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FINANCIAL TECHNOLOGY AND FINANCIAL INCLUSION EFFECT ON WOMEN ECONOMIC EMPOWERMENT IN

KENYA

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ABSTRACT

Purpose: This study aimed to examine the impact of FinTech and financial inclusion on women's economic empowerment in Kenya.

Methodology: A cross-sectional research design was adopted, utilizing secondary data from the 2021 Kenya FinAccess Household Survey. Principal Component Analysis (PCA) was employed to construct indices for women's economic empowerment and FinTech adoption. Multinomial logit and probit models were applied to analyze the relationship between FinTech usage, financial inclusion, and demographic characteristics.

Results: The study found that FinTech adoption had a negative but statistically significant effect on women's economic empowerment ($\beta = -0.1664$, p < 0.05), indicating that while digital financial services contribute to financial access, they alone are insufficient to drive economic empowerment due to barriers such as digital literacy and gendered financial constraints. Conversely, financial inclusion showed a positive, though modest, effect on women's empowerment ($\beta = 0.0894$, p = 0.010), highlighting the importance of supportive policies and educational programs in enhancing the impact of financial services.

Conclusion: This study found that while FinTech adoption is statistically significant, it negatively impacts women's economic empowerment due to structural barriers. In contrast, financial inclusion positively influences empowerment. Demographic factors also play a key role.

Recommendations: To enhance women's economic empowerment through FinTech and financial inclusion, the study recommends improving digital literacy, designing gender-sensitive financial products, subsidizing transaction costs, expanding digital infrastructure, supporting women's entrepreneurship, and enacting inclusive policies. These combined efforts can transform digital finance into a tool for sustainable and inclusive empowerment in Kenya.

Keywords: Financial Technology, Financial Inclusion, Women's Economic Empowerment, Gender Disparities, Principal Component Analysis

INTRODUCTION

The rapid advancement of information, communication, and technology (ICT) has led to transformative benefits across economic sectors globally, including finance, education, agriculture, and construction (Bilbao-Osorio, Dutta, & Lanvin, 2013). The financial sector, in particular, has experienced significant innovation through financial technology (FinTech), enabling more efficient money transfer systems. A major catalyst for this expansion has been the proliferation of mobile phones, particularly smartphones, and the broader penetration of ICT infrastructure such as satellites and mobile base stations (Maryuningsih et al., 2020). Banks and financial institutions have leveraged these technologies to extend mobile money services and enhance customer outreach (Deloitte, 2021). This has led to increased adoption of mobile transactions by businesses and individuals alike (Raithatha, 2023), although some sectors still face challenges in fully integrating mobile money systems (Kendall et al., 2011).

Globally, FinTech is reshaping the financial landscape by merging technology with innovative service delivery models (Feyen et al., 2021). In contrast to developed nations, where FinTech primarily serves online consumers, its application in developing countries like Kenya is focused on promoting financial inclusion through mobile platforms (Demirguc-Kunt et al., 2018). Kenya's FinTech ecosystem, anchored by Safaricom's M-Pesa, has rapidly expanded due to widespread mobile adoption and favorable regulatory environments, with over 80% growth in FinTech investments between 2021 and 2022 (Fintech Global, 2023). This success underscores the need to understand the extent to which FinTech and financial inclusion contribute to women's economic empowerment.

Kenya has become a pioneer in mobile money, with institutions like Equity Bank, Airtel, and Safaricom driving financial innovation. The launch of M-Pesa in 2007 significantly expanded financial access, especially for unbanked populations (Esmaeilpour & Karami, 2023). Regulatory support from the Central Bank of Kenya, including frameworks like the National Payments System Act, has further accelerated FinTech growth. However, issues such as cybersecurity, digital fraud, and unequal technological access persist. Financial inclusion has improved dramatically, with over 80% of adults now accessing financial services, up from less than 30% in 2006, largely due to mobile money innovations (Aicha, 2023; Ndung'u et al., 2017; Ndung'u, 2021).

FinTech has enabled the delivery of affordable, tailored financial services to diverse populations, including women and underserved communities. This access enhances financial stability, fosters entrepreneurship, and contributes to broader economic growth (Aicha, 2023; Kimenyi & Ndung'u, 2009). Nonetheless, persistent barriers such as low digital literacy and the digital divide highlight the ongoing need for education and protective regulatory policies (Ndung'u et al., 2017). Kenya's experience demonstrates the importance of harmonizing innovation with regulatory oversight and educational outreach.

