' nondiscretionary economic resources. We make assumption that none of the household member is altruistic and that q_1 and q_2 are

spontaneously provided. The "threat point", is the utility households achieve when bargaining fails. The threat functions are given as:

$$T^h(P_1, P_2, I_h, I_w) \text{ and } T^w(P_1, P_2, I_h, I_w) \tag{3}$$

Prices of related goods and services are captured by P_1 and P_2 under the assumption that the prices of $x_1 = 1$ and the prices of $x_2 = 1$. I_h and I_w are the households and women economic resources respectively. We arrive at the Nash equilibrium solution when x_h, x_w, I_h, I_w are maximized and is written as:

$$N = [U^h(x_h, q_1, q_2) - T^h(P_1, P_2, I_h, I_w)][U^w(x_w, q_1, q_2) - T^w(P_1, P_2, I_h, I_w)] \tag{4}$$

Equation (4) is the symmetrical Cobb-Douglas function also known as "Nash household benefits function". The discretionary financial decision-making power and the individual resource endowment of household member (self, spouse, mother, sister, brother, daughter, son) are positively correlated. This suggests that the allocation of family financial decision making power and economic resources are directly related. The household member with more economic resources holds more power in making financial decisions.

Following Kamiaka et al (2017), we identify financial education as a key determinant of financial decision-making but deviate from Kamiaka et al (2017) by investigating causality. To this end, financial education is proxied by financial literacy (n), and utilized as the treatment variable. Individuals are then categorized into treated group if they are financially literate, and control group if they are not financially literate. This then allows the computation of financial literacy in a manner such that $n_i(1)$ and $n_i(0)$ denote financially literate and financially illiterate individual, respectively. A financially healthy individual then makes key financial decisions with probability $A_i(n_i = 1) = A_i(1)$, whereas such decisions are made with probability $A_i(n_i = 0) = A_i(0)$ for a financially illiterate individual. Since an individual cannot be literate and illiterate at the same time, it follows that for a literate individual, it is not known what would have been (with regard to financial decision-making) had the individual been illiterate. Thus, there is a problem of missing data. This is overcome through propensity score matching (PSM) whereby a literate individual is matched with an illiterate individual with similar characteristics, including income level, educational attainment, exposure to shock, and place of residence.

PSM then allows for an analysis of the effect of financial literacy on financial decision-making by computing the population mean treatment effect, $B = \frac{1}{b_i} \sum_{i=1}^{b_i} (A_i(1) - A_i(0))$. This computation draws upon the satisfaction of the balancing property and the establishment of common support while imposing the stable unit treatment value assumption (SUTVA). Now, propensity scores are computed via a probit function: $p(n_i = 1|X_i) = n_i(\beta X_i + u_i)$, where socio-demographics are captured in X, and β retrieved via maximum likelihood estimation. Subsequently, B is estimated using stratification, kernel, and nearest neighbor matching methods. Similarly, in explaining financial health, financial decision-making is employed as the treatment variable, and the steps above followed.

3.1   Data and Variables

The study utilized Financial Access Household Survey 2021 dataset. 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). Financial decision-making is the dependent variable and regressed against a number of control variables that include: literacy level, income, financial health, residence/location, marital status and shocks. A financial health household has the opportunity to fully meet their daily and future financial liabilities (Voznyak et al. 2022). Incidences of shocks capture shocks on cost of living, health, death in family, and climate related shocks (drought and flood).We identify three key financial decision-makers at the household level, namely; the woman/self, spouse(husband), and joint(wife and husband).

4   Empirical Findings and Discussions

4.1   Descriptive statistics

We observe that self-financial decision making among women diminishes with educational level of women (Appendix 1). For instance, of those women who make self-financial decision, 25.77% have no formal education, 21.74% have secondary level of training while 10.17% possess tertiary level of education. However, women tend to make joint financial decision with other household members as they attain higher education qualification (Appendix 1). Majority of women who make self-financial decision (42.42%) reported to be not financially health (Appendix 2). Similarly, women are not financially health when spouse make financial decision. On the contrary, women who makes joint financial decision with spouse are associated with financial health.

Table 1 captures a disaggregated dataset. The average financially illiterate woman was older but earned less compared to a literate counterpart who also was more likely to be financially healthy. A financially literate woman was more likely to make key financial decisions jointly with spouse or to have, at least, some secondary school education, and less likely to have experienced shocks compared to an illiterate counterpart.

