BRANCHLESS BANKING AND FINANCIAL INCLUSION: REACHING THE UNBANKED AND UNDERBANKED POPULATION

A Dissertation submitted to the Office of the Dean, Faculty of Management, in partial fulfilment of the requirements for the Degree of Masters of Business Studies

by

Sumitra Shrestha
College Roll No.: 3253/075
Exam Symbol No.: 14174/19
TU Reg. No.: 7-2-503-66-2016
Shanker Dev Campus
Group: Finance

Kathmandu,
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Certification of Authorship

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population"**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation

Sumitra Shrestha

July, 2025

Report of Research Committee

Ms. Sumitra Shrestha has defended research proposal entitled **"Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work and guidance of supervisor and submit the thesis for evaluation and viva voce examination.

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Asso. Prof. Dr. Suman Kamal Parajuli

Dissertation Supervisor

Dissertation Proposal Defended Date:

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……..

Dr. Dipak Mahat

Dissertation Supervisor

Dissertation Submitted Date:

……

……..

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Head of Research Department

Dissertation Viva-voce Date:

……..

Approval Sheet

We have examined the dissertation entitled **"Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population"** presented by **Sumitra Shrestha** a candidate for the degree of Master of Business Studies (MBS). We hereby certify that the dissertation is acceptable for the award of degree.

……..……

Asso. Prof. Dr. Suman Kamal Parajuli

Dissertation Supervisor

……..……

Dr. Dipak Mahat

Dissertation Supervisor

……..……

Internal Examiner

……..……

Internal Expert

……..……

External Expert

……..……

Asso. Prof. Dr. Sajeeb Kumar Shrestha

Chairperson, Research Committee

……..……

Asso. Prof. Dr. Kapil Khanal

Campus Chief

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Abbreviations

ATM	: Automated Teller Machine
BC	: Bank Correspondents
FI	: Financial Inclusion
FT	: Financial Technology
MB	: Mobile Banks
MBS	: Master in Business Studies
NRB	: Nepal Rastra Bank
POS	: Point of Sales
SD	: Standard Deviation
SPSS	: Statistical Package for Social Science
TAM	: Technology Acceptance Model
TU	: Tribhuvan University

Abstract

In Nepal a large segment of the population in rural and semi-urban areas remains unbanked or underbanked due to geographic barriers, inadequate infrastructure and economic disparities. This study examines the role of branchless banking in improving financial inclusion among these underserved groups. Branchless banking which includes mobile banking, automated teller machines (ATMs), bank correspondents, point-of-sale (POS) systems and financial technology (FinTech) has appeared as a promising alternative to traditional banking. The study used both descriptive and causal research designs. the study was conducted in Bagmati Rural Municipality of Lalitpur District. A sample of 388 respondents was selected using Yamane's formula and proportionate stratified sampling. Primary data were collected through structured questionnaires based on a five-point Likert scale. Data analysis was carried out using SPSS software. Descriptive statistics, correlation and multiple regression analyses were used as data analysis tools. The findings showed that all five branchless banking variables significantly and positively influence financial inclusion. Financial technology showed the highest impact followed by POS systems and mobile banking. These results showed the growing importance of digital finance and decentralized banking services in promoting financial access. The study concluded that branchless banking is a powerful mechanism for achieving financial inclusion in Nepal. It recommends expanding digital infrastructure, improving financial literacy and improving service quality across multiple branchless channels. Concerned bodies are encouraged to leverage this information in designing inclusive financial strategies that reach the most financially excluded groups.

Keywords: Branchless banking, financial inclusion, mobile banking, ATMs, bank correspondents, point of sales, financial technology

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The exclusion of finance has become the newest tuneful tune in which branchless banking has emerged to be the most fatal and transformative mode to follow the individuals who lack as well as those who are to be credited. Branchless banking model provides financial services using technology and non-conventional banking agents without physical bank desks or branches. Branchless banking is not just a trend, it is a necessity to tap into these unbanked segments and stimulate growth & financial inclusion. According to Kumar (2018) offering inexpensive banking services is an important step towards serving broader segments of society and low-income groups in particular. Branchless banking is a new model that allows people to have direct access to banking services using agents and technology (Lestari, 2023).

Branchless bank systems are more useful compared to the traditional banks in the areas with banking existing in the form of a bank. It is recognized role in achieving better financial inclusion through increasing access to financial services across the spectrum and branchless banking is one way in which it has been doing this (Arif & Cahyani, 2021). ICT in services branchless banking to provide banking products based on the person's needs in the community that has not been served, and create value for him to use in other economic activities in the region. This way even can facilitate obtain banking service and promoting banking habits for unbanked communities.

A branchless banking model charged its possibilities but the remote delivery of banking services only circulates when users trust and perceive it as secure. Banking agents need to learn the technology to establish trust among potential users (Arif & Cahyani, 2021). Furthermore, the corporate governance of the branchless banking sector significantly shapes the way branchless banking functions. Rules can either promote or obstruct the growth of cash-in, cash-out networks with key elements to mobile money interoperating with the traditional banking environment in which they operate (Reynolds et al., 2018). Thus, conducive regulatory environment is essential to realize the full potential of branchless banking.

The COVID-19 crisis has only rapidly boosted branchless banking as consumers are seeking safe alternatives for banking. Interestingly, the strongest impact of the crisis was found in rural populations which began adopting branchless banking solutions even though the economic conditions worsened (Ashraf, 2022). The Covid-19 epidemic has demonstrated the demand for digital financial services to keep them connected to banking services without interruption, particularly for residents of isolated areas. This shift addresses acute financial needs now but lays the groundwork for greater long-term inclusion.

It may have its advantages but branchless banking also has its own challenges like anything else. There may be things such as agent fraud with increased transaction costs that would dissuade users to willingly partake in these services. Projection of the risks on the agents also characterizes the delegation of authority to agents that enables the emergence of moral hazards such as agents trying to benefit from the possible capture of the agent (Mangani et al, 2021). This emphasized the importance of the financial institutions having strict systems that could become a part of the monitoring process and one that have transparency over fee structures that may protect consumers and build trust around branchless banking.

Similarly, incorporating local cultural practices while deploying branchless banking models can make a world of difference when it comes to efficacy. Yudiana (2018) stated that Islamic banking institutions should pay attention to the dynamics of the local economy in the process of implementing branchless banking that is relevant to the values that exist in the community. This localization strategy not only enables people to get accustomed to the new offering but also permits more unbanked people to use this type of service and promote more financial inclusion.

Branchless banking has greatly improved financial access in Nepal by offering digital financial services such as mobile and agent banking to an untapped market of unbanked individuals in remote locations who would not otherwise have access to these services (Niraula & Adhikari, 2019). Also, the one of the major factors for an increase in adoption rate is policies given by Nepal Rastra Bank and the explosive growth of mobile technology (Gautam & Sah, 2023). Financial literacy program has been found as an important tool to gain trust and usage of the financial inclusion (Pant, 2016). However, challenges such as low-level financial literacy, inadequate

infrastructure, and security issues continue to exist, but the COVID-19 pandemic has accelerated the adoption of digital financial services (Sah, 2023). This will require overcoming the challenges associated with branchless banking to harness it as an efficient and effective means of finance service delivery that is conducive to the economic development of Nepal.

1.2 Problem Statement

Similar to many developing countries including Nepal, a significant segment of society is still financially excluded from utilizing banking services. Branchless banking has the potential to fill this gap however, there are many challenges to its successful implementation. The primary challenges preventing the unbanked and underbanked population from leveraging branchless banking initiatives are low awareness, poor infrastructure, and limited technological access.

Despite the fact that mobile banking, ATMs, banking correspondents and point-of-sale (POS) systems were brought in as tools to try and boost financial inclusion, their uptake still remains far from ideal. Existing educational efforts about these services are limited, and with inadequate financial literacy, potential users fail to recognize the benefits of the service. This makes branchless banking difficult to access and drives a cycle of underbaking.

Barriers to financial inclusion also come in the form of geographic diversity, distrust in formal financial institutions, and limited outreach. Dzombo et al. (2018) and Nisha et al. (2020) asserted that while mobile banks, ATMs, and agent-based models are critical for closing access gaps, they still face important underutilization in Nepal, due to a lack of infrastructure and targeted promotional strategies. Adoption rates thus have the potential to be much higher with improved marketing efforts, if these campaigns specifically target the unique needs of rural and marginalized populations, but this is not the case in Nepal (Ashraf, 2022).

Due to price barriers, access to mobile banking, ATMs and POS systems is also limited. As noted by Assefa (2020), transaction fees and service costs are very high, discouraging low-income groups from using the formal financial system and forcing them into informal systems. Like Lusardi and Mitchell (2014) who argued that financial literacy is crucial for making informed decisions, financial education

programs, especially in Nepal, have generally focused on urban settings, consequently, the rural and disadvantaged remain uneducated on the use of services such as mobile banking and ATMs. In addition, the regulatory framework in Nepal is devoid of adequate enforcement measures and consumer safeguards. There are weak regulations around branchless banking operations which dilutes trust in formal financial systems.

Finally, technological and infrastructure barriers around mobile banking, ATMs, banking correspondents, and POS systems still plague the country of Nepal. Gutierrez (2024) noted the transformative potential of technology for financial inclusion, but Nepal trails behind due to poor infrastructure and limited access to technology, especially in rural areas, as well as digital illiteracy.

Improving the availability and accessibility of mobile banks, ATMs, banking correspondents, POS systems and the other recommendations as stated previously like financial literacy, regulatory oversights and technical infrastructures to address these challenges is a key step towards the determination of financial inclusion among unbanked and underbanked population in a developing country like Nepal. Removing such road blocks will pave way for such economic footprint in making country grow and develop sustainably. Therefore, the following research questions emerge in this study:

- What is the current status of financial inclusion among unbanked and underbanked populations, particularly in terms of access and utilization of branchless banking services?
- How do mobile banks, ATMs, bank correspondents, point of sale, financial technology correlate with financial inclusion among unbanked and underbanked populations in the context of branchless banking?
- To what extent do mobile banks, ATMs, bank correspondents, point of sale, financial technology predict financial inclusion for unbanked and underbanked populations through branchless banking initiatives?

1.3 Objectives of the Study

The main aim of this study is to examine the branchless banking and financial inclusion. However, the specific objectives of the study are as follows:

- To assess the current state of financial inclusion among unbanked and underbanked populations with a specific focus on their access to and usage of branchless banking services.
- To analyze the relationships between mobile banks, ATMs, bank correspondents, point of sale, financial technology and financial inclusion within the framework of branchless banking for unbanked and underbanked populations.
- To examine the extent to which facilitating conditions, mobile banks, ATMs, bank correspondents, point of sale, financial technology predict financial inclusion for unbanked and underbanked populations in the context of branchless banking initiatives.

1.4 Research Hypothesis

On the basis of research questions, objectives of the study and empirical evidences from different literature, the following hypothesis are formulated and tested:

H_1: Mobile bank for branchless banking positively impacts financial inclusion by increasing participation among unbanked and underbanked populations.

H_2: ATMs of branchless banking services significantly enhances financial inclusion for unbanked and underbanked populations.

H_3: Bank correspondents positively affect the use of branchless banking in promoting financial inclusion among the unbanked and underbanked populations.

H_4: Point of sales of branchless banking directly enhances financial inclusion by reaching geographically remote and underserved populations.

H_5: Financial technology in branchless banking directly enhances financial inclusion by reaching geographically remote and underserved populations.

1.5 Rationale of the Study

The results of this study have an important implication because they are very relevant to the financial inclusion and economic development in the context of Nepal. The extensive rural populace, combined with the challenging geographic landscape, makes the provision of traditional banking services to the complete Nepalese populace a significant hindrance. This study on the impact of branchless banking on financial inclusion, especially of the unbanked and underbanked populations, is significant for a variety of reasons.

In simple terms, the study suggests that branchless banking is a power to enhance their access to financial services, creating access routes to remote and under-served geographical areas that may lack banks. One of the main conclusions of this research is an increasingly recognized link between poverty alleviation, economic empowerment and fintech, with access to formal financial services improving the economic prospects of marginalized groups and enabling them to save, invest and better manage financial risks. This access is especially important in rural Nepal, where distances to physical banks can be long and a barrier.

It can also assist policymakers and regulatory organs in Nepal to judge the nature of branchless banking initiatives. However, information on the influence of promotional methods, price barriers, financial literacy, regulatory environment and technological access on financial inclusion will help formulate measures for deepening financial inclusion. Policies of this nature can act to facilitate an inclusive financial ecosystem: all sectors of the population must be able to access financial services, including the most vulnerable among us.