Women's economic empowerment refers to enhancing their societal status and decisionmaking capacity through education and financial access. Despite Kenya's overall financial inclusion rate of 83.7% (KNBS, 2022), gender disparities persist. The gender gap in financial access has narrowed from 8.5% in 2016 to 4.2% in 2021, yet women continue to rely more on informal financial mechanisms (KNBS, 2021). Social capital and informal networks often play a crucial role in women's financial decision-making, especially when access to formal services is limited due to cultural and structural constraints.

Informal financial arrangements like marriage-based systems and shylocks continue to be common among women, especially in contexts where formal credit systems require collateral or impose restrictive terms (Thomas & Hedrick-Wong, 2019). FinTech platforms like M-Shwari and M-Pesa have significantly expanded women's access to financial services, offering microloans and financial literacy tools that enable greater participation in economic activities (Corrêa et al., 2022; Jack & Suri, 2016). Additionally, digital lending services such as Tala and Branch have allowed women to access credit without collateral, supporting business growth (Kaffenberger & Totolo, 2018; Tala, 2021). However, challenges like digital literacy gaps and cultural norms still hinder full access to these benefits, particularly for low-income women who face barriers to smartphone and internet access (CGAP, 2019; World Bank, 2020). To maximize the impact of these innovations, supportive policies and gender-sensitive approaches are essential.

Problem Statement

Despite global progress in promoting financial inclusion, significant gender disparities persist, especially in developing countries like Kenya, where women face social, cultural, and structural barriers to accessing traditional financial services. These barriers include lack of

collateral, lower formal employment rates, and limited financial literacy, leading to reduced economic participation and opportunity.

Although FinTech has expanded rapidly in Kenya—boosting financial access and economic growth—it has not fully closed the gender gap in financial empowerment. Prior research has examined digital credit, gendered financial access, and FinTech innovations in countries like India and Kenya, but none have directly linked FinTech and financial inclusion to women's economic empowerment in a Kenyan context.

This study addresses that gap by exploring how FinTech services (e.g., mobile banking, digital loans, online payments) can enhance women's access to credit, savings, insurance, and investment opportunities, ultimately promoting greater economic empowerment.

Research Objectives

- i. To analyze the effect of FinTech on women's economic empowerment in Kenya.
- To analyze the effect of financial inclusion on women's economic empowerment in Kenya.

LITERATURE REVIEW

The study is grounded in four key theoretical frameworks that collectively provide a comprehensive lens through which the relationship between FinTech, financial inclusion, and women's economic empowerment can be examined. First, the Institutional Theory of Financial Inclusion emphasizes the role of formal and informal institutions in shaping individuals' trust in and engagement with financial services. It highlights how institutional structures and norms can either facilitate or hinder access to financial systems, especially for marginalized groups such as women. Second, the Unified Theory of Acceptance and Use of Technology (UTAUT) is employed to understand the behavioral aspects of technology adoption. This theory posits that individuals' intention to use technology is influenced by factors such as performance expectancy, effort expectancy, social influence, and the availability of facilitating conditions, all of which are critical in assessing women's adoption of FinTech tools.

Third, the Empowerment Theory is central to understanding how access to financial services contributes to women's economic empowerment. This theory underscores the importance of enabling participation in decision-making processes, which in turn fosters self-efficacy,

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autonomy, and greater control over economic resources. Lastly, the Network Theory of Financial Inclusion is used to examine the role of social and community networks in influencing financial behavior. This theory suggests that social ties and community structures can significantly enhance access to financial services by facilitating the flow of information and reducing transaction costs. Together, these theoretical foundations offer a multidimensional approach to analyzing how FinTech and financial inclusion affect the economic empowerment of women in Kenya.

A growing body of empirical literature explores the relationship between financial technology (FinTech), financial inclusion, and women's economic empowerment, particularly in developing contexts. Johnen and Mußhoff (2023) examined the role of digital credit in shaping gender disparities in financial inclusion in Kenya using FinAccess data from 2009 to 2018. Their findings revealed that, contrary to expectations, formal digital credit widened the gender gap due to uniform contract conditions and gender-based socioeconomic inequalities. They recommended that more diverse contract terms and targeted efforts to uplift women's socioeconomic status are needed.

Similarly, Wandeda et al. (2023), using the 2021 Financial Access Survey, employed propensity score matching to analyze women's adoption of digital finance. They found that access to digital financial services was significantly influenced by sociodemographic factors such as age, education, marital status, and media ownership. Their findings emphasized the importance of addressing these disparities to enhance women's financial health and called for more gender-sensitive strategies in digital finance.