Table 1: Descriptive Statistics

VARIABLES	(1) Literate=0 N	(2) mean	(3) Std. dev.	(4) min	(5) Max	(6) Literate=1 N	(7) mean	(8) Std. dev.	(9) min	(10) max
age	7,494	42.75	18.58	16	90	5,127	33.32	12.99	16	90
Income	6,582	5,046	6,227	100	150,000	4,646	8,933	12,325	100	160,000
Financial health	7,556	0.0969	0.296	0	1	5,129	0.222	0.416	0	1
Shock	7,556	0.740	0.439	0	1	5,129	0.682	0.466	0	1
Location	7,556	0.730	0.444	0	1	5,129	0.550	0.498	0	1
Financial decision maker:										
Self	7,556	0.453	0.498	0	1	5,129	0.377	0.485	0	1
Spouse	7,556	0.195	0.396	0	1	5,129	0.128	0.334	0	1
Joint	7,556	0.198	0.398	0	1	5,129	0.272	0.445	0	1
Education:										
Some secondary	7,556	0.199	0.399	0	1	5,129	0.650	0.477	0	1
Some university	7,556	0.00596	0.0769	0	1	5,129	0.0797	0.271	0	1
Financial advisor:										
Friend	7,556	0.510	0.500	0	1	5,129	0.497	0.500	0	1
Own	7,556	0.417	0.493	0	1	5,129	0.357	0.479	0	1
Marital status:										
Single	7,556	0.147	0.354	0	1	5,129	0.345	0.475	0	1
Married	7,556	0.522	0.500	0	1	5,129	0.513	0.500	0	1
Divorced	7,556	0.0844	0.278	0	1	5,129	0.0636	0.244	0	1
Widowed	7,556	0.245	0.430	0	1	5,129	0.0778	0.268	0	1

4.2 Financial Decision-Making Dynamics Among Women

Table 2 captures the estimates for the propensity of women financial literacy. Propensity scores were calculated based on a probit model, and captured in column 1. Column 1 is synonymous to a t-test while column 2 attempts to adjust for the control variables. Columns 1 and 2, however, do not capture causality. In column 3, it was evident that the probability of one being financially literate declined significantly with shock experience and rural residence but rose significantly in having at least some secondary school education, and in being financially healthy. At the household level, incomes up to Kenya Shilling 23670 are considered low. Consequently, incomes above Kenya Shilling 23670 were the benchmark incomes. Very low incomes amounting less than Kenya Shilling 2001 had no significant effect on the likelihood of a woman being financially literate. Against the benchmark, the probability of being financially literate rose up the income ladder.

Three matching methods were employed, namely; nearest neighbor, kernel, and stratification matching, each utilizing 5 bootstrap replications although a larger number of replications would do better. Once the matching was complete, causality was inferred with the estimates captured in columns 4-6. It was evident that financial literacy caused the probability that women made financial decisions on their own to decline such that a financially literate woman was 2.73%-2.97% less likely to make key financial decisions on her own compared to an illiterate counterpart.

Table 2: Financial Decisions Made by the Self

VARIABLES	(1) Self	(2) Self	(3) Literacy	(4)	(5)	(6)
				Average total treatment effect		
Literacy	-0.197***	-0.118***				
	(0.0229)	(0.0262)				
Financial health		0.0319	0.283***			
		(0.0333)	(0.0350)			
Shock		0.165***	-0.143***			
		(0.0253)	(0.0268)			
Location		-0.192***	-0.198***			
		(0.0254)	(0.0267)			
Secondary		-0.301***	1.145***			
		(0.0271)	(0.0256)			
Income (KSH):						
Y≤2000		-0.0356	-0.0636			
		(0.0372)	(0.0402)			
2000<Y≤5000		0.0983***	0.0782**			
		(0.0358)	(0.0385)			
5000<Y≤15000		0.172***	0.160***			
		(0.0372)	(0.0400)			
15000<Y≤23670		0.233***	0.363***			
		(0.0676)	(0.0739)			
Y>23670 (rf)						
Matching method:						
Nearest neighbor				-0.0297***		
				(0.0107)		
Kernel					-0.0273**	
					(0.0117)	
Stratification						-0.0292*
						(0.0162)
Constant	-0.117***	-0.104***	-0.577***			
	(0.0145)	(0.0402)	(0.0423)			
Observations	12,685	12,685	12,685	12,685	12,685	12,685

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

Table 3 presents the econometric estimates for the financial decision being made by spouse of the woman. The result indicates that a rural woman was more likely to have key financial decisions made by spouse compared to an urban counterpart, while a woman with at least some secondary school education was less likely to have key financial decisions made by spouse (column 2). Similarly, financial literacy caused the probability that spouses made financial decisions for women to decline such that a financially literate woman was 6.33%-6.52% less likely to have a spouse make key financial decisions compared to an illiterate counterpart (column 4-6).