The study uses financial literacy as one example in which there is a lot of room for improvement in digital forms of literacy in the broader population. Here are some of the right track concepts that will help ensure adequate uptake and appropriate use of digital financial services (DFS) It may lead to a more financially literate society that is capable of using their finances to their maximum potential and make better financial decisions.

The study highlights that tapping into financial innovation is also a possible way forward as the nature of the fintech is to enable cost-effective and time-efficient solutions that would be appropriate to the needs of Nepalese people, particularly in consideration with the geographical and infrastructure challenges in Nepal. Technology has the potential to bring financial institutions closer to their customers by breaking the physical barriers of yesterdays and providing more accessible and convenient services.

Lastly, branchless banking will provide a more robust financial system due to greater financial inclusion. The study supports broader financial inclusivity that is vital for maintaining economic growth by integrating more people into the formal financial

sector. This inclusion aids in both diversifying the financial system, diffusing risk and increasing the amount of capital available for investment and growth.

This study is focused to prove, how branchless banking help achieve the financial inclusion and empowerment in Nepal, which is the tentative pathway towards growth in the financial system of Nepal. This Answer aims to support the nation's journey towards all-round economic growth by addressing the specific challenges faced by Nepal and proposing practical solutions to increase access to financial services to the entire populace.

1.6 Limitations of the Study

The main limitations of the study are as follows:

- The study may be limited by the sampling method used i.e., purposive sampling which might not represent the entire population of unbanked and underbanked individuals in Nepal.
- Sampling size of 388 respondents might be insufficient to generalize findings across diverse geographic and demographic segments.
- Responses from survey participants might be influenced by their perceptions and experiences, leading to potential response bias.
- The accuracy and reliability of the tools and instruments used for data collection, such as surveys and questionnaires, could impact the quality of the data collected.
- Variability in technology access and usage among the target population might affect the study's ability to accurately assess the impact of branchless banking.
- The study might not fully capture the implications of evolving regulatory frameworks on financial inclusion.
- Variations in financial literacy and trust in financial institutions across different communities could introduce additional complexities.

CHAPTER II

LITERATURE REVIEW

This chapter contains the literature review, covering a rich mix of theoretical and empirical findings, and also research gaps. The literature review establishes the theoretical framework for the study, discussing the concept of branchless banking and the ways in which it can facilitate financial inclusion, especially among unbanked and underbanked communities. It synthesizes multiple theoretical perspectives to create a conceptual framework, critically reviews existing empirical studies to summarize past findings and research methods, and identifies gaps in the literature that the current study intends to fill. It seeks to solidify our examination in established theory and observational evidence while highlighting future research aimed at expanding the borders of knowledge in the subject matter.

2.1 Theoretical Review

Study of financial inclusion through branchless banking utilizes key theories, which are discussed in the theoretical review section. Financial inclusion theory solves the principles and mechanism of inclusive financial system can be constructed to provide equitable access to financial services. The technology acceptance model is suggested as an appropriate model to analyze the acceptance of the branchless banking solutions by individuals, as the individuals are found to adopt and utilize new technologies at faster rates. The sequence of financial literacy theory is evaluated to see how financial education and knowledge allow people to effectively use financial services. Institutional theory provides a framework for examining the influence of institutional structures and regulatory environments on financial inclusion initiatives. Lastly, behavioral finance theory in order to understand the psychological and behavioral aspects that influence financial decision-making among unbanked and underbanked consumers. Such theories bundle up a theoretical underpinning to analyze and understand the various dimensions of financial inclusion that branchless banking offers.

2.1.1 Financial Inclusion Theory

The financial inclusion theory provides the premise that access to financial services is crucial for economic development and the alleviation of poverty. According to this

theory, potential account holders will be able to save, invest and manage their money more effectively, particularly if they belong to underprivileged groups (Demirguc-Kunt et al., 2015). This is particularly the case for people who hail from disenfranchised communities. The unaffordable financial services should be available for those unbanked and underbanked (whose banks aren't meeting their needs), according to the singular focus of the wellbeing. This information is highly needed to build economic steady states and to empower individuals in gaining access to the financial system. Bandiera et al. (2022) stated that finacial inclusion stimulates savings and investments which are vital for economic development particularly in developing nations.

The technique that is associated with financial inclusion theory uses quantitative assessments of financial access indicators, such as the number of bank accounts per capita or the percentage of the population with access to formal financial services. With such research, data generated from national surveys and financial institutions are often used to assess the impact of financial inclusion on economic performance. Financial inclusion is a major catalyst of economic development, enabling individuals to participate in productive economic activities (Demirguc-Kunt et al., 2015) This is because financial inclusion allows people to engage in economic activity. This underscores the importance of implementing policies that widen access to financial services to all segments of society, particularly those who have faced marginalization in access to said services.

Brown et al. (2015) found that measures of financial inclusion significantly positively affect the economic welfare of poor communities, thereby contributing positively to economic stability. Therefore, this emphasizes the importance of policies and interventions that promote financial inclusion of the unbanked or underbanked population, which will eventually aid in achieving the goal of poverty eradication and promoting sustainable economic development.

Beyond the growth of the economy, the financial inclusion theory also points toward social equity and empowerment. By prioritizing access to financial services for previously excluded groups, nations can reduce economic inequality and improve social cohesion. In this theory, a multi-pronged approach is required for financial inclusion, as this covers improving and promoting financial literacy, reforming the

regulatory landscape, and leveraging technology to access currently unserved markets. Bhyer and Lee (2019) emphasized the role that regulatory technology (RegTech) can have in supporting financial inclusion through easing compliance and reducing costs for financial service providers.

Financial inclusion theory provides perspectives emphasizing on the equilibrium between economic and social growth through proper access to financial services. It underpins the importance of specialized policies and activities that promote financial inclusion, especially for unbanked and underbanked populations, which in turn help eradicate poverty and sustain economic development.

2.1.2 Technology Acceptance Model (TAM)

The technology acceptance model is a model that is commonly used to understand individuals' acceptance of new technologies and their usage. In the context of branchless banking, the technology acceptance model (TAM) suggests that users' intentions to adopt digital financial services are strongly influenced by perceptions of the services' ease of use and usefulness. The same model is particularly applicable to study the penetration of branchless banking among unbanked or underbanked communities. If the consumers find the branchless banking services easy to use and useful, it makes them willing to use these services (Arif & Cahyani, 2021).

Kim et al. (2018) stated using good advertising strategies and educating potential users about branchless banking services of higher utility, led to higher adoption rates. This evidence serves to highlight the importance of considering the views of customers when designing and implementing branchless banking initiatives. It is a requirement to enhance user experience for driving financial inclusion through branchless banking through which links with the outcomes of existing studies related to TAM. When banks invest in user-friendly interfaces and provide support, they can significantly increase the organization's ability to adopt services previously unavailable to them. In areas where digital literacy may be lacking, this gentleman is every bit as critical, as user reluctance to engage with new tech may be stunted (Arif & Firmansyah, 2018).

The implications of TAM extend beyond theory and have implications for both policy and practice in terms of encouraging the uptake of branchless banking services. Thus,

banks must prioritize training users and user support to foster the adoption of technology. By understanding the factors that drive user acceptability, stakeholders can design more mobile-specific interventions that target specific barriers to adoption. These barriers include lack of understanding or fear of technology. Customer mind set and preferences are very important hence it is needed to build an efficient branchless banking (consumer behaviour) (Akinyemi & Mushunje, 2020).

TM is a very useful framework for understanding the constructs that influence branchless bank services acceptance. Focusing on perceived ease of use and perceived utility can enable stakeholders to develop strategies that increase the likelihood of the product or service being accepted by the user and eventually promote financial inclusion for the unbanked or underbanked.

2.1.3 Financial Literacy Theory

Theory of financial literacy states that the awareness and understanding of an individual or group about financial concepts and products greatly influences the decision-making of an individual's finance. This is especially the case in branchless banking and financial inclusion as these segments of the population have little to no financial literacy needed to access digital financial services effectively. Higher financial literacy has also been proven to have a direct relation to increase in usage of financial services, phone banking or branchless banking (Hannig & Jansen, 2010).

In studying financial literacy theory, researchers typically rely on surveys and assessments that assess how much an individual knows about various aspects of personal finance, including budgeting, saving, and investing. Brown et al. (2015) identified a positive correlation between financial literacy and financial inclusion, indicating that individuals who are more financially literate are more inclined to use formal financial services. This highlights the role of financial education in driving financial inclusion.

Studies in financial literacy theory show that financial literacy is associated with better financial behaviors and financial outcomes. In fact, studies indicate that increased financial literacy correlates with a greater likelihood to save, invest, and appropriately use financial products, ultimately aiding in one's economic well-being (Hannig & Jansen, 2010). Additionally, it underscores the importance of

implementing tailored financial literacy initiatives that cater to the unique requirements of those who are unbanked or underbanked.

Financial literacy theory has important policy and practical implications in how financial education initiatives should be prioritized by financial institutions and governments. Through educating and enabling individuals with the knowledge and skills required to make informed financial decisions, the stakeholders can accelerate the adoption of branchless banking services and also improve financial inclusion. According to Mader (2017), it is a key aspect of sound financial inclusion policy that "proceeding to a monetary system that has an improvement ground from among the people group and can help (and improves) in managing their capacity to make productive use of the monetary frameworks that benefit (and enhance) from them.

Ultimately, financial literacy theory offers valuable insights into the importance of cultivating financial literacy as a means to foster inclusion in the financial landscape. It will enable them to construct pathways for better access to formal financial products and services for the unbanked and underbanked, which will lead to economic development and social equity.

2.1.4 Institutional Theory

The institutional theory indicates that the organizations and the institutions are heavily influenced by their structures, norms and the rules which include the behavior and decision-making process of the organizations and institutions. This theory focuses on the role of the law, the socio-cultural context and the institutionalized practices in the acceptance and implementation of financial services within the larger umbrella of financial inclusion and branchless banking. Supportive institutional contexts are therefore important in fostering financial inclusion, particularly for communities that are currently underserved (Sulistyandari, 2022).

Related to this aspect is the institutional theory, which constitutes an important component of the approach, and often employs qualitative case studies and comparative analyses to study the effects of institutions on financial practices. Demirguc-Kunt et al. (2015) looked into how regulatory frameworks affect efforts to boost financial inclusion. This study found that to promote confidence in financial services, it is important to maintain strong legal framework and supportive policies.

Therefore, this further accentuates the importance of institutions creating an environment in itself for acceptance of financial services.

The results of research conducted based on the institutional theory demonstrate that institutional variables, such as regulatory support and cultural acceptance, play a significant role in the success of branchless banking initiatives. Countries that have strong regulatory environments and cultural attitudes that are supportive of banking are likely to experience higher levels of financial inclusion (Sulistyandari, 2022). Foregoing the shift to branchless banking highlights the need to overcome institutional barriers to customer uptake.

The institutional theory has important implications for policy and practice. And their implications suggest that the various stakeholders should get together, improve regulatory frameworks, and cultivate a positive cultural attitude towards financial services. To create an enabling institutional environment for such initiatives to bring effectiveness in programs to promote access to financial services as well as to stimulate the process of branchless banking expansion, stakeholders could develop it. According to Boachie et al. (2021): "The long-term sustainability of actions aiming for financial inclusion wholly relies on the support of institutions".

Institutional theory provides valuable insights regarding the factors that affect the uptake of branchless banking services and financial inclusion. the recognition of the institutions in action enables stakeholders to formulate strategies that address the legislative and cultural barriers and allows financial inclusion for the unbanked or underbanked population.

2.1.5 Behavioral Finance Theory

The behavioral finance theory states that psychological factors and cognitive biases exert a significant influence on people finances decisions and behavior most of the time. The theory emphasizes the importance of understanding how people's emotions, perceptions, and social factors can influence their willingness to adopt financial services, particularly in the field of financial inclusion and branchless banking. Banks may encounter challenges in implementing this service due to behavioral biases which can hinder branchless banking adoption in unbanked or underbanked communities on the whole (Sarah, 2015).

It also employs behavioural finance theory through the application of experimental designs and surveys that determine how individuals make decisions in regards to finance. Bustamante and Amaya (2019) explored how cognitive biases (e.g. loss aversion and overconfidence) shaped people's perceptions of branchless banking services. This highlights the need for behavioural factors to be at the forefront of service development and marketing initiatives in financial institutions.

Findings of studies modeled on behavioral finance theory show that surmounting psychological barriers could result in an increase in penetration of branchless banking services. For instance, one study found that financial gurus are better informed of their cognitive bias which potentially leads to a higher quality of decision-making around financial services (Sarah, 2015). The implications are important, as they suggest that behavioral insights can be used to enhance efforts to educate people and reach out to them about financial products.

