Bridging divides: the role of Fintech and financial inclusion in reducing poverty and inequality in developing countries

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Abstract

This study shows how Financial Technology (Fintech) can meet financial inclusion goals and combat poverty or inequality in the developing world. "This study explains how access, literacy, affordability and trust impact economic progress through Fintech platforms." Matching content after paraphrasing: The study had 296 respondents and was conducted through online survey. The data was analyzed using ANOVA in SPSS to determine the relationship between Fintech and poverty reduction. The results showed a strong positive correlation with 85.1% of the variance in poverty and inequality reduction explained by it. The most important predictors were trust and security, affordability and digital literacy were next while access was statistically insignificant. The findings imply that success of the Fintech driven inclusion will depend on confidence, cost and education rather than access. According to the researchers, this study contributes to the understanding of Fintech potential in the achievement of sustainable and inclusive economic growth.

Keywords *Fintech, Financial Inclusion, Poverty Reduction, Inequality, Developing Countries*

Introduction

Today's global economy depends on financial inclusion for sustainable development. More people must be involved in the growth of their economies. However, in numerous developing countries large portions of the population are still shut out of the formal financial systems. The lack of banking services, credit, insurance and digital payment services limits their economic participation and social mobility prospects. The traditional financial institutions are mostly found in urban centres and do not serve rural or poorer people properly. This occurs because there are not enough facilities available, transactions costs are high, collaterals cannot be provided, and identification proofs are not available. As a result, financial exclusion adds further economic disparities in the world hampering the SDG agenda of the U.N. which comprises SDG 1 (No poverty), SDG 8 (Decent work and economic growth) and SDG 10 (Reduced inequalities). Finance and technology are combined to create fintech. For instance, these services are made available through software programs and applications. It is important for developing countries.

Over time the meaning of fintech has evolved. Fintech is defined as a technology that can be used to deliver financial services. This has changed how one thinks about being financially empowered. Use of money by citizen and businesses has changed due to digital platforms, mobile banking, blockchain technologies, peer-to-peer lending | e-wallets. People who face restrictions by conventional banking now have unprecedented access to credit, savings, insurance and remittance services due to fintech solutions. A great development in mobile money service for improving the finances of the poorest is Kenya's mobile money service M-Pesa. In addition to South Asia and sub-Saharan Africa, Microfinance and fintech-powered digital lending are enabling small entrepreneurs, women and marginalised to participate in the formal economy. The findings show how Fintech can drive economic inclusion and reduce poverty by removing barriers that have historically prevented access to finance.

Amid these successes, discussions on Fintech and financial inclusion among scholars and policymakers are fragmented. There are several research on poverty alleviation and digital finance. Most existing studies highlight specific case studies

or niche areas like mobile banking or micro-credit according to the literature. The bigger picture across countries often gets overlooked. The fast rate at which technology is developing, and the varying nature of developing economies is a problem to generalise. Few studies have looked at how Fintech can contribute to poverty alleviation and inequality reduction in the long run across heterogeneous economic settings. Additionally, fears of digital divides, such as differences in access to mobile phone, internet and digital knowledge, suggest that Fintech may not be a panacea for financial exclusion.

This study seeks to fill the gap by exploring the role of Fintech in financial inclusion and the impact on developing countries' poverty and inequality reduction. This study aims to explain the influence of Fintech on socio-economics using theoretical frameworks of inclusive finance and digital transformation in combination with empirical evidence from literature of various regions. The study will show how Fintech improves financial inclusion through reduced transactional costs, increased accessibility, transparency, etc. It will also evaluate how effective these links have been at reducing poverty and income inequality in Brazil. This evaluation will basically analyse the challenges and policy implications of adoption of Fintech. Regional variations in the availability of technology and infrastructure, and economic disparities, may limit accessibility.

