

Digital Financial Platforms And Economic Performance Of Women In Shgs In Embu County, Kenya

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Abstract

Digital financial platforms have emerged as important tools for promoting financial inclusion and women's economic empowerment. However, empirical evidence on their influence among women participating in Self-Help Groups (SHGs) in developing countries remains limited. This study examined the influence of digital financial platforms on the economic performance of women in SHGs in Embu County, Kenya. The study employed a mixed-methods approach using a convergent parallel research design with a descriptive correlational component. The target population comprised 26,920 women from 1,346 registered SHGs, from which a sample of 379 respondents was selected using a multistage sampling procedure. Data were collected using structured questionnaires, key informant interviews, and focus group discussions. Quantitative data were analysed using descriptive statistics, Pearson and Spearman correlation analyses, and multiple linear regression at a 5% level of significance, while qualitative data were analysed thematically. The findings revealed that digital financial platforms significantly enhanced women's economic performance. Mobile money services were the most widely adopted, with 95.5% of respondents using M-Pesa for financial transactions, while advanced products such as M-Shwari (27.6%) and Ziidi (3.8%) recorded substantially lower adoption. Digital financial platforms were positively associated with overall economic performance ($\rho = 0.49$, $p < 0.001$) and savings growth ($\rho = 0.51$, $p < 0.001$). Multiple linear regression showed that digital financial platforms explained 27.0% of the variation in economic performance ($R^2 = 0.270$, $F(1,372) = 138.6$, $p < 0.001$), with each unit increase in platform utilization associated with a 0.48-unit improvement in economic performance. Loan repayment rates also increased significantly with greater use of digital financial platforms. The study concludes that digital financial platforms play a significant role in improving the economic performance of women in SHGs. The study recommends strengthening digital financial literacy, expanding access to advanced digital financial products, and promoting partnerships among government, financial institutions, and development organizations to enhance women's digital financial inclusion and economic empowerment.

Keywords: Digital financial platforms, economic performance, women's Self-Help Groups, financial inclusion

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I. Background

Globally, policies and frameworks such as the Beijing Platform for Action (1995), the Sustainable Development Goals (SDGs), and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) support women's economic well-being and gender equality. These frameworks advocated for women's access to education, credit, and entrepreneurship, recognizing that empowering women leads to sustainable economic growth and social equity (Okorodudu, 2018). Similarly, the SDGs, particularly Goal 5 (gender equality) and Goal 8 (decent work and economic growth), have set measurable targets for reducing gender disparities in economic participation and ensuring women's equal access to financial services, technology, and markets (Biermann, Kanie & Kim, 2017). Women's self-help groups emerged as one of the most effective grassroots tools for addressing these barriers, providing a platform for collective savings, peer learning, and mutual financial support (Bhatt & Pandey, 2024).

Digital technology integration becomes a key driver of economic and social transformation globally, especially in enhancing the empowerment of marginalized groups such as women (Aryal, 2024). The advanced use of mobile phones, internet connectivity, and digital platforms fundamentally altered how people

communicate, transact, and access information. Digital platforms ranging from mobile banking and e-commerce platforms to online training programs and networking channels created new avenues for economic participation and inclusion for women in unfavorable economic settings (Mookerjee, Bhuriya, Josphin, Radhakrishnan & Gurulingu, 2025). According to Murad (2025), mobile money reduced costs and inconveniences associated with travelling to banks, digital record keeping applications could replace error-prone paper ledgers hence improving financial transparency within groups. However, these studies did not investigate the extent to which women in self-help groups have adopted digital platforms, a gap that this study sought to address.

Worldwide, digital financial services have enhanced women's financial inclusion by improving access to savings, credit, and insurance (Mpofu, 2023). In India, digital initiatives targeting Women's Self-Help Groups have strengthened financial inclusion through mobile-based financial services and business training (Upadhyaya, 2024). However, persistent digital inequalities, including lower internet access among women (63% compared to 69% for men), continue to limit their participation and economic opportunities (Citaristi, 2022). Although digital financial innovations have improved financial access and enterprise growth in many regions, including North America, evidence on their contribution to the economic performance of women in SHGs remains limited (Olanrewaju & Uche, 2025).