Table 3: Financial Decisions Made by Spouse

VARIABLES	(1) spouse	(2) Spouse	(3) Literate	(4)	(5)	(6)
				Average total treatment effects		
Literacy	-0.278***	-0.229***				
	(0.0278)	(0.0312)				
Financial health		-0.0134	0.283***			
		(0.0400)	(0.0350)			
Shock		-0.0145	-0.143***			
		(0.0297)	(0.0268)			
Location		0.0734**	-0.198***			
		(0.0303)	(0.0267)			
Secondary		-0.122***	1.145***			
		(0.0322)	(0.0256)			
Income (KSH):						
Y≤2000		0.0144	-0.0636			
		(0.0452)	(0.0402)			
2000<Y≤5000		0.165***	0.0782**			
		(0.0432)	(0.0385)			
5000<Y≤15000		0.243***	0.160***			
		(0.0449)	(0.0400)			
15000<Y≤23670		0.116	0.363***			
		(0.0840)	(0.0739)			
Y>23670 (rf)						
Matching method:						
Nearest neighbor				-0.0652***		
				(0.0113)		
Kernel					-0.0633***	
					(0.00317)	
Stratification						-0.0653***
						(0.00532)
Constant	-0.859***	-0.990***	-0.577***			
	(0.0165)	(0.0482)	(0.0423)			
Observations	12,685	12,685	12,685	12,685	12,685	12,685

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

In Table 4 we present the econometric output explaining the joint financial decision making among women. The finding demonstrates that those who experienced shocks were more likely to make financial decisions jointly with their spouses as well as those in rural areas and the financially healthy compared to the relevant reference group (column). Lastly, financial literacy caused women to make financial decisions jointly with their spouses such that a financially literate woman was 6.61%-6.70% more likely to make key financial decisions jointly with spouse compared to a financially illiterate counterpart (column 4-6).

Table 4: Financial Decisions Made Jointly

VARIABLES	(1) Joint	(2) Joint	(3) Literate	(4)	(5)	(6)
				Average total treatment effects		
Literacy	0.244***	0.242***				
	(0.0249)	(0.0284)				
Financial health		0.268***	0.283***			
		(0.0348)	(0.0350)			
Shock		0.0988***	-0.143***			
		(0.0279)	(0.0268)			
Location		0.0681**	-0.198***			
		(0.0279)	(0.0267)			
Secondary		-0.0578**	1.145***			
		(0.0294)	(0.0256)			
Income (KSH):						
Y≤2000		-0.181***	-0.0636			
		(0.0402)	(0.0402)			
2000<Y≤5000		-0.122***	0.0782**			
		(0.0385)	(0.0385)			
5000<Y≤15000		-0.141***	0.160***			
		(0.0401)	(0.0400)			
15000<Y≤23670		-0.00733	0.363***			
		(0.0716)	(0.0739)			
Y>23670 (rf)						
Matching method:						
Nearest neighbor				0.0670***		
				(0.00726)		
Kernel					0.0661***	
					(0.0104)	
Stratification						0.0665***
						(0.00709)
Constant	-0.850***	-0.868***	-0.577***			
	(0.0165)	(0.0440)	(0.0423)			
Observations	12,685	12,685	12,685	12,685	12,685	12,685

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

4.3   Financial Health

The econometric results for the second objective of this study is presented Table 5. In particular, the estimate linking self-financial decision making among women and financial health suggests that women who make independent financial decision are more likely to financially health though the impact is statistically non-significant at 5% significance level. This implies, making financial decisions by self does not significantly cause financial health. Equally, rural residents were significantly less likely to make key financial decisions on their own compared to urban residents (Column3). Similarly, financially literate individuals and those with at least some secondary school education, were less likely to make key financial decisions on their own compared to the illiterate and those without secondary school education, respectively. Relative to individuals earning incomes above Kenya Shilling 23670, the probability that an individual makes a key financial decision on their own significantly rose up the income groups between Kenya Shilling 2001 and 23670. Individuals who experienced shocks were more likely to make key financial decisions on their own compared to those who did not. A woman with at least some secondary school education and a financially literate woman were more likely to be financially healthy compared to a countered without secondary school education and a financially illiterate woman, respectively.