The implications of behavioral finance theory reach into both policy and practice and in light of this, it would also suggest that financial institutions develop measures to reduce psychological barriers to adoption. If stakeholders have an in-depth understanding of the behavioral factors influencing financial decisions, they can design targeted interventions to strengthen financial inclusion and enhance the effectiveness of branchless banking. According to Boachie et al. To successfully design branchless banking solutions, it is important to have a comprehensive understanding of user behaviour and preference (Boachie et al., 2021).

The behavioral finance theory is an important concept in understanding the roles of psychological factors in branchless banking service acceptance and financial inclusion. By addressing these cognitive biases and the emotional barriers that tend to be a hindrance, it is possible for stakeholders to set up pathways that allow unbanked and underbanked individuals to engage with formal financial services. And, so, this will help in terms of economic growth, this will help in terms of social fairness.

2.2 Empirical Review

2.2.1 International Context

Dzombo et al. (2018) examined the mediating effect of financial inclusion on the relationship between branchless banking strategy and the performance of commercial

banks in Kenya. The study employed a quantitative methodology, analyzing survey data from bank customers. The findings revealed that financial inclusion plays a critical role in enhancing the effectiveness of branchless banking strategies. The authors concluded that promoting financial inclusion is essential for improving bank performance. The implications highlight the need for policies that support inclusive financial services.

Mangani et al. (2019) assessed a branchless banking system and the economic behavior of households that own micro and small enterprises in Indonesia. To gather information from business owners, the study utilized a mixed-method approach, comprising of questionnaires coupled with interviews. The findings concluded that branchless banking significantly improved access to financial services, allowing numerous enterprises to thrive. The studies reveal that branchless banking is key to delivering small business assistance, according to the authors. Consequently, given these repercussions, financial institutions should focus on tailoring their services to the specific needs of these businesses in order to encourage economic growth.

Prior and Mora (2019) conducted a quantitative study on the impact of branchless banking on microfinance institutions. The study analyzed data from various microfinance institutions to assess the effects of branchless banking on financial inclusion. The findings indicated that branchless banking significantly enhances access to financial services for underserved populations. The authors concluded that integrating branchless banking into microfinance strategies is vital for promoting financial inclusion. The implications suggest that microfinance institutions should adopt innovative banking models to reach more clients.

Xu (2019) explored the underbanked phenomenon, focusing on individuals who have bank accounts but remain underserved by mainstream banking. The study employed a quantitative methodology, analyzing survey data to identify factors influencing underbanked status. The findings indicated that local banking characteristics and customer experiences significantly affect underbanked populations. The author concluded that addressing the needs of the underbanked is essential for promoting financial inclusion. The implications highlight the importance of tailored banking services to meet diverse customer needs.

Assefa (2020) amended the technology acceptance model to test the implementation of branchless banking to be inclusive financial management services. Branchless banking users' impressions and acceptability were assessed through a quantitative survey approach (as evident from the research findings). The study findings proved that branchless banking offers a beneficial platform for individuals who cannot reach traditional banking due to barriers such as excessive costs and distance involved in the banking process. This led the author to conclude that better awareness & education of the users is palatable to increase the adoption rates. Considering the implications, it is vital to remove barriers to access if we are to move the needle on the issue of financial inclusion.

Nisha et al. (2020) investigated the relationship between agent banking and financial inclusion. The authors used a mixed-methods approach, incorporating quantitative data from surveys with qualitative data from interviews. Agent banking was demonstrated to offer a plethora of financial services to previously unbanked populations, particularly in rural locations (research based on data from October 2023). Agent banking is an effective way to promote financial inclusion. The conclusions imply that banks need to broaden their agent banking network to penetrate the under-served area.

Rachmawati et al. (2020) developed an agent-based model for branchless banking services in urban and rural areas. The study utilized a simulation approach to analyze the effectiveness of different service delivery models. The findings indicated that agent-based models can significantly enhance access to financial services in both urban and rural contexts. The authors concluded that optimizing agent networks is crucial for expanding branchless banking. The implications suggest that policymakers should support the development of agent networks to improve financial inclusion.

Shahabi et al. (2020) explored the impact of the COVID-19 epidemic on the development of branchless banking in Iran. The research project in question employed a simulation-based approach to study the influence of the pandemic on customer behavior and the functioning of banks. The pandemic resulted in a rapid growth in the appetite for contactless services, giving impetus to branches less banking. The authors determined that branchless banking can be a very powerful tool for improving financial inclusion, especially during the events of crisis. Given the consequences, it

has become an absolute necessity for financial institutions to bolster their digital infrastructure so that they can better serve their clients during trying times.

Arif and Cahyani (2021) examined the relationship between branchless banking and profitability in the Indonesian Islamic banking sector. The study adopts a quantitative approach, examining the financial performance before and after the effect of branchless banking. The findings prove that branchless banking helps by improving profitability through wider customer access and lower operational costs. It was concluded by the authors that branchless banking should be among the strategic initiatives of the Islamic banks in line with financial inclusion. There are implications for policy that may lead to economic growth through greater expansion of branchless banking to better meet the demand for financial services among populations that have been excluded from the formal economy.

Gunawan et al. (2021) explored legal protections for customers using branchless banking services in Indonesia. The study employed qualitative methods, including interviews with legal experts and banking professionals. The findings indicated that while legal frameworks exist, gaps in enforcement and awareness hinder customer protection. The authors concluded that strengthening legal protections is essential for building trust in branchless banking. The implications emphasize the need for comprehensive legal reforms to support financial inclusion initiatives.

Mangani et al. (2021) investigated the branchless banking process in rural areas, focusing on price barriers. The study utilized qualitative methods, including interviews with banking agents and customers. The findings indicated that while branchless banking reduces non-price barriers, issues such as agent misconduct and high transaction fees persist. The authors concluded that addressing these price barriers is essential for enhancing financial inclusion. The implications highlight the need for regulatory oversight to ensure fair pricing in branchless banking services.

Nofirda and Kinasih (2021) examined the use of branchless banking technology to expand financial inclusion in Kampar, Indonesia. The study employed a quantitative survey methodology with purposive sampling. The findings indicated that branchless banking significantly improves access to financial services for underserved populations. The authors concluded that expanding branchless banking services is

crucial for promoting financial inclusion. The implications suggest that stakeholders should invest in technology and training to enhance the effectiveness of branchless banking initiatives.

Sintha (2021) explored branchless banking as a disruptive innovation in Indonesia. The study employed a qualitative approach, analyzing case studies of successful branchless banking implementations. The findings indicated that branchless banking effectively reaches underserved populations and enhances financial literacy. The author concluded that branchless banking can significantly contribute to economic growth. The implications suggest that stakeholders should invest in technology and training to maximize the benefits of branchless banking.

Ashraf (2022) explored a study to find out the intentions of the rural folk of Bangladesh regarding the adoption of branchless banking during COVID-19 epidemic. The study, took a quantitative survey approach to assess user intentions and factors that influenced their adoption. Data revealed that the pandemic heightened the demand for readily accessible financial services; this resulted in a greater focus on branchless banking. The author determined that branchless banking can effectively fulfill the financial needs of people living in rural areas. This comes across nicely since it shows that targeted marketing and education is critical for adoption.

Aziz et al. (2022) analyzed the challenges and opportunities for branchless banking in Malaysia during the COVID-19 pandemic. The study utilized a qualitative approach, conducting interviews with banking professionals and customers. The findings indicated that the pandemic accelerated the adoption of branchless banking, but challenges such as digital literacy and infrastructure gaps remain. The authors concluded that addressing these challenges is crucial for maximizing the potential of branchless banking. The implications suggest that targeted interventions are needed to promote digital financial services.

Sulistyandari (2022) examined the optimization of legal protection for branchless banking as a micro-business empowerment effort in Indonesia. The study utilized qualitative methods, including interviews with stakeholders and legal analysis. The findings revealed that while legal frameworks exist, there are gaps in enforcement and awareness among users. The author concluded that strengthening legal protections is

essential for fostering trust in branchless banking. The implications emphasize the need for comprehensive legal reforms to support financial inclusion initiatives.

Asif et al. (2023) analyzed the impact of fintech and digital financial services on financial inclusion in India. The study employed a mixed-method approach, combining quantitative surveys and qualitative interviews. The findings revealed that fintech innovations significantly enhance access to financial services for underserved populations. The authors concluded that promoting fintech solutions is crucial for advancing financial inclusion. The implications suggest that policymakers should support the growth of fintech to improve access to financial services.

Han (2023) determined the strengths, weakness, opportunity and threats of digital inclusive finance in Guangdong Province, China. Researchers used qualitative methods, interviewing industry experts and policymakers. The study determined that although digital finance may lead to increased financial inclusion, obstacles such as regulatory hindrance and technological inbalance exist. The authors remarked that overcoming these challenges is essential to harness the full potential of digital inclusive finance. The study has implications that can be removed when stakeholders work together to find out practical solutions that serve as a means to population inclusion that has been underplayed when it comes to digital finance.

Lestari (2023) conducted a comparative analysis between the financial performance of commercial banks prior and after the independent banking had been implemented in Indonesia. The research was based on employing a quantitative analysis of financial data gathered from various institutions. According to the research, branchless banking was found to positively impact financial performance indicators, such as profitability and growth of the customer base. Branchless banking may become a revolutionary concept when proven by the author (the behaviors of banking customers may change). The inference is that many low-income people may have the potential to prepare to improve financial inclusion if they were provided more branchless banking services.

Preziuso (2023) investigated the role of open banking in promoting financial inclusion within the European Union, with a focus on the Dutch context. The researchers employed qualitative interviews with stakeholders in the financial sector to gather insights on the impact of open banking initiatives. The findings indicated that open

banking has the potential to enhance financial inclusion by providing more accessible and affordable financial services. The authors concluded that collaborative efforts among stakeholders are essential for maximizing the benefits of open banking. The implications highlight the need for regulatory support to facilitate open banking initiatives aimed at reaching unbanked populations.

Sularmi (2023) explored the link between financial innovations, such as branchless banking models, and commercial banks' performance in Kenya. The researchers collected financial performance data from several banks and undertook quantitative analysis. Results of the analysis revealed that branchless banking positively affects bank performance with an increase in the number of customers and a decrease in operational costs. Indeed, the authors found that financial innovations are critical to enhancing the performance of banks, as well as increasing financial inclusion. This is a sign that banks should consider branching out into branchless banking in order to cater to unbanked and underbanked populations.

Gutierrez (2024) explained the impacts of Fintech and IoT technologies on the traditional banking architecture through the lens of branchless banking. This study examined fifteen existing studies (2018–2024) related to customer experience, operational efficiency, and regulatory challenges. To conclude, this approach reveals that financial technology and the internet of things promote the availability and effectiveness of banking services in slow economy areas. These technologies are essential for driving financial inclusion and meeting the needs of the unbanked, the author writes. They imply that financial companies must adopt these technologies to enhance the quality of services they provide and efficiently serve the unbanked individuals.

Kurniawan (2024) examined the implementation of branchless banking services in Indonesia, focusing on customer protection measures. The author utilized a qualitative case study approach to analyze the experiences of customers using branchless banking services. The findings revealed that while branchless banking provides essential financial services, there are significant gaps in customer protection and awareness. The author concluded that enhancing customer protection is crucial for building trust in branchless banking. The implications suggest that similar measures should be

considered in developing countries to ensure the safety and security of customers engaging with branchless banking services.

Njiru (2024) investigated the impact of branchless banking on the financial performance of commercial banks in Kenya. The study utilized a quantitative analysis of financial data from various banks. The findings indicated that branchless banking significantly enhances financial performance, with financial deepening acting as a mediating factor. The author concluded that commercial banks should adopt branchless banking strategies to improve their performance. The implications suggest that regulatory frameworks should support the expansion of branchless banking services.

Thetlek (2024) investigated the strategies for adopting virtual banking in digital economy, focusing on branchless banking as a means to enhance financial inclusion. The author employed a qualitative methodology, conducting interviews with banking professionals and customers. The findings revealed that virtual banking, characterized by its lack of physical branches, is gaining traction among consumers seeking convenience and accessibility. The author concluded that adopting virtual banking strategies is essential for reaching unbanked populations and promoting financial inclusion. The implications suggest that financial institutions should prioritize the development of user-friendly digital platforms to enhance service delivery.

