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Digital Financial Inclusion and Remittance Resilience among Interstate Migrant Workers in Kerala: An Empirical Model of Financial Capability, Trust and Transaction Security

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Abstract

Digital financial services are playing an increasing role in how migrant workers save, make payments and send money to households in their countries of origin. For interstate migrant workers, digital remittance services can provide greater convenience, accessibility and transaction efficiency; however, effective adoption may depend on financial knowledge, trust in digital financial systems and perceptions of transaction security. Against this background, the present study proposes an empirical investigation of digital financial inclusion and remittance behaviour among interstate migrant workers in Kerala. The study focuses on the relationships among digital financial literacy, trust in digital financial services, digital remittance adoption and remittance efficiency, while examining the moderating role of perceived transaction security. The study adopts a quantitative cross-sectional research design and proposes the collection of primary data from interstate migrant workers who use or have access to digital financial services and remittance channels. The proposed conceptual model will be tested with structural equation modelling to investigate direct, mediating and moderating relationships in an effort to understand the underlying mechanisms of digital remittance behaviour. This study aims to move away from the conventional approach of viewing remittances as a mere by-product of migration toward the exploration of remittance management as a technology-mediated financial behaviour. It is expected to add to the emerging literature on migrant financial inclusion by explaining how digital financial capability, institutional trust and perceived security may determine the adoption and effectiveness of digital remittance services. The study may also provide practical implications for financial institutions, digital payment providers, migrant-support organisations and policymakers in developing secure, accessible and user-oriented digital financial services for migrant communities.

Keywords: Digital Financial Inclusion, Interstate Migrant Workers, Digital Financial Literacy Digital Remittance, Trust in Digital Financial Services, Transaction Security.

Introduction

The rapid growth of digital financial technologies has changed the way people access financial services, manage income, make payments and transfer money across geographic boundaries. Kerala's interstate migrant workers are now turning to online financial services to send their earnings home to their families faster, more conveniently and possibly more efficiently. However, the success of digital financial inclusion depends not only on access to technology but also on digital financial literacy and financial capability, including the ability to use digital payment services, manage accounts, verify transactions and make informed financial decisions.

Trust and perceived security of transactions in digital financial services also determine digital remittance behaviour. Concerns over fraud, privacy, unauthorized access, transaction failure, and the reliability of the service may affect the adoption and continued use of digital channels for remittance. At the same time, remittance resilience refers to the capacity of migrant workers to sustain, manage and adapt remittance transfers in the face of changes in employment, income and household financial needs. Despite the growing interest in digital finance and migrant remittances, there is a gap in terms of integrated understanding of the interrelationship between digital financial literacy, trust, digital remittance adoption, remittance efficiency and transaction security.

Against this background, the present study focuses on interstate migrant workers in Kerala and examines digital financial inclusion and remittance resilience through an empirical model. The study considers digital financial literacy, trust in digital financial services, digital remittance adoption and remittance efficiency, with perceived transaction security as a moderating factor. Using a quantitative cross-sectional approach and Structural Equation Modelling (SEM), the study seeks to examine the direct, mediating and moderating relationships among these constructs. It views remittance management as a technology-mediated financial behaviour and aims to provide helpful insights to financial institutions, digital payment providers, migrant-support organisations and policymakers in developing accessible, secure and trustworthy digital financial services.

Background of the Study

The rapid development of digital technology has changed the way people access, use and manage financial services and has redefined the financial system. Mobile banking, digital payment applications, Internet services and electronic money transfers have extended the scope of financial access beyond traditional banking channels. This is particularly relevant for migrant workers, who often have financial obligations in both their destination and origin. Convenient, safe and efficient remittance mechanisms are an important part of the financial lives of Kerala's

interstate migrant workers who regularly send a portion of their earnings to their homes.

Digital financial literacy and financial capability are crucial for migrant workers' ability to understand financial products, operate digital platforms, verify transactions and manage financial risks. At the same time, trust in digital financial services influences the level of confidence in financial institutions, payment platforms and procedures for transactions. Concerns regarding fraud, privacy, unauthorised access, authentication and transaction failure may affect the adoption and continued use of digital remittance services. Therefore, perceived transaction security is considered an important moderating factor in the proposed model.

One way to consider the value of digital remittance services is to look at remittance efficiency. Migrant workers can effectively use digital channels to fulfil family financial responsibilities by bridging the distance and time gaps. Sustainability of remittances is associated with changes in employment, income, household needs and financial situations and may also have an impact on the regularity of remittance flows. Digital financial services could be a flexible and accessible way of managing and sustaining transfers in different contexts, but their success could depend on financial literacy, trust and perceptions of security, as well as the ability to use digital services.