Table 5: Financial Health I

VARIABLES	(1) Financial health	(2) Financial health	(3) Self	(4)	(5) Average total treatment	(6)
Self	-0.0251	-0.00266				
	(0.0277)	(0.0296)				
Location		0.0456	-0.191***			
		(0.0315)	(0.0254)			
Y≤2000		-0.651***	-0.0395			
		(0.0492)	(0.0370)			
2000<Y≤5000		-0.278***	0.0960***			
		(0.0431)	(0.0357)			
5000<Y≤15000		0.0731*	0.172***			
		(0.0425)	(0.0372)			
15000<Y≤23670		0.433***	0.237***			
		(0.0712)	(0.0675)			
Y>23670 (rf)		-				
Secondary		0.454***	-0.298***			
		(0.0327)	(0.0269)			
Literacy		0.263***	-0.116***			
		(0.0322)	(0.0262)			
Shock		-0.0188	0.165***			
		(0.0316)	(0.0253)			
Matching method: Nearest neighbor				-0.00231		
				(0.00769)		
Kernel					-9.95e-05	
					(0.00743)	
Stratification						-0.000774
						(0.00561)
Constant	-1.037***	-1.220***	-0.100**			
	(0.0179)	(0.0510)	(0.0400)			
Observations	12,685	12,685	12,685	12,685	12,685	12,685

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

In table 6, we attempted to link household financial health and spouse financial decision making. The result indicates that as income rose, individuals were more likely to be financially healthy although income insignificantly affected the probability of spouse making key financial decisions. Individuals with at least some secondary school education and the financially literate were more likely to be financially healthy but less likely to have key financial decisions made by spouse compared to those without secondary school education and the illiterate, respectively. Rural residents were more likely to have key financial decisions made by spouse compared to urban residents. Having a spouse make key financial decisions did not, however, significantly cause an individual to be financially healthy.

Table 6: Financial Health II

VARIABLES	(1) Financial health	(2) Financial health	(3) Spouse	(4)	(5) Average total treatment	(6)
Spouse	-0.0780**	0.0261				
	(0.0373)	(0.0409)				
Location		0.0343	0.0742**			
		(0.0330)	(0.0319)			
Income		3.34e-05***	1.64e-06			
		(1.59e-06)	(1.62e-06)			
Secondary		0.421***	-0.110***			
		(0.0344)	(0.0337)			
Literacy		0.215***	-0.238***			
		(0.0340)	(0.0328)			
Shock		-0.0327	-0.000561			
		(0.0333)	(0.0315)			
Matching method:						
Nearest neighbor				0.000301		
				(0.00916)		
Kernel					-0.00632	
					(0.00714)	
Stratification						-0.00332
						(0.0154)
Constant	-1.035***	-1.583***	-0.880***			
	(0.0149)	(0.0444)	(0.0401)			
Observations	12,685	11,228	11,228	12,685	12,685	12,685

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

For Table 7, we present estimates relating joint financial decision making among women and their financial health. We show that individuals with at least some secondary school education and the financially literate were significantly more likely to be financially healthy compared to their counterparts without secondary school education and the illiterate, respectively. Making financial decisions jointly with spouse caused the probability of being financially healthy to rise such that a woman who jointly made key financial decisions with spouse was 5.79%-7.41% more likely to be financially healthy compared to a counterpart that did not jointly make key financial decisions with spouse.