Table 1

Summary of Empirical Review in International Context

SN	Authors	Objectives	Variables	Methodology	Major Findings
1	Dzombo et al. (2018)	To examine the mediating effect of financial inclusion on the relationship between branchless banking strategy and the	Independent: Branchless banking strategy Dependent: Bank performance Mediator: Financial	Quantitative approach; survey data from bank customers; analyzed using Structural Equation Modeling	Financial inclusion significantly enhances the impact of branchless banking on bank performance, highlighting the

		performance of commercial banks in Kenya.	inclusion	(SEM).	need for inclusive policies to improve financial outcomes for banks.
2	Mangani et al. (2019)	To assess the branchless banking system and its impact on the economic behavior of households owning micro and small enterprises in Indonesia.	Independent: Branchless banking Dependent: Economic behavior of households owning micro and small enterprises	Mixed-method approach; questionnaires and interviews analyzed using thematic analysis and descriptive statistics.	Branchless banking improves access to financial services, fostering business growth and enabling enterprises to thrive. Tailored services are essential for encouraging further economic growth.
3	Niraula and Adhikari (2019)	To analyze the role of digital finance services in promoting financial inclusion in Nepal.	Independent: Digital infrastructure and policies Dependent: Financial inclusion	Qualitative interviews with financial sector stakeholders.	Digital finance enhances inclusion, particularly for unbanked populations. Investments in infrastructure and technology

					policies are essential.
4	Prior and Mora (2019)	To analyze the impact of branchless banking on microfinance institutions' strategies to promote financial inclusion.	Independent: Branchless banking Dependent: Financial inclusion	Quantitative approach; secondary data from microfinance institutions; statistical analysis using regression models.	Branchless banking enhances financial inclusion, particularly for underserved populations. Integrating branchless banking into microfinance is crucial for expanding access.
5	Xu (2019)	To explore the factors influencing underbanked populations with bank accounts but limited service use.	Independent: Local banking characteristics, customer experiences Dependent: Underbanked status	Quantitative survey approach; analyzed using logistic regression.	Local banking characteristics and customer experiences significantly affect underbanked populations. Tailored banking services are essential for addressing underbanked individuals'

					needs.
6	Assefa (2020)	To test the implementation of branchless banking as an inclusive financial management service.	Independent: Barriers to banking Dependent: User adoption Mediator: Awareness & education	Quantitative survey approach; analyzed using an amended Technology Acceptance Model (TAM) framework.	Branchless banking reduces cost and distance barriers, but awareness and education significantly improve adoption rates. Removing barriers is essential to enhancing financial inclusion.
7	Nisha et al. (2020)	To examine the impact of agent banking on financial inclusion in Nepal.	Independent: Agent banking Dependent: Financial inclusion	Mixed-methods approach; quantitative surveys and qualitative interviews.	Agent banking significantly improves financial access for rural and underserved populations. Expanding networks can promote greater inclusion.
8	Rachmawati et al. (2020)	To evaluate the effectiveness of agent-based branchless	Independent: Agent-based model Dependent:	Simulation approach; agent-based modeling using	Agent-based models enhance financial inclusion in

		banking models in urban and rural areas.	Financial service access	AnyLogic software.	urban and rural areas. Optimizing agent networks is vital for service expansion.
9	Shahabi et al. (2020)	To investigate the impact of COVID-19 on branchless banking development in Iran.	Independent: COVID-19 pandemic Dependent: Branchless banking growth	Simulation-based approach; customer behavior and bank operations modeled using Arena software.	The pandemic accelerated the adoption of branchless banking, making it essential for financial institutions to enhance digital infrastructure to meet client needs during crises.
10	Arif and Cahyani (2021)	To explore the relationship between branchless banking and profitability in Indonesian Islamic banking.	Independent: Branchless banking Dependent: Bank profitability	Quantitative analysis of financial performance data pre- and post-branchless banking implementation.	Branchless banking enhances profitability by expanding reach and lowering operational costs. Policy support for expansion is vital for

					improving financial inclusion and economic growth.
11	Gunawan et al. (2021)	To examine legal protections for customers using branchless banking services in Indonesia.	Independent: Legal frameworks Dependent: Customer trust in branchless banking	Qualitative methods; interviews with legal experts and banking professionals; content analysis using NVivo.	While legal frameworks exist, enforcement and awareness gaps hinder customer protection. Strengthening legal protections is critical to building trust and promoting financial inclusion.
12	Mangani et al. (2021)	To investigate price barriers in branchless banking in rural areas.	Independent: Branchless banking Dependent: Financial inclusion Mediator: Price barriers	Qualitative methods; interviews with banking agents and customers; thematic analysis using MAXQDA software.	Branchless banking reduces non-price barriers but faces issues with agent misconduct and high transaction fees. Regulatory oversight is required to address price

					barriers effectively.
13	Nofirda & Kinasih (2021)	To assess the role of branchless banking technology in promoting financial inclusion in Kampar, Indonesia.	Independent: Branchless banking technology Dependent: Financial inclusion	Quantitative survey; purposive sampling; data analyzed using SPSS.	Branchless banking improves financial access for underserved populations. Stakeholders should focus on technology and training to enhance service effectiveness.
14	Sintha (2021)	To explore branchless banking as a disruptive innovation in Indonesia.	Independent: Branchless banking Dependent: Financial literacy, economic growth	Qualitative case study approach; analyzed successful implementations using thematic coding.	Branchless banking reaches underserved populations and enhances financial literacy, contributing significantly to economic growth.
15	Ashraf (2022)	To evaluate rural people's adoption intentions for branchless banking during the COVID-19	Independent: User factors (perception, accessibility) Dependent: Adoption intention	Quantitative survey; data analyzed using Partial Least Squares Structural Equation	The pandemic heightened demand for branchless banking, fulfilling rural financial needs.

		pandemic in Bangladesh.		Modeling (PLS-SEM).	Targeted marketing and education are crucial for increasing adoption.
16	Aziz et al. (2022)	To analyze challenges and opportunities for branchless banking in Malaysia during the COVID-19 pandemic.	Independent: Digital literacy, infrastructure gaps Dependent: Branchless banking adoption	Qualitative approach; interviews with banking professionals and customers; thematic analysis.	The pandemic accelerated branchless banking adoption, but challenges like digital literacy and infrastructure gaps persist. Targeted interventions are necessary for promoting digital financial services.
17	Han (2023)	To assess strengths, weaknesses, opportunities, and threats of digital inclusive finance in Guangdong Province, China.	Independent: Digital finance aspects Dependent: Financial inclusion	Qualitative methods; interviews with industry experts and policymakers.	Digital finance enhances inclusion, but challenges like regulatory barriers and technological disparities must be addressed. Stakeholders

					should collaborate to promote digital financial services for underserved populations.
18	Lestari (2023)	To compare the financial performance of commercial banks before and after branchless banking implementation.	Independent: Branchless banking Dependent: Profitability, customer base growth	Quantitative financial data analysis; statistical comparison using paired t-tests in SPSS.	Branchless banking positively impacts financial performance, increasing profitability and customer base growth. It has the potential to transform financial inclusion for low-income populations.
19	Preziuso (2023)	To investigate the role of open banking in promoting financial inclusion in the European Union.	Independent: Open banking initiatives Dependent: Financial inclusion	Qualitative interviews with financial sector stakeholders.	Open banking can enhance inclusion by making financial services more accessible and affordable. Regulatory

					support is essential for maximizing benefits and reaching unbanked populations.
20	Sularmi (2023)	To examine the relationship between financial innovations and the performance of commercial banks in Kenya.	Independent: Branchless banking models Dependent: Bank performance	Quantitative approach; financial performance data analysis.	Branchless banking improves performance by expanding customer reach and reducing operational costs. Banks should invest in branchless models to enhance inclusion and serve underbanked populations effectively.
21	Gutierrez (2024)	To analyze how Fintech and IoT technologies transform banking models, focusing on branchless	Independent: Fintech and IoT technologies Dependent: Banking accessibility,	Systematic review of 15 studies from 2018–2024.	Fintech and IoT significantly improve banking accessibility and efficiency, aiding financial

		banking.	efficiency		inclusion for unbanked populations. Financial institutions should invest in these technologies to expand service delivery.
22	Kurniawan (2024)	To examine customer protection in branchless banking in Indonesia.	Independent: Customer protection measures Dependent: User trust	Qualitative case study approach; customer experiences analyzed.	Enhancing customer protection builds trust in branchless banking. Addressing protection gaps is critical for increasing adoption.
23	Njiru (2024)	To investigate the impact of branchless banking on the financial performance of commercial banks in Kenya.	Independent: Branchless banking Dependent: Financial performance Mediator: Financial deepening	Quantitative analysis of financial data from banks; multiple regression analysis using STATA.	Branchless banking enhances financial performance, with financial deepening as a mediating factor. Regulatory support for

					branchless banking expansion is essential.
24	Thetlek (2024)	To investigate virtual banking strategies as a tool for financial inclusion.	Independent: Virtual banking Dependent: Financial inclusion	Qualitative interviews with banking professionals and customers.	Virtual banking gains popularity for its convenience and accessibility. User-friendly platforms are essential to enhance inclusion.

2.2.2 National Context

Niraula and Adhikari (2019) explore the role of digital technology in enhancing financial inclusion as a means to foster inclusive economic development in Nepal. The study uses secondary data on digital technology, financial access, and financial products and services, employing multiple regression analysis to examine the relationship between mobile and internet access and financial inclusion, proxied by the number of deposit accounts. The findings reveal a significant positive relationship, indicating that increased access to mobile and internet services enhances financial inclusion. The study concludes that promoting mobile and internet usage among the population is essential for improving financial inclusion. It underscores the importance of developing digital infrastructure and implementing technology-oriented policies to expand financial access, thereby supporting inclusive economic growth in Nepal.

Pradhan and Dahal (2021) analyzed the impact of electronic banking on financial inclusion in Nepal, using financial inclusion as the dependent variable and automated teller machines, point-of-sale terminals, internet banking, mobile banking, and agency

banking as independent variables. Based on primary data from 150 respondents collected through structured questionnaires, regression models are used to analyze the significance of electronic banking on financial inclusion. The study finds that all five electronic banking services positively impact financial inclusion, indicating that better access to and orientation toward these services ATMs, mobile banking, internet banking, agency banking, and point-of-sale services enhance financial inclusion. The study concludes that electronic banking significantly contributes to increasing financial inclusion in Nepal. It highlights the need for policymakers and financial institutions to expand and improve these services to further financial inclusion, thereby fostering economic development in the country.

Gajurel (2022) examined the relationship between financial inclusion and economic growth in Nepal, using descriptive analysis and multiple regression models with data spanning from mid-July 2014 to mid-July 2021. The findings reveal a strong association between financial inclusion and economic growth, though no significant or robust impact of financial inclusion on economic growth was observed. Despite this, the study underscores the role of financial inclusion as a critical pillar of Nepal's economy. However, the limited indicators and timeframe restrict the ability to evaluate long-term relationships. The study concludes by emphasizing the importance of policies that promote financial deepening, penetration, and sectoral reforms to integrate financial inclusion with economic growth. These insights are essential for addressing policy challenges and fostering economic progress in Nepal.

Rahman (2023) explored the role of digital finance in advancing financial inclusion in Nepal's Madhesh Province, focusing on societal behavior and the factors influencing digital financial inclusion. The study emphasizes the significance of digital banking components access, usage, and quality in promoting inclusion, with 'Quality,' 'Usage,' and 'Access' identified as having the most substantial impact. The research reveals a strong positive correlation among ADB, UDB, and QDA, while also highlighting a high rate of voluntary financial exclusion in the province, though prospects for transitioning to QDA usage are promising. The study concludes that enhancing digital banking quality, access, and usage can significantly advance financial inclusion. Its implications underscore the need for targeted strategies by policymakers and financial institutions to address voluntary exclusion and foster digital financial inclusion in

Madhesh Province, ultimately contributing to poverty reduction and economic growth.

Shrestha and Tamang (2023) explored the factors influencing the adoption of digital wallets and their impact on financial inclusion, particularly among disadvantaged and low-income individuals. Using the technology acceptance model (TAM) and unified theory of acceptance and use of technology (UTAUT), the researchers surveyed customers in Kathmandu Valley to assess their attitudes, perceptions, and behaviors. The findings revealed that perceived usefulness, price value, and trust significantly impact digital wallet adoption, while perceived ease of use and social influence do not. The study concluded that digital wallets can promote greater financial inclusion by addressing barriers faced by marginalized groups. This research provides valuable insights for policymakers and FinTech companies to design and implement effective digital wallet solutions that enhance financial inclusion.