Against this background, the present study focuses on interstate migrant workers in Kerala and integrates digital financial literacy, trust in digital financial services, digital remittance adoption, remittance efficiency and perceived transaction security within a single empirical framework. Rather than examining only access to digital financial services, the study considers how financial capability, institutional trust and perceived security influence the adoption and effectiveness of digital remittance mechanisms and remittance resilience. A quantitative approach using Structural Equation Modelling (SEM) is proposed to examine the direct, mediating and moderating relationships among these constructs. The study is expected to benefit financial institutions, digital payment providers, migrant-support organisations and policymakers in developing digital financial services that are accessible, secure, trustworthy and responsive to migrant communities.

Legal and Regulatory Frameworks Applicable to the Study

The growing use of digital financial services for transferring and managing money has created a regulatory environment involving banking regulation, payment systems, customer identification, digital security, financial consumer protection and data privacy. In the context of interstate migrant workers in Kerala, these legal and regulatory provisions are relevant because digital remittance transactions involve financial institutions, payment-system operators, digital platforms and the processing

of customers' financial and personal information. The following legal frameworks provide the regulatory foundation for the present study.

- The Payment and Settlement Systems Act, 2007 : This is particularly important because digital remittances rely on regulated payment systems to transfer money from migrant workers to the beneficiaries. It provides the legal base for the regulation of payment systems. It is associated with the implementation of digital remittances, transaction efficiency and confidence in digital financial services.
- RBI Master Direction on Guidelines on Security of Digital Payments: This framework is highly relevant as the perceived security of transactions is an important part of your proposed model. It is linked to protective measures, risk assessment, fraud detection and customer safety on electronic payment systems. This then directly feeds into your discussion on transaction security, trust and adoption of digital remittance.
- RBI's KYC guidelines KYC requirements are particularly relevant for migrant workers, where the process of customer identification and account opening is critical to access formal banking and digital payment services. They thus have a direct connection to digital financial inclusion and access to and adoption of formal digital financial services.
- Customer Protection and Unauthorised Transactions in Electronic Banking (RBI Guidelines) The framework is especially relevant to the dimensions of your trust and security. Protection against unauthorised electronic transactions, as well as mechanisms for reporting and handling such transactions, can shape users' perceptions of digital financial safety and their willingness to continue using online remittance channels.
- Digital Personal Data Protection Bill, 2023 This framework is relevant because digital financial transactions involve the processing of personal and financial information. Data protection and privacy are closely linked to users' perception of the safety, reliability and trustworthiness of digital financial platforms.

These five legal and regulatory structures provide a strong foundation for digital financial inclusion and for remittance activities. They also improve transaction security, data privacy and customer protection. These provisions are relevant for migrant workers sending regular remittance transfers through digital channels. Overall, the frameworks offer the regulatory context for the current study that investigates digital remittance adoption, trust, transaction security, financial inclusion and remittance efficiency.

Theoretical Framework of the Study

The present study is anchored in a multidisciplinary theoretical framework that integrates perspectives from technology adoption, financial capability, institutional trust, and perceived risk to understand digital financial inclusion and remittance behaviour among interstate migrant workers in Kerala. Digital financial services have changed the manner in which migrant workers transfer and manage their earnings, but effective use of these services depends not only on technological access but also on users' financial knowledge, confidence in digital systems and perceptions of transaction security. The study therefore draws upon the Technology Acceptance Model, Financial Capability Theory, Trust Theory, and Perceived Risk Theory to explain the factors influencing digital remittance adoption, remittance efficiency, and remittance resilience.

- **Technology Acceptance Model (Davis, 1989)**

Davis (1989) developed the Technology Acceptance Model (TAM) that explains the acceptance of technology by perceived usefulness and perceived ease of use, which influence the intention to use and actual use of technology by users. In digital financial services, TAM helps explain why migrant workers may adopt mobile banking, digital payment applications and electronic remittance channels when they perceive them as useful, convenient, accessible and simple to operate. For interstate migrant workers in Kerala, the usefulness and ease of digital remittance services may influence their ability to initiate transactions, verify payments, manage accounts and transfer money efficiently to families in their places of origin. Thus, TAM provides a theoretical basis for understanding digital remittance adoption and remittance efficiency and extends the technology-acceptance perspective to migrant workers' financial and remittance behaviour.