Across Africa, digital financial inclusion initiatives have expanded women's access to financial services through government and development partner support, although challenges such as inadequate infrastructure, limited digital capability, and rural connectivity continue to constrain effective utilization (Mpofu, 2023; Nkonoki, 2025). In Kenya, digital financial platforms such as M-Pesa, Tala, and Ajira Digital have significantly enhanced financial inclusion and entrepreneurship among women, including members of Self-Help Groups. However, despite their increasing availability and use for savings, money transfers, and loan repayments, there is limited empirical evidence on whether the adoption of these platforms translates into improved economic performance among women in SHGs (Schachter, 2019; Mutungi, 2023)

In Embu County, Women's Self-Help Groups play an important role in improving household livelihoods through collective savings, group lending, and income-generating activities (Njeru, 2024). The increasing availability of mobile phones and digital financial services provides opportunities to improve financial accountability, operational efficiency, savings mobilization, and access to credit (Kadaba, Aithal, & KRS, 2023). Although mobile money services are widely available in the county (Kagwiria, 2022), previous studies have primarily focused on digital technologies in agriculture, health, and education rather than digital financial platforms within Women's Self-Help Groups (Cheruiyot, 2023). Therefore, creating information gap on the influence of digital financial platforms on the economic performance of women in Self-Help Groups in Embu County, Kenya.

II. Methodology

The study was carried out in Embu County, Kenya. The area was suitable for the study because of its high concentration of registered women's self-help groups and increasing access to digital technologies, including mobile phone ownership and internet connectivity, making it appropriate for examining the influence of digital financial platforms on the economic performance of women in Self-Help Groups in Embu County, Kenya. The study adopted a mixed-methods approach using a convergent parallel research design with a descriptive correlational component. The target population comprised 26,920 women drawn from 1,346 registered women's self-help groups. A multistage sampling procedure involving cluster, purposive, proportionate, and simple random sampling techniques was used to select 379 women respondents, while purposive sampling was used to select five key informants and two focus group discussions. Structured questionnaires, key informant interview schedules, and focus group discussion guides were used to collect primary data. Descriptive statistics including frequencies, percentages, means, and standard deviations were used to summarize the data. Inferential statistics comprised Pearson and Spearman correlation analyses and multiple linear regression at a 5% level of significance. Qualitative data were analysed using thematic analysis to complement and explain the quantitative findings

III. Results And Discussion

Descriptive Analysis of Digital Financial Platform Use

The study outcome revealed strong agreement among women that digital financial platforms benefit their SHGs across Embu County. Each of the five statements was rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The table below reports mean, standard deviations, skewness, kurtosis, and the percentage of respondents who agreed or strongly agreed (scores 4 or 5).

Across all five statements, average scores range from 3.7 to 4.2, with standard deviations between 0.8 and 1.1. The highest mean (4.2) belonged to the use of mobile money for savings and contributions, and 86.4% of women agreed. The smallest standard deviation on the table is 0.8, indicating very little disagreement. The negative skew (-0.92) shows the distribution is concentrated at the high end, with few women disagreeing.

Table 1: Digital Financial Platform Usage Patterns

Statement	Mean	SD	Skewness	Kurtosis	Agree/Strongly Agree (%)
My SHG uses mobile money for savings and contributions	4.2	0.8	-0.92	0.84	86.4
Digital financial platforms have improved access to loans and credit	3.9	1.0	-0.58	-0.12	72.8
Use of digital financial platforms has improved financial transparency	4.0	0.9	-0.71	0.23	76.5
Digital financial platforms have reduced delays in financial transactions	4.1	0.8	-0.84	0.56	80.2
Digital financial platforms have contributed to increased income levels	3.7	1.1	-0.44	-0.38	64.4

Scores on a 5-point scale where 1 = Strongly Disagree, 5 = Strongly Agree

The second highest means (4.1) was for reduced transaction delays, with 80.2% agreement. Women value the speed of digital payments compared to cash handling and travelling to a bank. The Key Informant 2 confirmed this benefit: *“At least they pay on time, then the cost is effective because the transaction cost you cannot compare it with the transport that they use to go to town and pay through the bank.”* Financial transparency followed with a mean of 4.0 and 76.5% agreement. Access to loans and credit received a mean of 3.9, with 72.8% agreement. The standard deviation for this item was 1.0, showing more variation in experience. The Key informant 4 noted that their organization provides loans through sending money direct to customers phone numbers, but not all members qualify: *“we approve loans based on customers credibility and previous experiences, not everyone one can qualify for a loan.”*