Chaurasiya (2024) analyzed the role of financial metrics and digital finance in promoting financial inclusion in Nepal's Bagmati Province, aiming to identify factors influencing digital financial inclusion and societal behavior. The study employs a quantitative methodology using panel data from 6,400 respondents and employs descriptive statistics, unit root tests, correlation analysis, and the CFA model for analysis. The findings reveal a significant positive correlation among ADB, UDB, CDB, GDB, and QDA, highlighting their critical role in advancing digital financial inclusion. Additionally, while the province shows a high percentage of voluntary financial exclusion, there is significant potential for transitioning to QDA usage. The study concludes that leveraging financial metrics and digital finance can enhance financial inclusion and provide insights for informed decision-making to strengthen the banking and financial sector. The implications emphasize the importance of strategic initiatives to foster digital financial inclusion in Bagmati Province, benefiting policymakers and financial institutions.

Table 2

Summary of Empirical Review in Nepalese Context

SN	Author(s)	Objective	Variables	Methodology	Findings
1	Niraula	To analyze the	Independent:	Secondary data	Mobile and

	and Adhikari (2019)	role of digital technology in enhancing financial inclusion in Nepal.	Mobile and internet access; Dependent: Number of deposit accounts (proxy for financial inclusion).	analysis using multiple regression.	internet access have a significant positive relationship with financial inclusion. Promoting these technologies can enhance financial inclusion.
2	Pradhan and Dahal (2021)	To analyze the impact of electronic banking on financial inclusion in Nepal.	Independent: ATMs, POS terminals, internet banking, mobile banking, agency banking; Dependent: Financial inclusion.	Primary data from 150 respondents; structured questionnaire; regression models.	All five electronic banking services positively impact financial inclusion. Improved orientation and access to these services enhance inclusion.
3	Gajurel (2022)	To examine the relationship between financial inclusion and economic growth in Nepal.	Independent: Financial inclusion indicators; Dependent: Economic growth.	Descriptive analysis and multiple regression using time-series data (2014-2021).	Strong association between financial inclusion and economic growth but no robust long-term impact. Policies

					for financial deepening are crucial.
4	Rahman (2023)	To investigate the role of digital finance in advancing financial inclusion in Madhesh Province, Nepal.	Independent: Digital banking components (Access, Usage, Quality); Dependent: Financial inclusion.	Quantitative analysis focusing on correlation among digital banking components.	Quality, Usage, and Access significantly impact financial inclusion; high voluntary exclusion, but strong potential for QDA adoption.
5	Shrestha and Tamang (2023)	To explore the factors influencing digital wallet adoption and its impact on financial inclusion.	Independent: Perceived usefulness, price value, trust, ease of use, social influence; Dependent: Financial inclusion.	Survey-based analysis using TAM and UTAUT models on respondents in Kathmandu Valley.	Perceived usefulness, price value, and trust significantly impact digital wallet adoption; potential to address barriers for marginalized groups.
6	Chaurasiya (2024)	To analyze the role of financial metrics and digital finance in promoting financial inclusion in Bagmati	Independent: ADB, UDB, CDB, GDB, QDA; Dependent: Digital financial inclusion.	Quantitative analysis with panel data from 6,400 respondents; CFA model.	Strong positive correlation among financial metrics; significant potential for enhancing financial inclusion

Province.	through QDA.

2.3 Research Gap

Financial inclusion and branchless banking have been the subject of plenty of research studies, yet considerable gaps in the field remain especially in the case of Nepal. While many studies have looked into branchless banking and its effects on financial infringement across different areas, nevertheless there are few examples of such work that deal with the peculiar challenges presented by Nepal's and its rural population and the geographical as well as infrastructural impediments to financial service delivery (Niraula & Adhikari 2019; Pradhan & Dahal 2021). Added to that, in Nepal, cultural factors and regional banking practice which extend to branchless banking's endurance and efficacy have not been very well studied.

Likewise, existing research often focuses on one aspect of branchless banking such as mobile banking or ATM services without giving a complete picture of the ways in which these characteristics interact to affect financial inclusion. While Pradhan and Dahal (2021) chaunt the praises of mobile banking and ATMs, they are unable to examine how these two networks work together with other services such as agency banking or point-of-sale systems as an integrated whole. Again, further study is needed on the lasting effects of branchless banking programmes in Nepal upon the stability of the financial system and the country's broader economic development. Most of these studies stress their short-term benefits, leavening long-term perspectives entirely missing (Rahman 2023; Gajurel 2022).

It is important to close these research gaps in order to develop targeted strategies and policy recommendations to improve financial inclusion in Nepal. Nepal's unique geographical, cultural, and economic make up and the way its various branchless banking components interrelate with each other, require a full-scale approach to sustainable and effective financial inclusion strategies.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

The descriptive and causal research designs were used in this study to develop a complete involvement of branchless banking in relation to financial inclusion among unbanked and underbanked populations in Nepal. To understand the current status of financial inclusion and the extent to which branchless banking services are accessed and utilized. In contrast, the causal research design is aiming to identify and measure the relationships between the independent variable's mobile banks, ATMs, bank correspondents, point of sale, financial technology and the dependent variable financial inclusion. This two-fold method guarantees a comprehensive investigation into the drivers of financial inclusion and their interrelations.

3.2 Population and Sample, and Sampling Design

The target population for this study consists of the unbanked and underbanked individuals in Nepal who utilize branchless banking services. Bagmati Rural Municipality, located in Lalitpur District, has been selected as the study area. This municipality was established on Falgun 22, 2073 B.S., comprising the former Village Development Committees (VDCs) of Ghusel, Malta, Bhattedanda, Pyutar, Ikudol, Ashrang, and Gimdi. This rural municipality is selected for sample because focusing on Bagmati Rural Municipality, the study can generate findings that are not only specific to the area but also applicable to other rural municipalities in Nepal with similar characteristics thereby contributing to the broader discourse on financial inclusion. Also this rural municipality is nearby the capital city of Nepal. A comprehensive sampling method is used to select the sample for the study. Yemen (1967) formula is used for sample size and proportion of sample.

$$n = \frac{N}{1+N(e^2)}$$

Where:

n= Sample Size

N= Total Population

e= Margin of Error (0.05 for 95% confidence level)

The total population for seven wards of Bagmati rural municipality is 13,453 as per 2021 census (CBS, 2021). Now put the value in formula:

$$n = \frac{13453}{1+13453(0.05^2)}$$

$$n = \frac{13453}{34.6325}$$

$$n = 388$$

So, the sample of the study is 388 respondents from seven wards of Bagmati rural municipality Lalitpur. The population and sample table and proportion of sample from each ward of Bagmati municipality, Lalitpur district is presented in Table 3 and proportion is calculated using following formula.

$$\text{Proportion} = \frac{\text{Ward Population}}{\text{Total Population}} \times \text{Sample Size}$$

Table 3

Population and Sampling Table

Ward	Place	Population	Sample Size
1	Ghusel	1510	44
2	Malta	2130	61
3	Bhattedada	2057	59
4	Piyutar	1600	46
5	Ekudol	1939	56
6	Aasrang	2047	59
7	Gimdi	2170	63
Total		13,453	388

Source: CBS (2021)

3.3 Nature and Sources of Data

The data for this study is primarily collected through direct engagement with the participants. The study relies on primary data collected using a structured questionnaire designed to capture respondents' perceptions and attitudes towards branchless banking and financial inclusion. The questionnaire employs a five-point Likert scale, ranging from "strongly disagree" to "strongly agree," allowing for the collection of quantifiable data that can be analyzed statistically. This approach ensures that the data reflects the participants' genuine experiences and opinions, providing a robust foundation for the analysis.

3.4 Data Collection Procedures

Data collection involves administering the structured questionnaires to the selected sample of unbanked and underbanked individuals. Field researchers are trained to ensure consistency and accuracy in data collection procedures. The questionnaires are distributed and collected in both urban and rural areas to capture a diverse range of experiences. In addition, data collection efforts are supplemented by follow-up interviews to clarify any ambiguities and gather more in-depth insights into participants' experiences with branchless banking services. This thorough approach helps in obtaining high-quality data for analysis.

3.5 Method of Analysis

Once the data is collected it undergoes descriptive, correlation and regression analyses in order to address the research questions and objectives in a thorough manner. The data were analyzed using the SPSS software.

3.5.1 Descriptive Analysis

Descriptive analysis described the data in order to give a detailed summary about the respondents' demographic factors and their aspect to branchless banking services. Statistics like mean and standard deviation are computed to summarize the central tendencies and variation of the data. This study estimates standard errors to get a sense of how variable the estimates are and to quantify precision around the point estimates, which only gives us a first cut general impressions about the structure of the data, which act as a baseline for more detailed analysis.

3.5.2 Correlation Analysis

The analysis of correlation is used in this relationship between the independent variable’s mobile banks, ATMs, bank correspondents, point of sale, financial technology and the dependent variable financial inclusion. Pearson's correlation coefficient is used to measure the strength and the direction of these relationships. This analysis allows to understand better what variables are correlated with financial inclusion, and can identify what variables can be focused in order to facilitate financial inclusion.

3.5.3 Regression Analysis

A regression analysis is undertaken to evaluate the influence of the independent variables on financial inclusion. The regression model is used to assess the predictive power of each independent variable as well as which factors have the most predictive power toward financial inclusion. Such understanding of causal relationships allows banking operators to optimally target the groups that are most to be financially included via branchless banking. The regression model utilized in the study is as follow:

$$FI = \beta_0 + \beta_1 MB + \beta_2 ATM + \beta_3 CO + \beta_4 POS + \beta_5 FT + \varepsilon$$

Where,

β0= Intercept

FI= Financial Inclusion

MB= Mobile Banks

ATMs= Automated Teller Machine

CO= Bank Correspondents

POS= Point of Sales

FT= Financial Technology

β_1-β_5= regression coefficients for each independent variable

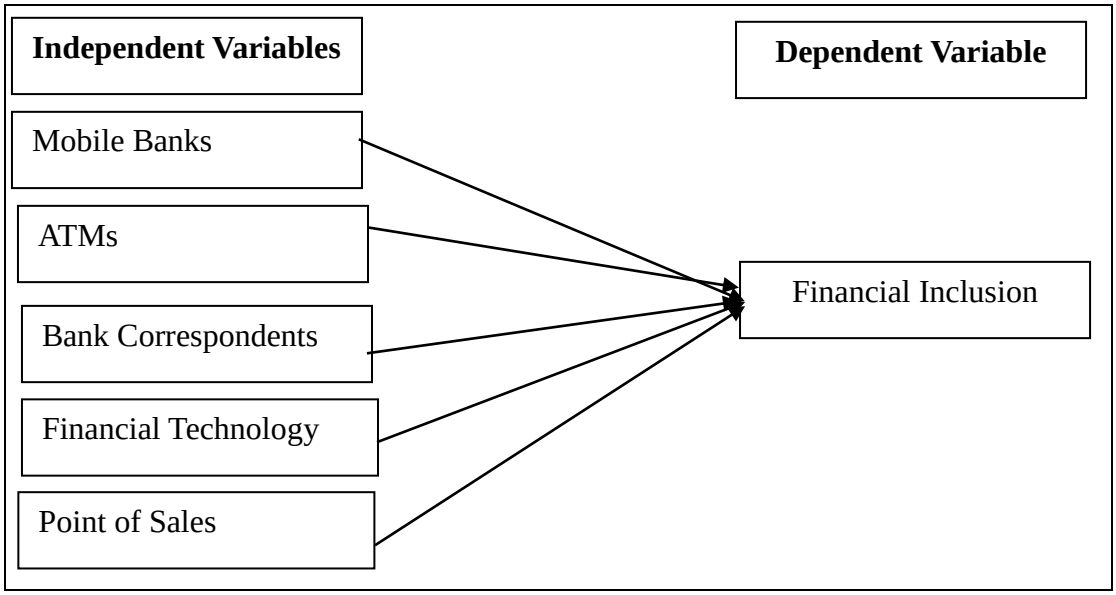
ε = the error term

3.6 Research Framework and Definition of Variables

This research framework was developed based on empirical studies described by González (2022). The study independent variables consist of mobile banks, ATMs, correspondents, point of sale. The subsequent variables are thus written on the basis of this framework, to setup the data analysis and interpret the data answers to the research questions and objectives; ultimately giving a understanding of the factors impacting financial inclusion via branchless banking in Nepal. Figure 1 shows the outline of the study.

Figure 1

Research Framework



Sources: González (2022)

3.6.1 Financial Inclusion

Financial inclusion refers to the act of ensuring access to affordable, timely and adequate financial services and products, for all individuals and businesses, regardless of their financial status, income, credit history or location. Removing barriers to entry in the financial market, such as reachability, cost, and financial literacy, is at the heart of this principle and especially critical for poor people in rural areas. Niraula & Adhikari (2019) and Brune et al. (2018) discussed the potential for branchless banking and digital finance services to improve access to financial products, thereby increasing economic participation and reducing inequalities. Additionally, Nisha et al. (2020) stated that agent banking greatly expand access to finance for unbanked populations, and plays therefore a critical role in ensuring more inclusive and sustainable growth.