In Ethiopia, Adera and Abdisa (2023) found that financial inclusion significantly enhances women's economic empowerment. Their analysis, based on the Demographic and Health Survey, utilized endogenous switching regression and instrumental variable techniques. The results underscored the need for tailored financial inclusion strategies aligned with national development frameworks.

Kulkarni and Ghosh (2021) focused on India and used logit and OLS regression to examine the determinants of mobile banking among women. Their study found no direct link between gender disparities in digital finance and the level of a state's economic development. Instead, structural barriers and a lack of gender-sensitive policies were found to inhibit women's access to digital services. These insights are relevant to Kenya's context, where similar disparities exist.

Yeyouomo et al. (2023) analyzed panel data across Sub-Saharan Africa, finding that while FinTech contributes to reducing the gender gap in financial inclusion, it cannot fully address this disparity without complementary regulatory and institutional reforms. Similarly, Esmaeilpour and Karami (2023), using principal component analysis with data from 113 countries, showed that FinTech significantly empowers women in nations with low gender discrimination, while its impact is limited in more discriminatory environments, emphasizing the critical role of societal norms and policy frameworks. Ghosh (2022) found that women, particularly from poorer backgrounds in India, were less likely to engage in mobile financial transactions, underscoring the need for policies addressing gendered access to technology. Cabeza-Garcia et al. (2019) demonstrated that financial inclusion positively correlates with women's economic advancement, reinforcing its role in reducing inequality and fostering growth. Collectively, these studies highlight the transformative potential of FinTech for women's empowerment, but also point to persistent barriers, including digital literacy gaps, unequal technology access, and entrenched social norms. There remains a notable gap in research specifically exploring how FinTech and financial inclusion intersect to empower women in Kenya, which this study aims to address with a context-specific analysis and actionable policy recommendations.

METHODS

Research Design

This study adopted a cross-sectional non-experimental design, utilizing data collected at a single point in time without manipulating study variables. This approach was ideal for exploring the relationships between financial technology (Fintech), financial inclusion, and women's economic empowerment in Kenya.

Participants and Data Source

The study used secondary data drawn from the 2021 FinAccess Household Survey, a nationally representative dataset compiled by the Kenya National Bureau of Statistics (KNBS), Central

Bank of Kenya (CBK), and Financial Sector Deepening (FSD) Kenya. This dataset includes extensive information on financial access, behaviors, and inclusion across Kenyan households.

Materials and Variable Construction

Two indices were constructed using Principal Component Analysis (PCA) to measure key aspects of financial inclusion and women's economic empowerment. The Fintech Index was developed based on digital behaviors such as online payments, internet banking, and mobile account access, capturing the extent to which individuals engage with digital financial services. The Women's Economic Empowerment (WEE) Index focused on factors such as earnings, control over income, bank account ownership, and access to credit, providing insight into women's financial autonomy and economic participation. Additionally, the Financial Inclusion Index, sourced from the Kenya National Bureau of Statistics (KNBS), incorporated variables related to service quality, access to financial services, and their usage. Demographic variables, including age, education level, wealth quintile, and location (rural/urban), were included as control factors in the regression models to account for their potential influence on the indices.

Empirical Models

Two models were estimated using multinomial logit regression:

1. To assess the effect of Fintech on women's economic empowerment:

 $WEE = \beta_0 + \beta_1 Fintech_i + \beta_2 Dem_i + \beta_2 (Fintech X Dem)_i + \varepsilon_i$

2. To examine the effect of financial inclusion on women's economic empowerment:

$$WEE = \beta_0 + \beta_1 F I_i + \beta_2 Dem_i + \beta_2 (Fintech X Dem)_i + \varepsilon_i$$

Where:

- WEE: Women's Economic Empowerment Index
- Fintech / FI: Fintech Index or Financial Inclusion Index
- Dem: Demographic characteristics

Diagnostic Tests

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To ensure the validity and reliability of the analysis, the study employed a series of diagnostic tests. First, normality was assessed using both the Shapiro-Wilk test and histogram visualizations. The Shapiro-Wilk test helped determine whether the distribution of the sample data deviated significantly from a normal distribution. According to standard statistical guidelines, variables were considered normally distributed if the significance level was greater than 0.05. In addition to testing for normality, the study conducted a heteroscedasticity test to identify any inconsistencies in the variance of the error terms, which could undermine the reliability of regression estimates. Furthermore, a multicollinearity test was performed to detect the presence of high correlations among independent variables, which could distort the model's interpretability and weaken the precision of coefficient estimates. These diagnostic procedures were essential in verifying that the data met the necessary assumptions for robust statistical analysis.