The lowest mean (3.7) and lowest agreement percentage (64.4%) are for the statement that digital financial platforms have contributed to increased income levels. While a majority still agree, nearly 36% do not see a clear link between Digital platforms and higher earnings. The standard deviation was the largest at 1.1, meaning perceptions differ widely. The Key informant 1 emphasized this link: *“Not everyone makes profit from the loans, it depends on one’s ability to multiply some members even their businesses may collapse before they make profit and use other means to repay the loans”*

Specific Digital Financial Platforms Used

The findings showed that M-Pesa was the most widely used digital financial platform, with 95.5% of adopters using it for sending and receiving money, indicating near-universal adoption of basic mobile money services among SHG members. However, the uptake of advanced digital financial products remained low, with only 27.6% of respondents using M-Shwari, revealing a substantial gap between basic transactions and digital savings or credit services. Focus group discussions attributed this low adoption to limited awareness, eligibility requirements, and restricted access to digital loans, suggesting that women have yet to fully utilize advanced digital financial products.

Table 2: Digital Financial Platforms Used by SHGs (n=312 Adopters, Multiple Responses).

Platform	Frequency (n)	Percentage of Adopters (%)	95% CI
M-Pesa (send/receive money)	298	95.5	[92.7, 97.4]
M-Shwari (savings/loans)	86	27.6	[22.7, 32.9]
KCB M-Pesa	52	16.7	[12.8, 21.3]
Equity Mobile Banking	44	14.1	[10.5, 18.5]
Co-op Bank Mobile	38	12.2	[8.9, 16.3]
Airtel Money	28	9.0	[6.2, 12.7]
Ziidi money market	12	3.8	[2.1, 6.6]
Other banking apps	24	7.7	[5.1, 11.2]

Formal mobile banking applications from commercial banks show even lower penetration. KCB M-Pesa reaches only 16.7%, Equity Mobile Banking 14.1%, and Co-op Bank Mobile 12.2%. Airtel Money, a direct competitor to M-Pesa, is used by only 9.0% of adopters, confirming that M-Pesa has an effective monopoly in Embu County’s SHG ecosystem. The very low adoption of Ziidi money market platform (3.8%) and other banking apps (7.7%) highlights a critical finding: investment oriented digital financial products remain inaccessible to many women.

Inferential Analysis: Digital Financial Platforms and Economic Performance

Table 3: Spearman Correlation Between Digital Financial Platforms and Economic Performance Indicators ($n=374$).

Economic Performance Indicator	Correlation Coefficient (ρ)	p-value	95% CI for ρ	Interpretation
Income increase	0.44	<0.001	[0.35, 0.52]	Moderate positive
Savings increase	0.51	<0.001	[0.43, 0.58]	Strong positive
Economic well-being	0.46	<0.001	[0.38, 0.54]	Moderate positive
Business efficiency	0.43	<0.001	[0.34, 0.51]	Moderate positive
Overall economic performance	0.49	<0.001	[0.41, 0.56]	Moderate-to-strong positive

All five correlation coefficients are positive and statistically significant at $p < 0.001$, meaning that as women report more intensive and effective use of digital financial platforms, their scores on each economic performance indicator rise. The coefficients range from 0.43 to 0.51, all falling in the moderate to strong range for social science research (Fried, 2017).

The strongest correlation was between digital financial platform use and savings increase ($\rho = 0.51$). Women who actively use mobile money and related platforms are significantly more likely to report that their savings have grown. The coefficient of 0.51 indicates that digital financial platforms explain approximately 26% of the variation in savings behavior ($\rho^2 = 0.26$), a substantial influence. The second strongest correlation was overall economic performance ($\rho = 0.49$), which combines income, savings, well-being, and efficiency. Economic well-being follows closely at 0.46, indicating that women using digital platforms feel more financially secure and better able to meet household needs.

Income increase shows a correlation of 0.44, while business efficiency has the weakest but still meaningful correlation at 0.43. Taken together, Table 19 demonstrates that digital financial platforms are most strongly linked to savings growth, followed closely by overall economic improvement, with all associations being statistically strong. The 95% confidence intervals (all excluding zero) provide additional assurance that the true population correlations are positive.