3.6.2 Mobile Banks

It is one of the most prevalent practices where people use mobile banking services to perform transactions (transferring funds, paying bills, checking balance etc.) without physical presence. Mobile banking refers to the provision of banking services through telecommunication networks to underserved or unbanked groups, especially in rural or remote areas. Mobile banking reduces the need for physical branches, improving convenience and access, making it an important tool for promoting financial

inclusion. Studies show that mobile banking has transformed the branchless banking concept into a reality as it has provided a link between the financial institutions and marginalized communities (Dzombo et al., 2018; Niraula & Adhikari, 2019).

3.6.3 ATMs

A condition of visiting a bank branch is that one leaves after making some basic banking transactions, such as cash withdrawals, deposits and account inquiries, and ATMs are self-service banking equipment that allows. In many of the most rural parts of the world, ATMs offer the only outlet for branchless banking. They help reduce transaction costs and time and enhance financial inclusion by providing services 24 by 7. The impact of the ATM on branchless banking is well-documented and has been recognized as a key enabler of access to the formal financial system for the unbanked and underbanked populations (Rachmawati et al., 2020; Mangani et al., 2019).

3.6.4 Bank Correspondents

Banking agents, banks who become bank correspondents serve the financial interstitials as by providing financial services in areas without direct bank presence between financial institutions and the public. These agents process mobile/point-of-sale (POS) transactions on behalf of users, including deposits, withdrawals, and bill payment. HI's correspondents facilitate the outreach of financial services to rural and low-income populations, reducing operational costs and extending the frontiers of banking services. Research indicates their efficiency in fostering financial inclusion by overcoming geographical and infrastructural bottlenecks (Nisha et al., 2020; Gunawan et al., 2021).

3.6.5 Point of Sales

A point of sale (POS) system is a computerized network used to run sales and accept payment methods in retail stores. Customers can use their cards or mobile payment devices to pay for products purchased at POS terminals. In the phenomenon of branchless banking, POS systems are extensively used in remote and underserved areas to provide rudimentary banking services like, cash withdrawals and balance inquiries. POS systems integrate banking functions into retail outlets, allowing customers without access to traditional banking services to easily use them. POS systems heavily foster financial inclusion by enabling the access of banking services to unbanked as well as underbanked societies (Arif & Cahyani, 2021; Assefa, 2020).

3.6.6 Financial Technology

Financial Technology (FinTech) refers to the innovative use of technology for delivering financial services and promoting financial inclusion that enhance effectiveness, accessibility cost control, and ease Fintech is a wide range of digital tools: mobile banking, processing online payments, managing your investments with software like blockchain (Arner, 2015). Thus, Fintech technology not only changes whom people access financial services from but also how they use those services (Philippon 2016) With such technology, traditional barriers such as high transaction costs and geographical constraints can be overcome. The financially excluded-and they are numerous mainly in developing countries are brought into a system in which they can access credit land ownership rights etc., as banks spreads and its branches multiply further afield (Ozili 2018). By making use of the latest technology in FinTech one can help the less developed a people to open new sources of strikeout for all public repressures, push on towards inequality correction and at last achieve a deal prosperity. (Beck et al. 2016).

CHAPTER IV

RESULTS AND DISCUSSIONS

This chapter presents the analysis and explanation of the data collected through the structured questionnaire distributed among respondents. The objective of this chapter is to assess how factors of branchless banking contribute to financial inclusion among populations that have traditionally been excluded from the formal financial system. The analysis includes demographic details of the respondents, descriptive statistics of variables and inferential statistical analysis correlation and regression. The final section of this chapter includes a discussion of the findings in relation to the objectives of the study and comparison with previous literature.

4.1 Results

The results present the findings of the study. It analyzes how various components of branchless banking influence financial inclusion among the unbanked and underbanked population in Nepal. The study data collected from 388 respondents across Bagmati Rural Municipality. The analysis focuses on key variables mobile banks, automated teller machines, bank correspondents, point-of-sale systems and financial technology. The results are analyzed with the help of descriptive statistics, correlation analysis and multiple regression techniques using SPSS software. These analyses explore the current usage patterns, relationships and predictive impact of branchless banking services on financial inclusion.

4.1.1 Demographic Profile of Respondents

The demographic profile of respondents explains who took part in the survey. It looks at details of age, gender, education, jobs, income. These details help to understand the variety of people involved and how different groups use branchless banking services. Younger people might prefer using mobile banking apps while those in rural areas could depend more on local banking agents. People with higher incomes and more education might find it easier to access and understand financial services. With analyzing demographic profile of respondents, it can be sure the survey includes the voices of many different kinds of people. Table 4 presents the demographic profile of respondents.

Table 4

Demographic Profile of Respondents

Category	Items	Frequency	Percent
Gender	Male	225	57.99
	Female	163	42.01
	Total	388	100.0
Age	Under 18	18	4.64
	18–24	76	19.59
	25–34	108	27.84
	35–44	84	21.65
	45–54	60	15.46
	55 and Above	42	10.82
	Total	388	100.0
Education	No formal education	9	2.32
	Primary education	32	8.25
	Secondary education	83	21.39
	Bachelor's degree	142	36.60
	Master's degree and above	55	14.18
	Total	388	100.0
Occupation	Student	38	9.79
	Employed (full-time)	115	29.64
	Employed (part-time)	34	8.76
	Self-employed	68	17.53
	Unemployed	38	3.79
	Retired	95	24.48
	Total	288	100.0
Monthly Income	Less than NPR 10,000	44	11.34
	NPR 10,000 – NPR 30,000	83	21.39
	NPR 30,001 – NPR 50,000	153	39.43
	NPR 50,001 – NPR 100,000	72	18.56
	More than NPR 100,000	36	9.28
	Total	288	100.0
Location	Urban area	72	18.56
	Semi-urban area	135	34.79
	Rural area	181	46.65
	Total	388	100.0

Source: Survey (2025)

Table 4 presents the demographic distribution of the 388 respondents surveyed for the study on branchless banking and financial inclusion. A majority of the respondents were male which are 57.99% (225 individuals) and females represented 42.01% (163

individuals). The age group represented was 25–34 years with 27.84% of the sample, followed by those aged 35–44 years (21.65%) and 18–24 years (19.59%). Even older age 45–54 years (15.46%) and 55 and above (10.82%) were present. This shows broad age inclusivity. Education-wise respondents held bachelor's degrees (36.60%), with secondary education (21.39%) and master's degrees or higher (14.18%) also significantly represented. This shows a generally educated sample. Only a small fraction had no formal education (2.32%) and primary-level education (8.25%).

The sample of 288 respondents was dominated by full-time employees (29.64%) and retirees (24.48%), followed by the self-employed (17.53%). Students and part-time workers are 9.79% and 8.76% of the group respectively. Unemployed individuals constituted a modest 3.79%. For monthly income a range of respondents earned between NPR 30,001 and NPR 50,000 (39.43%), with 21.39% earning between NPR 10,000 and NPR 30,000 and 18.56% within the NPR 50,001 to NPR 100,000 bracket. Higher-income earners exceeding NPR 100,000 per month were relatively fewer at 9.28%, while 11.34% reported earning less than NPR 10,000 per month.

The respondent base placed rural with 46.65% residing in rural areas, followed by 34.79% from semi-urban regions and just 18.56% from urban locations. This spread is relevant to the study's objective of assessing financial inclusion among unbanked and underbanked populations. It confirms the inclusion of perspectives from areas where traditional banking infrastructure may be limited and branchless banking solutions potentially more impactful.

4.1.2 Descriptive Analysis

The descriptive analysis gives an overview of how people responded to questions about branchless banking and financial inclusion. It shows patterns, opinions and how participants feel about different aspects of branchless banking. Each part of the analysis looks at mobile banking, ATM services, banking correspondents, point-of-sale machines and financial technology. These variables help to understand how these tools affect access to financial services. In total there are 30 statements grouped into six categories with five statements in each group. The data was analyzed using SPSS 25.0 software to make sense of the responses and the response are measured using five-point Likert scale.

4.1.2.1 Mobile Banks

This part examines how mobile banking services are being used and perceived by respondents. It shows whether people regularly use mobile banking to perform transactions. Also, this examines the responses on whether they find it convenient, flexible and secure. Another focus is on whether mobile banking has reduced the need to visit bank branches physically in remote or rural areas. The analysis also assesses whether mobile banking services are accessible to people regardless of where they live. This information is important for knowing how mobile banking helps in bridging the gap between banks and individuals who are far from traditional financial institutions. Table 6 shows the respondents response on mobile banks.

Table 5

Descriptive Statistics of Mobile Banks

Statements	N	Min	Max	Mean	S.D.
I regularly use mobile banking services for my financial transactions.	388	1.00	5.00	3.51	0.81
Mobile banking provides me with convenience and flexibility in managing my finances.	388	1.00	5.00	3.54	0.80
I feel secure when conducting financial transactions through mobile banking.	388	2.00	5.00	3.63	0.73
Mobile banking has significantly reduced the need for visiting physical bank branches.	388	1.00	5.00	3.58	0.79
Mobile banking is accessible to individuals regardless of their geographical location.	388	1.00	5.00	3.59	0.75
I regularly use mobile banking services for my financial transactions.	388	1.00	5.00	3.51	0.81
Overall Mobile Banks	388	1.40	5.00	3.57	0.53

Source: Survey (2025)

Table 5 presents the descriptive statistics into respondents' perceptions and usage of mobile banking services within the context of branchless banking. The findings on mobile banking usage reveal a positive perception among the 388 respondents. When asked about their regular use of mobile banking services the average score was 3.51 with responses ranging from the lowest score of 1 to the highest score of 5. This shows that while many respondents actively engage in mobile banking, there remains

a significant portion who either use it infrequently or not at all. The standard deviation of 0.81 shows a moderate level of variation in usage behavior among individuals. This shows a diverse level of adoption.

For convenience and flexibility mobile banking shows the average score was slightly higher at 3.54 with similar variability in responses. This shows that many respondents appreciate the practical benefits of managing finances digitally the sense of convenience is not yet universal. The perception of security in using mobile banking scored even higher with a mean of 3.63. It shows that users feel relatively confident that their transactions are safe. This is an important factor for continued engagement with digital banking services. The responses were also less spread out on this item as shown by the standard deviation of 0.73 which shows a stronger consensus.

Another area was the reduction in the need to visit physical bank branches. With a mean score of 3.58 this finding supports the idea that mobile banking is actively helping people manage their financial activities without the inconvenience of going to a traditional bank. Respondents seem to value this shift and it signals the increasing relevance of branchless banking. Mobile banking's accessibility across different geographical locations received an average score of 3.59. This shows a growing belief that mobile banking can bridge financial gaps regardless of whether users live in urban and rural settings.

The overall perception of mobile banks across all these measures the combined average was 3.57. This shows a favorable attitude toward mobile banking services. The score is solid enough to shows that mobile banking is well regarded even if full-scale adoption is still unfolding. The relatively low standard deviation of 0.53 further verified a shared understanding and experience among respondents.

This data shows a picture for branchless banking initiatives. While the overall sentiment is positive, it also shows that further improvements in awareness, accessibility and user experience could help convert casual users into consistent participants in mobile banking ecosystems.

4.1.2.2 ATMs

This section discusses how accessible and useful ATM services are for the respondents. It looks at whether people find ATMs available in their community when

they need cash and whether these machines operate reliably. It also studies how ATM use has helped reduce the need for physical visits to bank branches. The fairness of ATM service charges and how they subsidize to improving access to financial services are examined. This helps in knowing the role of ATMs as a fundamental component of branchless banking. Table 7 shows the respondents response on different statements of ATMs.

Table 6

Descriptive Statistics of ATMs

Statements	N	Min	Max	Mean	S.D.
I find ATMs easily accessible in my community for withdrawing cash.	388	1.00	5.00	3.57	0.81
ATMs are reliable and available whenever I need to perform banking transactions.	388	1.00	5.00	3.45	0.75
Using ATMs has reduced my dependency on visiting physical bank branches.	388	1.00	5.00	3.59	0.81
ATM fees and charges are reasonable for the services provided.	388	1.00	5.00	3.52	0.78
The availability of ATMs has improved my access to financial services.	388	1.00	5.00	3.65	0.86
I find ATMs easily accessible in my community for withdrawing cash.	388	1.00	5.00	3.57	0.81
Overall ATMs	388	1.00	5.00	3.56	0.57

Source: Survey (2025)

Table 6 shows the descriptive statistics on ATMs show how respondents perceive and utilize ATM services in their communities. The overall average score across all ATM-related statements was 3.56. This shows a moderately positive experience with ATM services. The standard deviation of 0.57 shows that opinions were relatively consistent among respondents.