Data Analysis Procedures

Data analysis was conducted using STATA software. PCA was used for index construction, and multinomial logit regression models were employed to estimate the impact of Fintech and financial inclusion on women's economic empowerment.

RESULTS

Descriptive Statistics

The study analyzed 20,866 observations, revealing significant variation in the key indices. The Women's Economic Empowerment (WEE) Index had a mean close to zero and a standard deviation of 1.06, indicating substantial variability in women's economic empowerment, with some women showing extremely low scores (minimum value: -13.79). Similarly, both the FinTech Index and the Financial Inclusion Index had mean values near zero and displayed wide variation, reflecting unequal access and adoption of digital financial services among women. Most women in the sample had secondary education (mean education level: 2.65), were married (mean marital status: 1.72), and resided in rural areas (mean location value: 0.44). The average age category was around 3.0, corresponding to women aged 30–46 years, a group typically considered economically active

Variable	Mean	Std. Dev.	Min	Max
WEE Index	≈ 0	1.06	-13.79	0.52
FinTech Index	≈ 0	0.16	-0.81	6.57
Financial Inclusion Index	≈ 0	1.10	-3.95	0.75
Education Level	2.65	0.72	1	4
Age Category	3.01	1.06	1	5
Marital Status	1.72	0.45	1	2
Location (Urban=2)	0.44	0.70	0	2

Table 1: Descriptive Statistics

Correlation Analysis

Before conducting regression analysis, a correlation analysis was performed to examine the strength and direction of relationships among key variables, including the Women's Economic Empowerment (WEE) Index, education, age, location, financial inclusion, FinTech usage, and marital status. This step helps to identify potential associations and detect multicollinearity, which could affect the reliability of regression estimates. The correlation matrix in Table 2 summarizes these relationships and provides insights into how the independent variables interact with each other and with the WEE Index.

Variables	WEE Index	Education	Age	Location	Financial inclusion index	FinTech Index	Marital Status
WEE Index	1.0000						
Education	-0.1983	1.0000					
Age	0.0954	-0.2669	1.0000				
Location	0.0201	0.0707	-0.0806	1.0000			
Financial Inclusion Index	0.1603	-0.2471	0.1758	-0.0268	1.0000		
FinTech Index	-0.1138	0.1168	-0.0319	0.0468	-0.1699	1.0000	
Marital Status	0.0260	-0.1949	0.2765	-0.0936	0.1800	-0.1097	1.0000

Table 2: Correlation Analysis

The analysis revealed that the Women's Economic Empowerment (WEE) Index had a negative correlation with both education and the FinTech Index, with correlation coefficients of -0.20 and -0.11, respectively. Conversely, the WEE Index showed positive correlations with age (0.10), financial inclusion (0.16), and marital status (0.03). These findings suggest that while some factors such as age and financial inclusion are modestly associated with higher levels of women's economic empowerment, others like education and FinTech usage exhibited a weak inverse relationship in the dataset. Importantly, all correlation coefficients were well below the threshold of 0.8, indicating that multicollinearity was not a concern in the model and the

independent variables could be reliably included in the regression analysis without compromising the results.

Normality Test

Shapiro-Wilk test confirmed the normal distribution of residuals (p = 0.1264), validating assumptions for regression analysis.



Figure 1: Normality Plot

REGRESSION RESULTS

Effect of FinTech on Women's Economic Empowerment

The study employed a logistic regression model to analyze the relationship between FinTech usage and women's economic empowerment, utilizing a robust sample of 20,866 observations. The results indicated that the FinTech Index had a negative but statistically significant effect on women's economic empowerment, with a regression coefficient (β) of -0.1664 and a p-value of less than 0.05. This suggests that increased FinTech usage alone does not necessarily translate into greater economic empowerment for women and may, in fact, be associated with certain barriers or unintended consequences. Despite this negative association, the model demonstrated a strong overall fit, as evidenced by a high Pseudo R² value of 0.8661 and a

highly significant model p-value (p < 0.0001), indicating that the predictors collectively explained a substantial proportion of the variation in women's economic empowerment.