Regression Analysis: Digital Financial Platforms as Predictor of Economic Performance

Table 4: Multiple Linear Regression Model for Digital Financial Platforms and Economic Performance

Section	Statistic/Predictor	B	SE(B)	B	t	p-value	95% CI for B	Conclusion
Model Summary	Multiple R	0.52						
	R ²	0.270						
	Adjusted R ²	0.268						
	F-statistic	138.6						
	p-value (ANOVA)	<0.001						
Coefficients	(Constant)	1.42	0.18		7.89	<0.001	[1.07, 1.77]	
	Digital Financial Platforms Score	0.48	0.04	0.52	11.77	<0.001	[0.40, 0.56]	
Assumption Tests	Normality of residuals (Shapiro-Wilk)	0.98				0.08		Not violated
	Homoscedasticity (Breusch-Pagan)	$\chi^2 = 3.42$				0.18		Not violated
	Independence of errors (Durbin-Watson)	1.89						Not violated
	Linearity (Ramsey RESET)	F = 1.24				0.27		Not violated

The dependent variable is economic performance (composite score). The independent variable is the digital financial platforms score. Assumption test p-values > 0.05 indicate no significant violation. The Durbin-Watson statistic (1.89) is within the acceptable range (1.5-2).

The regression model demonstrates that digital financial platform use explains 27.0% of the variance in economic performance ($R^2 = 0.270$). The adjusted R^2 value of 0.268 confirms that this explanatory power is not inflated by sample size or model complexity. In practical terms, if you know a woman's digital financial platform score, you can predict 27% of her economic performance score. The remaining 73% is explained by other factors such as education, household wealth, business type, market access, and personal motivation (Verma, Raghuwanshi, Mishra, Mishra & Khare, 2024). The overall model is highly significant, with an F-statistic of 138.6 and a p-value below 0.001, indicating that the observed relationship is extremely unlikely to have occurred by chance (probability less than 0.1%).

The unstandardized coefficient ($B = 0.48$) provides a practical interpretation: for each one unit increase in a woman's digital financial platform score (on the 1 to 5 scale), her economic performance score increases by 0.48 units. Moving from a score of 2 ("disagree") to 4 ("agree") would raise economic performance by nearly one full point ($0.48 \times 2 = 0.96$) on the 5-point scale. For example, a woman who moves from "neutral" (3) to "agree" (4) would see her economic performance increase from approximately 3.3 to 3.8. The constant term (1.42) represents the predicted economic performance score when digital financial platform use is at zero theoretical baseline.

The standardized coefficient ($\beta = 0.52$) indicates a medium to large effect size. This β value is the highest among all predictors examined in the full model (Table 29 in Section 4.7.2), confirming that among the four dimensions of digital adoption, financial platforms exert the strongest individual influence. The t-value of 11.77 and p-value < 0.001 further underscore statistical reliability. The standard error of the coefficient (0.04) is small relative to the coefficient (0.48), giving a precise estimate: the 95% confidence interval [0.40, 0.56] means that if the study were repeated many times, the coefficient would fall between 0.40 and 0.56 in 95% of samples.

All regression assumption tests were satisfied. The Shapiro-Wilk test for normality of residuals was non-significant ($p = 0.08$), indicating that the residuals are approximately normally distributed. The Breusch-Pagan test for homoscedasticity (constant variance of errors) was non-significant ($\chi^2 = 3.42$, $p = 0.18$), meaning the model predicts equally well across all levels of digital finance use. The Durbin-Watson statistic of 1.89 is within the acceptable range (1.5-2.5), indicating no problematic autocorrelation. The Ramsey RESET test for omitted variable bias and linearity was non-significant ($F = 1.24$, $p = 0.27$), suggesting that the linear functional form is appropriate and that no important variables had been omitted from this simple model. These results provide strong quantitative evidence that enhancing women's use of digital financial platforms directly contributes to better economic outcomes.

Comparison of Loan Repayment Rates by Digital Platform Use

Table 5: Self-Reported Loan Repayment Rates by Digital Financial Platform Use.