- **Theory of Financial Ability**

Financial Capability Theory defines the knowledge, skills, attitudes and behaviors required to make effective financial decisions and to use financial services appropriately. Skills required for digital financial services include: payment platform usage, account management, awareness of charges, protection of authentication information, and identification of financial risks. In this study, digital financial literacy is an important element of financial capability that affects the ability to select the proper digital remittance channel, transact correctly and respond to transaction-related problems. Thus, the theory helps to explain why the availability of digital financial services alone may not ensure effective digital financial inclusion and provides a basis for investigating the association between digital financial literacy, digital remittance adoption and remittance efficiency.

- **Trust Theory**

Trust Theory explains how confidence in institutions, service providers and technological systems influences behaviour in technology-mediated financial environments. In digital financial transactions, migrant workers may consider the reliability of the service, successful delivery of funds, protection of personal and financial information and the resolution of transaction-related problems. For interstate migrant workers, confidence in digital financial services may influence their willingness to adopt and repeatedly use digital remittance channels for transferring earnings to their families. Thus, Trust Theory provides a theoretical basis for examining the influence of trust in digital financial services on digital remittance adoption, remittance efficiency and remittance resilience in the present study.

- **Perceived Risk Theory**

Perceived Risk Theory explains how individuals consider uncertainty and possible negative consequences when deciding whether to adopt a product, service or technology. In digital financial environments, migrant workers may be concerned about financial loss, fraud, unauthorised transactions, privacy violations, transaction failure and misuse of personal information. Perceived transaction security therefore becomes an important factor in determining whether workers are willing to use digital remittance services, as they may consider the security of authentication, personal information, transaction confirmation and mechanisms for dealing with unauthorised transactions. Thus, the theory provides a basis for examining perceived transaction security as a moderating factor and explains how security perceptions may influence the relationship between financial capability, trust and digital remittance behaviour.

Technology Acceptance Model explains the acceptance of digital financial technologies, while Financial Capability Theory highlights the knowledge and skills required to use them effectively. Trust Theory explains confidence in digital financial institutions and platforms, whereas Perceived Risk Theory addresses security concerns and uncertainty in digital financial behaviour. Together, these theories support the view that effective digital financial inclusion among interstate migrant workers depends not only on technological access but also on technology acceptance, financial capability, institutional trust and perceived transaction security.

Statement of the Problem

The rapid expansion of digital financial services has transformed the way individuals access, manage and transfer money. For interstate migrant workers in Kerala, digital remittance services provide opportunities for convenient, accessible and efficient transfer of earnings to households in their places of origin. However, access to digital financial services does not necessarily ensure their effective adoption or sustained use. Migrant workers differ in their digital financial literacy and financial capability, while trust in digital financial institutions and concerns regarding

transaction security, fraud, privacy and unauthorised transactions may influence their willingness to use digital remittance channels.

The efficiency and resilience of remittance behaviour further complicate the problem. Although digital financial services can facilitate faster and more convenient transfers, the effectiveness of these services may depend upon the migrant worker's financial capability, confidence in digital platforms and perception of transaction security. Existing approaches that consider these dimensions separately may not adequately explain how they interact to influence digital remittance adoption and remittance outcomes. Therefore, there is a need for an integrated empirical examination of digital financial literacy, trust in digital financial services, digital remittance adoption, remittance efficiency and perceived transaction security among interstate migrant workers in Kerala.

Accordingly, the present study addresses the problem of how digital financial capability and trust influence digital remittance adoption and remittance efficiency, and how perceived transaction security shapes these relationships and contributes to remittance resilience. The study consequently treats remittance management as a technology-mediated financial behaviour and proposes an empirical model examining direct, mediating and moderating relationships among these dimensions through structural equation modelling.

Objective of the Study

- To study the effect of digital financial literacy on the adoption of digital remittance services among interstate migrant workers in Kerala.
- To study the effect of trust in digital financial services on the adoption of digital remittances and the remittance efficiency of interstate migrant workers in Kerala.
- To investigate the influence of perceived transaction security on the digital remittance behaviour and resilience of interstate migrant workers in Kerala.

Null Hypothesis

The null hypotheses can be formulated as follows, based on the three chosen objectives and the proposed conceptual model of your article:

- H0₁:** Digital financial literacy does not have a significant effect on the adoption of digital remittance services by interstate migrant workers in Kerala.
- H0₂:** Trust in digital financial services has little influence on interstate migrant workers in Kerala adopting digital remittances and remittance efficiency.
- H0₃:** No significant moderation effect of perceived transaction security on the relationship between digital financial factors and remittance behaviour and resilience of interstate migrant workers in Kerala.