Variable	Coefficient	Marginal Effect	p-value
FinTech Index	-0.1664	-0.0124	0.017
Education (Primary)	-2.344	-0.0422	0.000
Age (16–30)	-1.915	-0.0870	0.000
Married	0.4684	0.0369	0.000
Urban Residence	0.3882	0.0288	0.000

Table 3: Selected Regression Coefficients – Logit Model

The analysis found that education, age, and location were significant factors influencing women's economic empowerment. Specifically, women who were married and those residing in urban areas exhibited higher probabilities of being economically empowered compared to their unmarried and rural counterparts. These results underscore the importance of both demographic and geographic contexts in shaping economic outcomes for women. However, the study also revealed that FinTech alone was not sufficient to drive economic empowerment. Despite its potential to improve financial access, various structural challenges—such as limited digital literacy, high transaction costs, and restricted control over financial decision-making—undermined its effectiveness. These barriers highlight the need for complementary interventions beyond technological adoption to ensure that digital financial services translate into meaningful economic empowerment for women.

Effect of Financial Inclusion on Women's Economic Empowerment

The probit model, based on a sample of 3,266 observations, demonstrated that financial inclusion had a positive and statistically significant impact on women's economic empowerment. The marginal effect of financial inclusion was estimated at 0.0066, with a p-value of 0.010, indicating that increased access to financial services slightly raised the likelihood of women being economically empowered. Although the effect size was modest, it was meaningful and statistically robust. The overall model fit was strong, as evidenced by a Pseudo R² of 0.7355 and a Chi-square test with a p-value of less than 0.001. These results confirm that financial inclusion plays a supportive role in enhancing women's economic agency, although it may need to be paired with broader structural and educational initiatives to realize its full potential.

Table 4: Selected Probit Regression Results

Variable	Coefficient	Marginal Effect	p-value
Financial Inclusion Index	0.0894	0.0066	0.010
Education (Primary)	-0.992	-0.0280	0.033
Age (16–30)	-0.447	-0.0334	0.007

Although financial inclusion has a positive influence on women's economic empowerment, the magnitude of its effect remains modest. This suggests that while access to financial services is a necessary component of empowerment, it is not sufficient on its own to produce substantial economic gains for women. Structural barriers such as entrenched gender norms, limited access to digital infrastructure, and low levels of financial and digital literacy continue to constrain women's ability to fully utilize financial services. These underlying factors hinder the realization of the full benefits of financial inclusion, highlighting the need for integrated policy approaches that address both access and the broader socio-cultural and educational environment in which women operate.

DISCUSSION

Interpretations

The adoption of financial technology (FinTech), while statistically significant in influencing women's economic empowerment, demonstrates only a limited impact in practice. This constrained effect stems from several persistent barriers, including low levels of digital literacy among women, high transaction costs, restricted access to digital credit facilities, and patriarchal norms that limit women's financial autonomy and decision-making. These challenges underscore that digital platforms, in isolation, are insufficient to meaningfully drive women's economic empowerment.

Financial inclusion has a positive and significant, though modest, impact on women's empowerment by providing access to essential services like savings, credit, and digital financial tools. These services enhance women's autonomy, improve their financial security, and enable more active participation in economic decision-making. However, the full potential of financial inclusion is constrained without accompanying structural reforms and educational initiatives. Education, particularly secondary and post-secondary, plays a pivotal role in empowering women, as it increases their economic opportunities and independence. Yet, this potential is often hindered by systemic challenges such as limited job opportunities, ongoing labor market discrimination, and restricted access to capital and entrepreneurial support, which undermine women's ability to fully capitalize on their education.

Demographic factors also play a pivotal role in shaping empowerment outcomes. Age is particularly influential, with younger women, especially those aged between 30 and 45, exhibiting higher levels of economic empowerment, likely due to greater technological adoption and active participation in the labor market. Marital status also influences empowerment, as married women often benefit from dual-income households and shared economic responsibilities, contributing to improved financial standing. Finally, geographical location significantly impacts empowerment, with urban and peri-urban women generally enjoying higher levels of economic agency compared to their rural counterparts. This finding highlights a persistent urban-rural divide in access to financial services, digital infrastructure, and economic opportunities.