When asked about the accessibility of ATMs for withdrawing cash in their communities, the average response was 3.57. This shows that most respondents find ATMs easy to reach but some variation exists as shown by the standard deviation of 0.81. On reliability and availability, the average score was slightly lower at 3.45. This

shows that while ATMs are accessible, users occasionally face challenges such as machine downtime or limited-service coverage.

The score of 3.59 for reduced dependency on physical bank branches shows that ATMs are helping respondents manage finances without making frequent trips to a bank. This shows the growing role of branchless infrastructure in promoting financial inclusion. For fees and charges the mean score was 3.52 which shows a general acceptance of the costs involved. But some users may still view them as a barrier.

The highest rating among all items was given to the availability of ATMs improving access to financial services with an average score of 3.65 and the largest standard deviation of 0.86. This shows strong recognition of ATMs as a tool for expanding financial accessibility. The perceptions vary widely due to differences between urban, semi-urban and rural areas.

The findings shows that ATMs are perceived as a useful and accessible financial resource. This contributes to branchless banking efforts. The slightly lower scores on reliability and cost show that there is still room for improvement in service consistency and affordability.

4.1.2.3 Bank Correspondents

Bank correspondents is an important role in extending banking services to remote and underserved areas. This part analyzes respondents' comfort and trust in using bank correspondents to conduct their financial transactions. It also looks at whether these agents are perceived as knowledgeable and helpful in delivering services. It also looks whether they have successfully made banking accessible in rural areas. Another important point is the level of trust respondents have in bank correspondents to maintain the confidentiality of their personal and financial information. This analysis shows how important human connections are in the delivery of digital financial services. Table 8 presents the respondents responses on different statements of bank correspondents.

Table 7

Descriptive Statistics of Bank Correspondents

Statements	N	Min	Max	Mean	S.D.
I feel comfortable using bank correspondents for conducting financial transactions.	388	1.00	5.00	3.55	0.84
Bank correspondents are knowledgeable and helpful in providing banking services.	388	1.00	5.00	3.49	0.80
The presence of bank correspondents has made banking services accessible to my community.	388	1.00	5.00	3.57	0.80
I trust bank correspondents to ensure the confidentiality of my financial information.	388	1.00	5.00	3.57	0.86
Bank correspondents are an effective way to bring banking services closer to rural and remote areas.	388	1.00	5.00	3.49	0.80
I feel comfortable using bank correspondents for conducting financial transactions.	388	1.00	5.00	3.55	0.84
Overall Bank Correspondents	388	1.40	5.00	3.54	0.62

Source: Survey (2025)

Table 7 presents the descriptive statistics related to bank correspondents. The findings reveal a favorable view among the 388 respondents. This shows their role in promoting financial inclusion through branchless banking. The overall average score across all statements was 3.54. This shows a moderately positive perception. The standard deviation of 0.62 shows that most respondents had fairly consistent opinions on this topic but some variation still exists. Respondents expressed a high level of comfort in using bank correspondents for financial transactions scoring an average of 3.55. This shows that many individuals are open to conducting banking activities through these agents rather than relying on traditional branches. The perception of bank correspondents being accessible to communities and confirming financial confidentiality received slightly higher scores. These both statements averaging 3.57. This suggests that bank correspondents are seen not only as physically reachable but also as trustworthy.

The evaluations of bank correspondents' knowledge and helpfulness and their effectiveness in serving rural and remote areas were slightly lower at 3.49. This points to a mild uncertainty or inconsistency in service quality and outreach. Many users

seem to acknowledge the usefulness of bank correspondents these scores. This shows that additional training and capacity building could further improve customer satisfaction and trust. The data shows that bank correspondents are playing an important role in financial accessibility in areas where full-fledged banks may not be present.

4.1.2.4 Point of Sales

This examines the use of POS terminals in shops and other everyday retail settings. The analysis shows whether people use POS systems for cashless transactions and whether they find this method convenient, safe and easy to use. It also explores whether the presence of POS terminals inspires the use of digital payment methods. It also shows how confident respondents feel about the security of their transactions. This part shows the impact on making every day financial transactions simpler and more accessible for people without needing to visit a bank with analyze the role of POS systems. Table 9 shows the respondents responses on point of sales.

Table 8

Descriptive Statistics of Point of Sales

Statements	N	Min	Max	Mean	S.D.
I regularly use POS terminals for cashless transactions in shops and stores.	388	1.00	5.00	3.63	0.81
POS terminals have made it easier for me to make secure payments without cash.	388	1.00	5.00	3.63	0.80
The availability of POS terminals in my community has encouraged me to use digital payment methods.	388	1.00	5.00	3.74	0.89
I feel confident about the security of transactions made through POS terminals.	388	1.00	5.00	3.55	0.85
POS terminals have made banking services more accessible for everyday transactions.	388	1.00	5.00	3.73	0.87
I regularly use POS terminals for cashless transactions in shops and stores.	388	1.00	5.00	3.63	0.81
Overall Point of Sales	388	1.20	5.00	3.66	0.64

Source: Survey (2025)

Table 8 shows the findings of how respondents perceive and interact with Point of Sale (POS) terminals in their daily financial activities. The overall average score for POS services was 3.66 which shows a positive reception among users. The standard deviation of 0.64 shows fairly consistent views but slight variations do exist.

The tendency to use POS terminals for cashless transactions in shops and stores received an average score of 3.63. This shows that many respondents are familiar with and actively use POS systems. Some may still be in transition toward digital methods. A score of 3.63 was noted for the convenience and security that POS terminals. This shows users' appreciation for the ease of making payments without handling physical cash.

The most highly rated statement was related to the presence of POS terminals in the community with an average score of 3.74. This shows that availability plays a major role in encouraging users to adopt digital payment behaviors. The belief that POS terminals contribute to better accessibility of banking services for everyday needs also scored strongly at 3.73. This shows the practical value these systems add in routine financial transactions.

Confidence in the security of POS transactions is slightly lower at 3.55. This finding still shows a reasonable level of trust. The higher standard deviation 0.85 shows that while many users feel secure, others may be more cautious or uncertain. This is due to limited experience or concerns about digital fraud.

The responses show growing reliance on POS technology as an important component of branchless banking. With favorable scores across accessibility, security and influence on digital habits, POS terminals appear to be a useful and widely accepted financial tool. The data shows strong momentum for further expansion of POS infrastructure in communities that are still adapting to cashless systems.

4.1.2.5 Financial Technology

Financial technology or FinTech is a broad range of digital platforms and applications that help individuals manage their finances. This section shows the use of technologies for saving, investing and handling unexpected financial needs. It assesses whether people find these platforms secure, reliable, affordable and easy to use. The responses give information into how technology is transforming traditional

financial services into more inclusive and user-friendly tools. It also helps identify the probable of FinTech to support financial stability and independence among the underserved population. Table 10 presents the respondents response on financial technology.

Table 9

Descriptive Statistics of Financial Technology

Statements	N	Min	Max	Mean	S.D.
I regularly use financial technology applications to manage my savings and investment activities.	388	1.00	5.00	3.55	0.84
Financial technology platforms have enhanced my ability to manage personal finances effectively.	388	1.00	5.00	3.58	0.85
FinTech services provide essential tools to address unexpected financial needs efficiently.	388	1.00	5.00	3.64	0.87
I have confidence in financial technology services to offer secure and dependable financial transaction solutions.	388	1.00	5.00	3.50	0.84
Financial technology applications have made financial services more affordable and easily accessible to users.	388	1.00	5.00	3.62	0.86
I regularly use financial technology applications to manage my savings and investment activities.	388	1.00	5.00	3.55	0.84
Overall Financial Technology	388	1.00	5.00	3.58	0.65

Source: Survey (2025)

Table 9 presents the descriptive statistics for financial technology. This show that respondents generally have a favorable view of its usefulness and accessibility. The overall average score across all items was 3.58. This shows moderate satisfaction and acceptance of financial technology tools in everyday financial activities. The standard deviation of 0.65 shows that while opinions were fairly consistent. There is still a range in how different people perceive and experience these services.

Respondents gave one of the highest scores to the usefulness of FinTech services in addressing unexpected financial needs. This statement averaged 3.64. This shows that many participants find these platforms helpful during emergencies or urgent

situations. The affordability and ease of access to financial services through financial technology received a strong rating of 3.62. This shows how these applications are playing a role in making finance less complicated and more user-friendly.

The use of FinTech platforms to manage personal finances also received a relatively high score of 3.58. This shows that users believe these tools support their ability to stay organized and in control of their money. The response to the regular use of FinTech applications for savings and investment with a mean of 3.55. This shows that although many users are engaging with these tools some may still be exploring or are not yet fully active in digital financial planning.

Confidence in the security and reliability of FinTech services was the least rated among all items and has a mean value of 3.50. This shows a reasonable degree of trust but also hints that some respondents may be hesitant or unsure about the safety of these platforms. Concerns about data protection or lack of digital literacy could be influencing this perception.

The data shows that financial technology is gaining ground among users. This shows practical solutions and contributing positively to financial inclusion. While most respondents appreciate its convenience and affordability there is room to strengthen awareness, build trust and expand the scope of services to help users get even more benefit from digital finance tools.

4.1.2.6 Financial Inclusion

This section looks at how participants experience and perceive their level of financial inclusion. It focuses on whether individuals have access to important banking services like savings accounts, credit and loan facilities. It also explores how often people use financial services mobile banking and ATMs in their daily lives. Affordability of services are also examined with participants' confidence in formal financial institutions. The responses help determine if people feel included in the financial system and whether they are able to use services that support their financial well-being. Table 10 presents the results of respondent’s response on financial inclusion which were measured using five-point Likert scale.

Table 10

Descriptive Statistics of Financial Inclusion

Statements	N	Min	Max	Mean	S.D.
I have easy access to banking services, including savings accounts, credit options, and loan facilities.	388	1.00	5.00	3.63	0.83
I frequently utilize financial services such as mobile banking, ATMs and online transactions to manage my finances.	388	1.00	5.00	3.63	0.81
The costs associated with using financial services, such as transaction fees and account maintenance, are affordable for me.	388	1.00	5.00	3.66	0.87
I possess adequate knowledge about financial services and products, enabling me to make informed decisions.	388	1.00	5.00	3.62	0.84
I trust formal financial institutions, such as banks and microfinance organizations, to safeguard my money and provide reliable services.	388	1.00	5.00	3.62	0.84
I have easy access to banking services, including savings accounts, credit options, and loan facilities.	388	1.00	5.00	3.63	0.83
Overall Financial Inclusion	388	1.60	5.00	3.63	0.62

Source: Survey (2025)

Table 10 present a how respondents perceive their level of financial inclusion across several key factors. The overall average score for financial inclusion is 3.63. This shows that most participants feel moderately positive about their access to and understanding of financial services. The standard deviation of 0.62 shows a fair level of consistency across the responses but some variation still exists.

One of the most encouraging statements has the score of 3.66 related to the affordability of financial services. This shows that a significant number of respondents find transaction fees and account-related costs reasonable. This is an important factor for long-term engagement with formal financial institutions. Equal

importance is reflected in the ease of access to banking services which scored 3.63. Respondents seem to feel that basic financial products are generally within reach.

The score of 3.63 was seen in the use of financial services like mobile banking, ATMs and online transactions. This indicates the practical integration of digital tools into respondents' financial lives. This points to an emerging behavior shift toward branchless and technology-driven banking solutions. Knowledge about financial products which is important for making informed decisions scored slightly lower at 3.62 along with trust in financial institutions. These values indicate that while respondents feel they are aware of financial products and trust banking systems to some extent. There may still be lingering doubts or a need for improved financial literacy.

The findings show a positive though not overly enthusiastic picture of financial inclusion. The moderate scoring shows there is still space to deepen understanding, widen outreach and strengthen confidence for those living in more remote or underserved areas.

4.1.2.7 Summary of Descriptive Analysis

The summary of the major findings from the descriptive analysis. It shows the descriptive results of mobile banking, ATMs, bank agents, POS systems, financial technology and financial inclusion. The summary helps to understand which services are most effective in reaching the unbanked and underbanked. This provides a base for the more advanced statistical analysis in the next sections. Table 11 presents the summary of descriptive analysis results of study variables.