Scope of the Study

The present study focuses on digital financial inclusion and remittance resilience among interstate migrant workers in Kerala, particularly examining their use of digital financial services for transferring and managing earnings to households in their places of origin. The study covers migrant workers who use or have access to digital financial services and remittance channels and examines the role of digital financial literacy, trust in digital financial services, digital remittance adoption and remittance efficiency, with particular attention to perceived transaction security as a moderating factor. The study considers how financial capability, institutional trust and security perceptions influence digital remittance behaviour and the resilience of remittance practices. It is geographically confined to interstate migrant workers in Kerala and adopts a quantitative cross-sectional research design, with primary data collected through a structured questionnaire subjected to appropriate validity and reliability assessment. The analytical scope includes examining direct, mediating and moderating relationships among the identified constructs using structural equation modelling. The study further seeks to understand remittance management as a technology-mediated financial behaviour and provides pertinent insights to financial institutions, digital payment providers, migrant-support organisations and policymakers in developing accessible, secure, trustworthy and user-orientated digital financial services for migrant communities.

Delimitations of the Study

The present study This study focuses exclusively on interstate migrant workers in Kerala, excluding international migrants and the general population. It focuses only on migrant workers who use or have access to digital financial services and digital remittance channels and examines digital financial literacy, trust in digital financial services, digital remittance adoption, remittance efficiency, perceived transaction security and remittance resilience. The study does not cover the broader economic, social, employment or other migration-related experiences of migrant workers beyond these digital financial and remittance dimensions. It makes use of a quantitative cross sectional research design and makes use of primary data collected by structured questionnaire making the results dependent on the experiences and responses of the selected respondents during the data collection period. The analysis is confined to the proposed direct, mediating and moderating relationships among the identified constructs and does not attempt to examine every aspect of digital financial inclusion or all forms of financial technology used by migrant workers. These delimitations enable the study to maintain a focused examination of digital financial capability, trust, transaction security, digital remittance behaviour and remittance resilience among interstate migrant workers in Kerala.

Research Design

The present study is based on a quantitative cross-sectional research design to analyse the digital financial inclusion and remittance resilience of interstate migrant workers in Kerala. The primary data will be collected from interstate migrant workers using or having access to digital financial services and digital remittance channels on the aspects of digital financial literacy, trust, digital remittance adoption, remittance efficiency and perceived transaction security. A structured questionnaire will be developed and pretested for proper validity and reliability before the data collection. The data collected will be subjected to analysis to test the proposed direct, mediating and moderating relationships among the identified constructs. The model will be empirically tested by applying structural equation modelling (SEM) to explore the impact of financial capability, institutional trust and perceived transaction security on digital remittance behaviour and resilience.

Research Method

The study is a quantitative research project to examine digital financial inclusion and remittance resilience for interstate migrant workers in Kerala. Primary data will be collected from migrant workers who use digital financial services and digital remittance channels through a structured questionnaire. The study will measure digital financial literacy, trust on digital financial services, adoption of digital remittance, remittance efficiency and perceived transaction security. The data collected will be analysed using appropriate statistical techniques to test the proposed relationships between the variables, including mediating and moderating effects. Structural Equation Modelling (SEM) will be used to test the proposed empirical model to understand the mechanisms through which financial capability, trust and transaction security influence digital remittance behaviour and remittance resilience.

Recommendations

Financial institutions and migrant-support organisations should promote digital financial literacy through simple, multilingual awareness programmes and improve the accessibility and user-friendliness of digital remittance services. Banks and digital payment providers need to improve transaction security, fraud-awareness and customer support and grievance redress mechanisms to build greater trust among migrant workers. Policymakers should encourage migrant-focused digital financial inclusion initiatives that increase financial capability, ensure secure digital transactions and provide reliable remittance services to help migrant workers manage and sustain remittance transfers more efficiently.

Conclusion

Digital financial services are increasingly becoming an important component of remittance management among interstate migrant workers in Kerala. The effective

use of digital remittance channels depends not only on access to technology but also on digital financial literacy, trust in digital financial services and perceptions of transaction security. The proposed study therefore provides an integrated framework for examining how these factors influence digital remittance adoption, remittance efficiency and remittance resilience. By examining these relationships through an empirical model, the study seeks to understand remittance management as a technology-mediated financial behaviour rather than merely as an outcome of migration. The study is expected to benefit financial institutions, digital payment providers, migrant-support organisations and policymakers in developing accessible, secure, trustworthy and user-orientated digital financial services for interstate migrant workers and their households.

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