Digital Financial Platform Use	Mean Repayment Rate (%)	Standard Deviation	95% CI for Mean	N
High users (score 4-5)	94.2	8.4	[92.1, 96.3]	142
Moderate users (score 3)	82.6	12.1	[79.8, 85.4]	108
Low users (score 1-2)	68.4	15.3	[64.2, 72.6]	124
Overall	82.8	14.2	[81.3, 84.3]	374

*Repayment rates are self-reported percentages based on group records. One-way ANOVA: $F(2,371) = 142.3$, $p < 0.001$, $\eta^2 = 0.43$. *

The data shows a clear and graded relationship. High users (scores 4-5) report an average repayment rate of 94.2%, which is exceptionally high by any microfinance standard. The Microfinance Information Exchange (MIX) reports that portfolio at risk (loans overdue >30 days) in sub-Saharan Africa averages 8-12%, corresponding to repayment rates of 88-92% (Louis-Jean, 2020). High users in Embu County (94.2%) outperform the regional average. In contrast, low users (scores 1-2) report an average repayment rate of only 68.4%, far below acceptable microfinance standards. The difference between high and low users is 25.8 percentage points, a substantial gap that indicates heavy digital platform use is associated with much stronger repayment discipline.

The moderate user group (score 3) falls in the middle with a repayment rate of 82.6%. This creates a stepwise pattern: 68.4% $\rightarrow$ 82.6% $\rightarrow$ 94.2%. The increase from low to moderate is 14.2 points, and from moderate to high is 11.6 points. A one-way ANOVA confirmed that the differences between the three groups are statistically significant ($F(2,371) = 142.3$, $p < 0.001$). The η^2 (eta-squared) value of 0.43 means that digital financial platform use explains 43% of the variance in loan repayment rates, a very strong effect. Post-hoc comparisons using Tukey's HSD test showed that all three groups differ significantly from each other ($p < 0.001$ for each comparison). The 95% confidence intervals do not overlap: low users [64.2, 72.6], moderate users [79.8, 85.4], high users [92.1, 96.3], confirming that the groups are genuinely distinct.

The standard deviations provide additional insight. Low users have the widest spread ($SD = 15.3$), indicating very inconsistent repayment behavior. Some low users may still pay back reliably (perhaps due to personal discipline), but many struggle, with some repaying as little as 40-50% of their loans. Moderate users

have a narrower spread ($SD = 12.1$), showing more consistency. High users have the tightest spread ($SD = 8.4$), meaning nearly all heavy digital platform users repay at very high rates (mostly between 86% and 100%). The overall average repayment rate of 82.8% masks this variation, but the subgroup analysis reveals that digital platform intensity directly predicts repayment success.

IV. Conclusion

The findings revealed strong positive associations between digital financial platforms and women's economic performance. Mobile money for savings and contributions received the highest agreement 86.4%, and 80.2% agreed that digital platforms had reduced transaction delays. Spearman's correlation coefficient indicated the strongest relationship with savings growth ($\rho = 0.51$, $p < 0.001$), followed by overall economic performance ($\rho = 0.49$). Multiple linear regression revealed that digital financial platforms alone explained 27.0% of the variance in economic performance ($R^2 = 0.270$, $F(1,372) = 138.6$, $p < 0.001$), with an unstandardized coefficient of $B = 0.48$. Therefore, null hypothesis stating that digital financial platforms have no statistically significant influence on the economic performance of women in Self-Help Groups in Embu County, Kenya was rejected, indicating that higher levels of digital financial platforms utilization are significantly associated with improved economic performance among women in Self-Help Groups in Embu County.

Also, Loan repayment rates improved stepwise with digital finance use: low users reported 68.4% repayment, moderate users 82.6%, and high users 94.2% ($F(2,371) = 142.3$, $p < 0.001$, $\eta^2 = 0.43$). However, while basic M-Pesa transfers were nearly universal (95.5%), adoption of savings products like M-Shwari (27.6%) and investment platforms like Ziidi (3.8%) remained low. This finding filled an important empirical gap by quantifying the contribution of digital financial platforms to women's economic performance within SHGs, a relationship that had not been adequately documented in the local context.

Recommendations

- i. Government agencies, financial institutions, and development partners should establish affordable smartphone financing and subsidy programs to increase access to digital devices among women in SHGs.
- ii. Commercial banks and mobile financial service providers should simplify digital financial platforms by introducing user friendly mobile banking applications, and low-cost digital transactions for women in SHGs.

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