This study proposes two hypotheses. It theorizes that Fintech can financially include a greater number of people. The second hypothesis in the framework suggests that the adoption of Fintech is aimed at reducing income equality if there is availability of inclusive regulation and digital infrastructure. By checking out these hypotheses, this study will deliver evidence-based insights that will help policymakers, financial institutions, and development organizations (such as the UN) to achieve equitable economic growth through fintech. This study aims to help reduce global poverty and inequality by empowering people, particularly through digital financial inclusion, by creating a link between innovation and inclusive development.

Methods

This study used quantitative research to examine the relationship between Fintech adoption and financial inclusion as a means of lowering poverty and inequality in developing countries. An online survey was administered on a sample size of 296 respondents from selected developing regions which mainly included Asia and sub-Saharan Africa. The research population is the people above 18 years old who had access to digital financial services like mobile banking, e-wallets, and online lending. Participants in the study were chosen through purposive sampling to ensure adequate coverage of both Fintech user and non-user groups, and various other demographic and socio-economic groups. The tool for the study has been developed through the use of structured, closed-end questions based on the validated scales derived from earlier studies on financial inclusion and adoption of digital finance. The questionnaire consisted of sections on demographic characteristics, frequency of usage of Fintech, accessibility to financial services, feeling of digital financial empowerment and change in income or living standards. The survey was distributed on email invitation and social media platforms. A pilot testing with the help of 20 subjects was done prior to data collection to check the relevance of the items. Based on feedback, minor changes were made to help clarify and improve the accuracy of the questions. Data were collected on an anonymous basis to ensure confidentiality and reduce response bias and SPSS was used for analysing the data.

Variables

Dependent Variable (DV):

Poverty and Inequality Reduction

Independent Variables (IVs):

1. Access to Fintech Services
2. Digital Financial Literacy
3. Affordability and Accessibility of Fintech Platforms
4. Trust and Security in Fintech Systems

Survey questions:

Likert Scale Options:

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Independent Variable 1: Access to Fintech Services

1. I have easy access to mobile banking or digital payment platforms in my area.
2. Fintech services have made it easier for me to manage my finances.
3. I can access Fintech services anytime and anywhere without restrictions.
4. The availability of Fintech services has improved my access to credit or savings options.

Independent Variable 2: Digital Financial Literacy

1. feel confident using mobile apps or online platforms for financial transactions.
2. understand the benefits and risks of using digital financial services.
3. can solve basic problems related to using Fintech platforms without external help.\
4. Training or education programs have improved my ability to use digital financial tools effectively.

Independent Variable 3: Affordability and Accessibility of Fintech Platforms

1. The transaction fees on Fintech platforms are affordable for me.
2. Fintech platforms are more accessible compared to traditional banking institutions.
3. find Fintech services cost-effective for managing my financial needs.
4. The affordability of Fintech services encourages me to use them regularly.

Independent Variable 4: Trust and Security in Fintech Systems

1. I trust Fintech platforms to keep my personal and financial data secure.
2. I feel confident that digital transactions through Fintech are safe and reliable. The security features of Fintech platforms make me more likely to use them.
3. Fintech companies respond effectively to concerns about fraud and cyber risks.

Dependent Variable: Poverty and Inequality Reduction

1. Using Fintech services has improved my financial stability and income level.
2. Fintech has helped me access opportunities that were previously unavailable to me.
3. Digital financial inclusion has reduced economic inequality in my community.
4. Fintech usage has positively impacted my household's overall quality of life.

Results

As demonstrated by the ANOVA and regression analysis, Fintech can help developing nations overcome poverty and inequality. Based on the summary of the model, the R value is 0.923. This means that there is a very strong positive correlation between the independent variables, which are Access to Fintech Services, Digital Financial Literacy, Affordability and Accessibility, and Trust and Security in Fintech Systems and the dependent variable Poverty and Inequality Reduction.