IMPLICATIONS

To fully leverage the impact of FinTech on women's economic empowerment, it is crucial to complement digital financial services with targeted interventions. Financial literacy programs must be implemented to ensure women can navigate digital platforms, manage resources, and make informed decisions. Platforms should be user-friendly, with intuitive designs for those with limited digital experience, while policies must reduce transaction costs and improve affordability, particularly for low-income women. Financial institutions should offer gendersensitive products, such as flexible loans, accessible savings plans, and long-term investment tools, tailored to women's economic realities. Governments should prioritize the expansion of financial literacy initiatives and mobile banking infrastructure, particularly in underserved rural regions, while fostering women's entrepreneurship through grants, low-interest loans, and business training. Collectively, these efforts can create an ecosystem where FinTech becomes a powerful tool for inclusive economic empowerment.

SUMMARY

The integration of FinTech into Kenya's financial sector has significantly expanded access to financial services, largely driven by mobile technologies like M-Pesa and supported by favorable regulatory frameworks. FinTech innovations have enabled banks and other institutions to reach underserved populations, including women, through services like digital wallets, mobile loans, and micro-savings accounts. As a result, financial inclusion has grown markedly, rising from under 30% in 2006 to over 80% by 2021. Kenya's success in this space is rooted in the widespread availability of mobile phones and strategic partnerships across the

banking and telecommunications sectors. Nonetheless, concerns around cybersecurity, digital literacy, and equitable technological access remain pressing issues that need to be addressed to ensure sustainable progress.

While FinTech has opened new avenues for women's economic empowerment, gender-based disparities persist in financial access and use. Many women continue to rely on informal mechanisms due to structural and cultural barriers, such as limited collateral and discriminatory lending practices. Digital platforms like M-Shwari, Tala, and KCB Mobi Bank have attempted to close this gap by offering microloans and financial literacy tools tailored to women's needs. These services have enhanced women's autonomy in managing finances and participating in entrepreneurship. However, persistent challenges—especially low digital literacy, affordability of smartphones, and entrenched social norms—limit the transformative potential of these tools. Realizing the full benefits of FinTech for women will require integrated efforts in education, policy reform, and inclusive technology design.

CONCLUSION

This study examined the influence of financial technology (FinTech) and financial inclusion on women's economic empowerment in Kenya using data from the 2021 FinAccess Household Survey. The findings indicate that while FinTech adoption is statistically significant, it exerts a negative effect on women's economic empowerment, suggesting that digital financial services alone do not guarantee empowerment outcomes. Structural barriers such as limited digital literacy, high transaction costs, and restricted access to financial decision-making remain significant impediments. Conversely, financial inclusion showed a positive and statistically significant—albeit modest—impact, affirming its role in supporting women's financial autonomy. Demographic factors, especially education level, age, marital status, and urban residence, also significantly influence empowerment outcomes. Therefore, technology must be seen as a tool that requires complementary policies and support systems to deliver meaningful empowerment for women.

RECOMMENDATION

To enhance the role of FinTech and financial inclusion in promoting women's economic empowerment in Kenya, several strategic interventions are recommended. First, there is a need to invest in digital and financial literacy programs, particularly targeting women in rural areas.

These initiatives should aim to build their confidence and capability in using digital financial platforms effectively and safely.

Second, financial institutions should design and roll out gender-sensitive financial products that cater to the unique socioeconomic circumstances of women. This includes creating credit, savings, and insurance options with features such as flexible repayment terms and low-collateral requirements, which are more accessible to women, especially those in the informal sector.

Third, to make digital financial services more affordable, policymakers and FinTech providers should explore ways to subsidize transaction costs. Lowering these costs would significantly increase usage among low-income women, enhancing their financial participation.

Fourth, efforts should be made to improve access to digital infrastructure by expanding mobile network coverage and internet connectivity in underserved and remote areas. Bridging this digital divide is crucial for ensuring that women across all regions can access and benefit from financial technologies.

Fifth, supporting women's entrepreneurship is essential. This can be achieved by offering comprehensive support packages that combine start-up capital, business mentorship, and access to markets. Such interventions would strengthen women's capacity to initiate and sustain income-generating ventures.

Finally, policy and regulatory reforms are necessary to address structural and cultural barriers that limit women's access to financial services. Developing inclusive financial policies and reinforcing gender-responsive regulations will help create an enabling environment for women's economic empowerment.

Collectively, these measures will help transform digital financial services into powerful instruments for inclusive and sustainable economic empowerment for women in Kenya.

REFERENCES

Adera, A., & Abdisa, L. T. (2023). Financial inclusion and women's economic empowerment: Evidence from Ethiopia. *Cogent Economics & Finance*, 11(2), 2244864.