Table 7: Financial Health III

VARIABLES	(1) Financial health	(2) Financial health	(3) Joint	(4)	(5) Average total treatment	(6)
Joint	0.299*** (0.0309)	0.250*** (0.0326)				
Y≤2000		-0.628*** (0.0488)	-0.196*** (0.0394)			
2000<Y≤5000		-0.263*** (0.0431)	-0.132*** (0.0381)			
5000<Y≤15000		0.0842** (0.0426)	-0.143*** (0.0399)			
15000<Y≤23670		0.432*** (0.0711)	0.0131 (0.0712)			
Y>23670 (rf)		-				
Secondary		0.450*** (0.0322)	-0.0384 (0.0287)			
Literacy		0.242*** (0.0322)	0.249*** (0.0282)			
Matching method: Nearest neighbor				0.0586*** (0.00423)		
Kernel					0.0741*** (0.00943)	
Stratification						0.0579*** (0.00561)
Constant	-1.124*** (0.0160)	-1.271*** (0.0396)	-0.712*** (0.0337)			
Observations	12,685	12,685	12,685	12,685	12,685	12,685

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

4.4 Discussion

The first goal focused on explaining the probability that a woman made key financial decisions on her own, jointly with spouse, or had them made by spouse. It was evident that: a financially literate woman was less likely to make key financial decisions on her own or to have them made by spouse but more likely to make key financial decisions jointly with spouse compared to a financially illiterate counterpart; a rural woman was less likely to be financially literate and less likely to make key financial decisions on her own or have them made by spouse but more likely to have them jointly made with spouse compared to an urban counterpart, and; a woman with at least some secondary school education was more likely to make key financial decisions on her own but less likely to have them made by spouse or jointly compared to a counterpart without.

Zhou et al (2018) argued that spouses with higher earnings tend to be the key financial decision makers. In the current paper, a woman's income was not compared against her spouses; and, hence, this paper's position cannot be asserted with regard to Zhou et al (2018). Zhou et al showed that higher educational attainment raises women's ability to make key financial investment decisions. This research, therefore supports Zhou et al (2018), and we argue that educational attainment promoted women's self-efficacy and determination in decision-making. Zhou et al argued that power dynamics forced women to be subservient to their spouses in making key financial decisions. We find no evidence to back up or refute this hypothesis.

The second goal analyzed how making of key financial decisions affected a woman's financial health. It was suggested that: a woman that made key financial decisions on her own or by spouse was insignificantly less likely to be financially healthy, whereas a woman that had key financial decisions made jointly with spouse was significantly more likely to be financially healthy; a woman with at least some secondary school education was significantly more likely to be financially healthy compared to a counterpart without; a financially literate woman was more likely to be financially healthy compared to an illiterate counterpart, and; an income increment raised the probability of a woman being financially healthy. Kamakia et al (2017) established that financial education fostered employees' financial well-being. This research supports Kamakia et al (2017), and we argue that financial literacy enabled women to better plan their finances which then fostered their financial health.

5   Conclusion and Recommendation
Based on the research findings, the following conclusions are drawn: key financial decisions are more likely to be made jointly between woman and spouse for a financially literate woman compared to an illiterate counterpart; joint decisions are also more likely to be made by a rural woman compared to an urban counterpart; a financially literate woman was more likely to be financially healthy compared to an illiterate counterpart, and; a woman that made key financial decisions jointly with spouse was significantly more likely to be financially healthy compared to a counterpart that did not.

The results point to the importance of expanding financial education provision in order to raise financial literacy levels amongst women. These will empower them to effectively participate in (joint or consultative) decision making at the household level, and ultimately lead to better financial health and well-being of the household.

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Appendix 1 Financial Decision Making and Education level of women

financial_decision	None	Primary	Secondary	Tertiary	Other	Total
self	1,381	2,264	1,165	545	3	5,358
	25.77	42.25	21.74	10.17	0.06	100.00
spouse	594	893	496	147	0	2,130
	27.89	41.92	23.29	6.90	0.00	100.00
jointly_spouse	400	1,299	805	382	5	2,891
	13.84	44.93	27.85	13.21	0.17	100.00
jointly_others	415	589	1,059	236	3	2,302
	18.03	25.59	46.00	10.25	0.13	100.00
Total	2,790	5,045	3,525	1,310	11	12,681
	22.00	39.78	27.80	10.33	0.09	100.00

Appendix 2 Financial Health and Financial Decision Making among women

Financially healthy	self	spouse	jointly_s	jointly_o	Total
No	4,586	1,847	2,299	2,079	10,811
	42.42	17.08	21.27	19.23	100.00
Yes	772	283	592	223	1,870
	41.28	15.13	31.66	11.93	100.00
Total	5,358	2,130	2,891	2,302	12,681
	42.25	16.80	22.80	18.15	100.00