Table 1: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923[a]	.851	.849	1.71504
a. Predictors: (Constant), IV4, IV1, IV2, IV3				

Table 2: ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4844.706	4	1211.177	411.776	.000[b]
	Residual	847.109	288	2.941		
	Total	5691.816	292			
a. Dependent Variable: DV						
b. Predictors: (Constant), IV4, IV1, IV2, IV3						

Table 3: Coefficient Analysis

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.067	.413		.163	.871
	IV1	-.009	.033	-.009	-.285	.776
	IV2	.113	.054	.108	2.106	.036
	IV3	.258	.063	.247	4.094	.000
	IV4	.628	.055	.605	11.483	.000
a. Dependent Variable: DV						

A R Square value of 0.851 of the poverty and inequality reduction formula indicates that 85.1 percent of the four independent variables jointly explain the level of poverty reduction. The statistic of 0.849 means fewer mistakes by the model, for example upsetting the data because mostly the predicted values are close. The standard error of the estimate is 1.71504 which shows that the predicted figures are not too far off from the actual figures thus a good regression model.

The ANOVA table indicates that the model is statistically significant and the independent variables together have a strong effect on the dependent variable. The F-value 411.776 with p < 0.001. The addition of Fintech-related factors for this research, namely, accessibility, literacy, affordability, and trust, significantly impacts the reduction of poverty and inequality levels of the respondents. The regression sums of squares (4844.706) which is bigger than the residual sum of squares (847.109) suggests that most of the variation in the dependent variable is accounted for by the model whereas random error or omittance has only a little impact on the variance.

The coefficients table contains information about each independent variable's impact on the dependent variable. As the constant value, B = 0.067, is statistically insignificant (p = 0.871), without Fintech factor, the poverty and inequality would not significantly reduce. Access to Financial Technology Services (IV1) has a quite weak and statistically insignificant effect (B = -0.009, p = 0.776). This means that the access to Financial Technology services alone does not help poor people or the poor engagement of Financial Technology. In contrast, the path from Digital Financial Literacy (IV2) to Financial Outcomes (DV1) is positive, the effect is modest but significant (B = 0.113, p = 0.036), suggesting that people who understand and are confident in using digital tools manage their finances better.

Additionally, the affordability and accessibility of Fintech platforms was observed to have a greater positive effect (B = 0.258, p < 0.001) which measures that the economic access and easy usage of Fintech services help improvements in financial inclusion and inequality. According to the findings, Trust and Security in Fintech Systems (IV4) is the strongest predictor of 'Intention to use' (DV). This is evident from the largest standardized beta (0.605) and coefficient being highly significant (B = 0.628, p < 0.001). Because of this, the user confidence in the safety and reliability of Fintech services can do wonders in building user trust and achieving sustained financial inclusion and poverty reduction.

The overall ANOVA and regression analyses show that enhancing affordability, security, and user literacy, rather than access, are the main determinants of Fintech's potential to reduce poverty and inequality in developing countries. Also, strengthening digital trust and financial education will help secure the socio-economic benefits of Fintech innovations.

Discussion

This study's findings strongly support the idea that Fintech innovations can enhance financial inclusion, which in turn helps reduce poverty and inequality in developing countries. The ANOVA and regression test results show that the effect of four independent variables, i.e. Access to Fintech Services, Digital Financial Literacy, Affordability and Accessibility of Fintech Platforms and Trust and Security in

Fintech Systems explain a joint effect of 85.1% of the variations in reduction in poverty and inequality.

Fintech can effectively mitigate long-term financial exclusion in developing countries, as evidenced by the high explanatory power of 0.77. The predictors have varying levels of influence which shows how Fintech-driven inclusion can contribute to a sustainable and socio-economic outcome.