- Ahmed, S. (2021). A gender perspective on the use of artificial intelligence in the African Fintech ecosystem: case studies from South Africa, Kenya, Nigeria, and Ghana. *Econstor*. Retrieved from https://www.econstor.eu/bitstream/10419/238002/1/Ahmed.pdf
- Aicha, E. (2023). Effects of Fintech services on financial inclusion in Kenya. *SSRN*. Retrieved from https://ssrn.com/abstract=4347442
- Aziz, N., He, J., Raza, A., & Sui, H. (2022). A systematic review of review studies on women's empowerment and food security literature. *Global Food Security*, *34*, 100647.
- Bilbao-Osorio, B., Dutta, S., & Lanvin, B. (2013, April). The global information technology report 2013. In *World Economic Forum* (pp. 1–383).
- Cabeza-García, L., Del Brio, E. B., & Oscanoa-Victorio, M. L. (2019, November). Female financial inclusion and its impacts on inclusive economic development. In *Women's Studies International Forum*, 77, 102300. Pergamon.
- Central Bank of Kenya (CBK). (2021). Annual Report. Retrieved from https://www.centralbank.go.ke
- CGAP. (2019). Fintech and Financial Inclusion: Evidence from Kenya. Retrieved from https://www.cgap.org
- Claessens, S., & Tzioumis, K. (2006). Measuring firms' access to finance. World Bank, 1-25.
- Correa, J. C., Dakduk, S., van der Woude, D., Sandoval-Escobar, M., & Lopez-Llamas, R. (2022). Low-income consumers' disposition to use automated banking services. *Cogent Business & Management*, 9(1), 2071099.
- Dalal, K. (2011). Does economic empowerment protect women from intimate partner violence? *Journal of Injury and Violence Research*, *3*(1), 35.
- Delloite. (2021). *Embedded finance: Customer relationships and value web dynamics*. Institute of Financial Finance.
- Demirgüç-Kunt, A., & Klapper, L. F. (2012). Financial inclusion in Africa: An overview. *World Bank Policy Research Working Paper, 6088.*
- Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2018). Household finance and economic development. In *Handbook of Finance and Development* (pp. 534–549). Edward Elgar Publishing.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2020). *The Global Findex Database 2020: Financial Inclusion in the Age of COVID-19.* World Bank.
- Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4), 1051–1079.

- Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: Issues, challenges and prospects. *Technological Sustainability*, 2(1), 100–119.
- Esmaeilpour Moghadam, H., & Karami, A. (2023). Financial inclusion through fintech and women's financial empowerment. *International Journal of Social Economics*, 50(8), 1038–1059.
- Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saal, M. (2021). Fintech and the digital transformation of financial services: Implications for market structure and public policy. *BIS Papers*.
- Financial Sector Deepening Kenya (FSD Kenya). (2020). Digital Credit in Kenya: Evidence from Demand Side Surveys. Retrieved from https://www.fsdkenya.org
- Fintech Global. (2023). Kenyan Fintech sector sets new record in 2022 with \$158m capital raised. *Fintech Global*. Retrieved from https://fintech.global/2023/02/24/kenyan-Fintech-sector-sets-new-record-in-2022-with-158m-capital-raised/
- Gabor, D., & Brooks, S. (2020). The digital revolution in financial inclusion: International development in the fintech era. In *Material Cultures of Financialisation* (pp. 69–82). Routledge.
- Ghosh, C., & Hom Chaudhury, R. (2022). Determinants of digital finance in India. *Innovation* and Development, 12(3), 343–362.
- Jack, W., & Suri, T. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292.
- Jackson, M. O., & Zenou, Y. (2015). Games on networks. In *Handbook of Game Theory with Economic Applications*, *4*, 95–163. Elsevier.
- Johnen, C., & Mußhoff, O. (2023). Digital credit and the gender gap in financial inclusion: Empirical evidence from Kenya. *Journal of International Development*, 35(2), 272–295.
- Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A*, 374(2065), 20150202.
- Kaffenberger, M., & Totolo, E. (2018). A digital credit revolution: Insights from borrowers in Kenya and Tanzania. *CGAP*. Retrieved from https://www.cgap.org
- Kehinde-Peters, O. (2024). Fintech and financial inclusion: Closing the gender gap. In *Women and Finance in Africa: Inclusion and Transformation* (pp. 75–89). Springer Nature Switzerland.
- Kendall, J., Machoka, P., Veniard, C., & Maurer, B. (2011). An emerging platform: From money transfer system to mobile money ecosystem. UC Irvine School of Law Research Paper, 2011-14.