One of the most striking findings is that Trust and Security in Fintech Systems acts as the strongest predictor with the highest standardized beta ($\beta = 0.605$, $p < 0.001$) of poverty and inequality reduction. This indicates that a positive perception of and confidence in Fintech platforms will motivate users to embrace the benefits of Fintech. The outcome is similar with other evidence which indicates that the presence of trust is a core determinant for digital financial adoption in developing regions that face data privacy, fraud, and cyber security According to Ozili (2022) and Demirgüç-Kunt et al. (2020), enhancing user trust through effective data protection mechanisms and transparent governance is essential to increasing digital financial inclusion that involves the unbanked and underbanked populations. Thus, a stronger focus on the implementation of cybersecurity frameworks, user protection policies, and operational transparency will enhance consumer confidence and facilitate inclusive growth.

The second key finding is that Affordability and Accessibility of Fintech Platforms have a strong positive effect ($\beta = 0.247$, $p < 0.001$), which ultimately reduces poverty and inequality. This indicates that affordable fintech services that are available to those with low incomes allow them to become more active participants in the formal economy. As established by Suri & Jack (2016) and World Bank (2022), the M-Pesa mobile banking platform improved households' income and reduced poverty rates in Kenya. It has improved the household income of women and rural communities of the country. These results resonate with the current study findings. Poor people are able to save, invest and manage risks when they have access to financial resources and the cost of transacting is fairly low. Furthermore, Fintech firms need to continue developing cheap digital solutions and easy-to-use interfaces for those with low online knowledge and low-income use.

Digital Financial Literacy was another important driver of financial inclusion outcome ($\beta = 0.108$, $p = 0.036$). Since there is positive correlation between understanding digital financial tools and usage of Fintech tools. This means we have to improve people and their ability to understand such tools. The findings confirm Klapper and Singer (2021) who established that digital literacy can promote financial empowerment. The positive effects were larger in countries with fragile education systems. Heavy reliance on technology should be avoided. The desired online presence will not have a positive impact on digital exclusion. Digital exclusion refers to lack of access and inability to use financial technology or Fintech. Consequently, the government, NGOs and private sector players must invest in financial literacy in the community.

Access to Fintech Services ($\beta = -0.009$, $p = 0.776$) is statistically insignificant. At first sight, this sounds counterintuitive but it shows an important nuance that access to Fintech platforms doesn't necessarily lead to poverty reduction or better financial wellbeing. Ozili (2024) argues that access without effective use or engagement could lead to "superficial inclusion". This shows that availability must be matched by usability, trust and affordability in order for Fintech to produce measurable social benefits. This also highlights that financial inclusion is multi-dimensional. That is, infrastructure access should be accompanied by human and institutional access for it to be meaningful.

Although this study gives us useful information, it has limits. At the outset, the online survey may have contributed to selection bias as those who were relatively better off and technological savvy were likely to respond. Therefore, lower-income individuals and those residing in remote rural areas may have been excluded. This restriction may have caused a lack of digitally literate respondents; this may have slightly inflated the perceived impact of Fintech literacy. Secondly, the design of the study does not give an idea of whether Fintech can cause a reduction in poverty. Longitudinal studies could help us gain better insight on how ongoing Fintech usage affects income stability and wealth development. Also, self-reported data might be

subjective or biased. Students might have overestimated their financial progress. Also, they might have overestimated their comfort level using digital technologies.

Future research could take a mixed-methods approach overall ("interviewer-based") to lend itself to quantitative as well as qualitative analysis via interviews, focus groups, and so forth to address this limitation. By looking at the countries, we can see what differences could be made to improve the effects of these services. It would also be useful to study the public-private partnerships and government policy approaches as enabling regulatory frameworks often play an important role in ensuring Fintech's reach the vulnerable and underserved.

In summary, the evidence suggests that Fintech can play an important role in enabling poverty alleviation and reducing inequality. Fintech access, however, is not enough. Digital literacy enhancement will make ICT systems more affordable, accessible, reliable and user-friendly. The findings tell us that Fintech is much more than technology. When communities make use of it, they effectively embed their way of life, communications, and purpose into the product.

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