- Kenya National Bureau of Statistics. (2022). 2021 FinAccess Household Survey Report. Retrieved from https://www.knbs.or.ke/download/finaccess-household-survey-report/
- Kimenyi, M., & Ndung'u, N. (2009). Expanding the financial services frontier: Lessons from mobile phone banking in Kenya. Washington, DC: *Brookings Institution*.
- Klapper, L. (2017). How digital payments can benefit entrepreneurs. *The World Bank*. Retrieved from https://blogs.worldbank.org
- Kulkarni, L., & Ghosh, A. (2021). Gender disparity in the digitalization of financial services: Challenges and promises for women's financial inclusion in India. *Gender, Technology and Development, 25*(2), 233–250.
- Liu, S., Gao, L., Latif, K., Dar, A. A., Zia-UR-Rehman, M., & Baig, S. A. (2021). The behavioral role of digital economy adaptation in sustainable financial literacy and financial inclusion. *Frontiers in Psychology*, 12, 742118.
- Maryuningsih, Y., Hidayat, T., Riandi, R., & Rustaman, N. Y. (2020). Profile of ICT skills of prospective teachers. In *Journal of Physics: Conference Series*, 1521(4), 042009. IOP Publishing.
- Miah, M. (2023). The role of fintech in bridging the divide for economic empowerment. *Economics and Business*, 37(1), 206–219.
- Mohyuddin, A., Chaudhry, H. U. R., & Ambreen, M. (2012). Economic empowerment of women in the rural areas of Balochistan. *Pakistan Journal of Women's Studies: Alame-Niswan*, 19(2).
- Ndung'u, N. (2021). A digital financial services revolution in Kenya: The M-Pesa case study. *African Economic Research Consortium*, 23–44.
- Ndung'u, N., Gupta, S., & Keen, M. (2017). Digitalization in Kenya: Revolutionizing tax design and revenue administration. In Gupta et al. (Eds.), *Digital Revolutions in Public Finance* (pp. 241–258). International Monetary Fund.
- Omar, M. A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of Economic Structures*, 9(1), 37.
- Ouma, S. A., Odongo, T. M., & Were, M. (2017). Mobile financial services and financial inclusion: Is it a boon for savings mobilization? *Review of Development Finance*, 7(1), 29–35.
- Ozili, P. K. (2020). Theories of financial inclusion. In *Uncertainty and Challenges in Contemporary Economic Behaviour* (pp. 89–115). Emerald Publishing Limited.
- Ozili, P. K. (2023). Institutional theory of financial inclusion. In *Handbook of Research on Acceleration Programs for SMEs* (pp. 45–53). IGI Global.

- Perkins, D. D., & Zimmerman, M. A. (1995). Empowerment theory, research, and application. *American Journal of Community Psychology*, 23, 569–579.
- Raithatha, R., Awanis, A., Lowe, C., Holliday, D., & Storchi, G. (2023). GSMA State of the Industry Report Mobile for Development.
- Rao, S., Vlassoff, C., & Sarode, J. (2014). Economic development, women's social and economic empowerment and reproductive health in rural India. Asian Population Studies, 10(1), 4–22.
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292.
- Tala. (2021). Impact Report. Retrieved from https://tala.co.ke
- Thomas, H., & Hedrick-Wong, Y. (2019). How digital finance and fintech can improve financial inclusion. In *Inclusive Growth: The Global Challenges of Social Inequality and Financial Inclusion* (pp. 27–41). Emerald Publishing Limited.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
- Wandeda, D. O., Poulard, D., Kipkorir, K. M., Ikiriinya, C. K., Lentimalei, J. W., Michael, K.,
 ... & Ntutu, J. (2023). Digital financial inclusion and financial health in Kenya: Gendered analysis. *African Journal of Economic Review*, 11(3), 55–68.
- World Bank. (2020). *Kenya Economic Update: Navigating the Pandemic*. Retrieved from https://www.worldbank.org/en/country/kenya/publication/kenya-economic-update
- Yeyouomo, A. K., Asongu, S. A., & Agyemang-Mintah, P. (2023). Fintechs and the financial inclusion gender gap in Sub-Saharan African countries. In *Women's Studies International Forum*, 97, 102695. Pergamon.
- Zimmerman, M. A. (2000). Empowerment theory: Psychological, organizational and community levels of analysis. In *Handbook of Community Psychology* (pp. 43–63). Springer US.