Table 11

Summary of Descriptive Statistics

Variables	N	Min	Max	Mean	S.D.
Mobile Banks	388	1.40	5.00	3.57	0.53
ATMs	388	1.00	5.00	3.56	0.57
Bank Correspondents	388	1.40	5.00	3.54	0.62
Point of Sales	388	1.20	5.00	3.66	0.64
Financial Technology	388	1.00	5.00	3.58	0.65
Financial Inclusion	388	1.60	5.00	3.63	0.62

Source: Survey (2025)

Table 11 shows the summary statistics of how respondents perceive and experience various branchless banking services and their relationship to financial inclusion. The data captures an important cross-section of individual views regarding mobile banks, ATMs, bank correspondents, point of sale systems and financial technology platforms.

Point of sale services received the highest average score of 3.66. This shows respondents' appreciation for the convenience and practicality that POS terminals bring to everyday transactions, making digital payments more accessible in routine settings like shops and local businesses. Financial inclusion closely followed with an average score of 3.63. This strong rating suggests that respondents feel moderately confident in their access to formal financial services and that branchless banking.

Financial technology platforms have a mean score of 3.58. This shows that users are engaging with digital tools to manage finances effectively. Although the score is not the highest it shows growing reliance on mobile apps and digital platforms for managing savings, payments and emergency financial needs. Mobile banking, with a slightly lower mean of 3.57 shows a steady but not overwhelming adoption rate. The lower standard deviation of 0.53 shows consistent opinions. This means most respondents agree on the benefits and accessibility of mobile banking.

ATMs were rated just below mobile banking at 3.56. This score shows they remain an important component of branchless infrastructure. Some users may be facing challenges in terms of reliability or access in certain regions. Bank correspondents received the lowest average score of 3.54 among the service types. It may point to limitations in service quality or trust levels in more remote or underserved areas. The higher standard deviation for bank correspondents also shows greater variability in user experiences.

The data reflects that while all branchless banking channels are contributing to financial inclusion certain services like POS terminals and digital financial platforms are appeared as more impactful and widely appreciated.

4.1.3 Correlation Analysis

Correlation analysis is used to examine the relationships between the various factors of branchless banking and financial inclusion. It shows how closely connected these factors are and whether increases in the use or perception of one variable are

associated with increases in another. For example, it explores whether higher usage of mobile banking is associated with higher levels of financial inclusion. This analysis helps to identify which elements of branchless banking are most influential in promoting financial access.

Table 12

Correlation Analysis

	FI	MB	ATMs	BC	POS	FT
FI	1	.565**	.614**	.657**	.694**	.719**
MB		1	.541**	.529**	.490**	.441**
ATMs			1	.675**	.572**	.553**
BC				1	.610**	.652**
POS					1	.686**
FT						1

**. Correlation is significant at the 0.05 level (2-tailed).

Where,

FI= Financial Inclusion

MB= Mobile Banks

ATMs = Automated Teller Machines

BC= Bank Correspondents

POS= Point of Sales

FT= Financial Technology

Table 12 shows the relationship between independent and dependent variables used in the study. Mobile banks, ATMs, bank correspondents, point of sales and financial technology are independent variables and financial inclusion is dependent variable. There is a positive correlation between mobile banks and financial inclusion with a correlation value of 0.565. This is significant at the 5 percent level of significance i.e., 0.05. This means that increased usage and accessibility of mobile banking services are associated with higher levels of financial inclusion. As individuals become more accustomed to managing financial activities through mobile applications their access to formal financial services improves.

There is a positive correlation between automated teller machines (ATMs) and financial inclusion with a correlation value of 0.614. This is significant at the 5

percent level of significance. This means that greater availability and ease of use of ATMs subsidize positively to financial inclusion. People who can conveniently withdraw cash, check balances and perform transactions via ATMs are more likely to engage with the formal banking system when physical branches are not nearby.

There is a positive correlation between bank correspondents and financial inclusion with a correlation value of 0.657. This is significant at the 5 percent level of significance. This means that bank correspondents play a significant role in extending financial services to communities that may not have direct access to banks. Their presence helps individuals interact with the banking system for savings, credit and other services which promote financial inclusion.

There is a positive correlation between point-of-sale terminals and financial inclusion with a correlation value of 0.694. This is significant at the 5 percent level of significance. This means that POS infrastructure facilitates cashless transactions in daily life. This enables individuals to engage more regularly with digital financial services. When people can make secure payments through POS systems it increases their participation in formal financial channels. This also encourages the use of banking tools beyond basic withdrawals and deposits.

There is a positive correlation between financial technology and financial inclusion with a correlation value of 0.719. This is significant at the 5 percent level of significance. This means financial technology is the most strongly correlated among all variables. The use of digital finance platforms, apps for budgeting, savings, investments and emergency needs appears to have a powerful influence on promoting financial inclusion. These technologies expand financial access, offer personalized tools and reduce barriers like cost and geographical distance. This makes formal financial services more inclusive and user-friendly.

4.1.4 Regression Analysis

The regression analysis goes a step further than correlation by determining the extent to which each branchless banking factor mobile banking, ATMs, bank correspondents, POS, and financial technology can predict changes in financial inclusion. It identifies which factors have a significant and measurable impact on whether people are financially included. The results provide empirical support for the role of branchless

banking in achieving financial inclusion and can inform strategies for banks, policymakers and technology providers.

Table 13

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.810[a]	.656	.651	.36831

a. Predictors: (Constant), FT, MB, ATMs, POS, BC

Table 13 shows the model summary to see how well the selected independent variables financial technology, mobile banking, automated teller machines, point of sale terminals and bank correspondents predict financial inclusion. The correlation coefficient R is 0.810 which shows a strong positive linear relationship between these variables and financial inclusion. The R Square value of 0.656 means that approximately 65.6 percent of the variation in financial inclusion can be explained by the model. This shows a high explanatory power. The adjusted R Square is slightly lower at 0.651 but still confirms the strength of the model. The model shows that the chosen branchless banking variables make a significant contribution on the level of financial inclusion among respondents.

Table 14

Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.772	5	19.754	145.627	.000[b]
	Residual	51.819	382	.136		
	Total	150.591	387			

a. Dependent Variable: FI

b. Predictors: (Constant), FT, MB, ATMs, POS, BC

Table 14 shows the ANOVA results which shows that the regression model used to analyze the impact of financial technology, mobile banking, ATMs, point of sale terminals and bank correspondents on financial inclusion is statistically significant or not. The F-statistic is 145.627 is very high and the corresponding p-value is 0.000. This p-value is less than the standard significance level of 0.05. This shows that the overall model is a good fit for the data and the predictors contribute meaningfully to

explaining variations in financial inclusion. The independent variables chosen in the model have a real and significant impact on financial inclusion as perceived by the respondents.

Table 15

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.026	.144		.183	.855		
	MB	.204	.044	.173	4.595	.000	.636	1.573
	ATMs	.125	.048	.115	2.623	.009	.471	2.123
	BC	.126	.048	.125	2.655	.008	.408	2.452
	POS	.229	.043	.236	5.290	.000	.451	2.216
	FT	.321	.043	.336	7.423	.000	.439	2.276

a. Dependent Variable: FI

Table 15 the regression coefficient analysis shows how different branchless banking factors influence financial inclusion. The constant value in the model is 0.026. This shows that when all other independent variables mobile banking, ATMs, bank correspondents, point of sale terminals and financial technology are held at zero financial inclusion would still exist but at a very low level. This value is not statistically significant since the p-value is 0.855 which is much higher than the 0.05 threshold. This shows that the constant does not meaningfully contribute to the prediction of financial inclusion.

Mobile banks have a positive beta value of 0.204. This means one percent increase in mobile banking services results in a 0.204 percent increase in financial inclusion. The p-value for this variable is 0.000 which is lower than 0.05 i.e., 5 percent level of significance. This means mobile banks has a positive and significant effect on financial inclusion. This shows that wider use and accessibility of mobile banking tools strongly contributes to expanding financial services among underserved populations.

ATMs has a positive beta value of 0.125. This means one percent increase in ATM usage leads to a 0.125 percent increase in financial inclusion. The p-value is 0.009

which is also below the 0.05 significance level. This shows that ATMs have a significant impact on financial inclusion. This shows that the convenience and availability of ATM services play an important role in improving access to formal banking in areas where branches may be limited.

Bank correspondents have a positive beta value of 0.126. This means one percent increase in bank correspondent services results in a 0.126 percent increase in financial inclusion. The p-value is 0.008 confirms the significance of this variable. This shows that deploying bank correspondents in rural and remote communities helps bring people into the formal financial system. This is done by facilitating transactions and providing basic banking services.

Point of sale terminals has a positive beta value of 0.229. This means one percent increase in POS usage contributes to a 0.229 percent increase in financial inclusion. The p-value is 0.000 which is well below 0.05. This confirms a strong and significant effect. This shows that POS technology is becoming a important driver of financial engagement by permitting cashless payments and expanding digital financial behavior.

Financial technology has the highest positive beta value of 0.321. This means one percent increase in the use of financial technology platforms leads to a 0.321 percent increase in financial inclusion. The p-value is 0.000 which is lower than 0.05 makes this result significant. This shows that digital finance tools mobile apps, e-wallets and online financial planning platforms are powerful compounds in connecting individuals with formal financial services. This improves their ability to save, invest and transact.

In collinearity statistics all tolerance values are above 0.4 and VIF scores are below 2.5. This means there is no serious multicollinearity among the independent variables. Each variable contributes uniquely to the model without overlapping excessively with others. This confirms the reliability of the regression model.

The regression confirms that all independent variables mobile banking, ATMs, bank correspondents, point of sale terminals, and financial technology have a significant and positive impact on financial inclusion. Among these, financial technology appears as the strongest predictor, followed by point-of-sale services and mobile banking.

4.1.5 Results of Hypotheses Testing

The hypotheses testing summarizes the outcomes of the hypotheses formulated to assess the impact of different branchless banking variables on financial inclusion. Each hypothesis was tested using regression analysis to determine whether mobile banking, ATMs, bank correspondents, point-of-sale systems and financial technology have a significant effect on financial inclusion. The result of hypotheses testing is presented in Table 16.

Table 16

Results of Hypotheses Testing

Hypotheses	Beta Value	p Value	Results
H_1: Mobile bank for branchless banking positively impacts financial inclusion by increasing participation among unbanked and underbanked populations.	.204	.000	Accepted
H_2: ATMs of branchless banking services significantly enhances financial inclusion for unbanked and underbanked populations.	.125	.009	Accepted
H_3: Bank correspondents positively affect the use of branchless banking in promoting financial inclusion among the unbanked and underbanked populations.	.126	.008	Accepted
H_4: Point of sales of branchless banking directly enhances financial inclusion by reaching geographically remote and underserved populations.	.229	.000	Accepted
H_5: Financial technology in branchless banking directly enhances financial inclusion by reaching geographically remote and underserved populations.	.321	.000	Accepted

Source: Survey (2025)

Table 16 which shows the hypotheses testing results confirm that all five variables have a statistically significant and positive influence on financial inclusion. So the

results accepted all the proposed hypotheses and strengthening the role of branchless banking in improving financial access.

4.2 Discussions

The discussion of this study is focused on the growing scene of financial inclusion among unbanked and underbanked populations. This is examined through the lens of branchless banking. This includes examining both the current state of access to financial services and how various digital and decentralized banking channels contribute to inclusive economic participation. Branchless banking has arisen as a transformative mechanism in regions where conventional banking infrastructure is limited or inaccessible. The study reveals that many individuals now interact with financial services through mobile banking applications, ATMs, bank correspondents, point of sale terminals and financial technology platforms. These alternatives to traditional brick-and-mortar banking facilities have begun to reshape how people manage their financial lives. Individuals living in rural or semi-urban areas who have historically faced challenges in accessing formal banking services are increasingly able to carry out essential financial transactions through these channels.

Mobile banking has simplified greater autonomy by allowing users to conduct transactions remotely. People are gaining convenience and flexibility which raises consistent engagement with the financial ecosystem. ATMs have broadened physical access to cash withdrawal services and are instrumental in reducing dependence on bank branches. Some issues such as availability and reliability can affect user experiences in terms of ATMs. Bank correspondents help a unique function by bridging formal financial institutions and marginalized communities. This shows personalized assistance and facilitation the process of banking for those unfamiliar with digital technologies.

Point of sale terminals have improved daily financial transactions by making digital payments easier. This is for those who frequent local businesses and markets. The widespread presence of POS terminals inspires users to adopt cashless habits which makes the groundwork for greater financial inclusion. Financial technology has become a core enabler which users in saving, investing, budgeting and even addressing emergencies. With mobile apps and platforms designed to be user-friendly

and secure fintech tools are now widely recognized as essential to inclusive financial access.

The study exposed convincing evidence on the positive effects of branchless banking tools mobile banking, ATMs, bank correspondents, point of sale terminals and financial technology on financial inclusion among unbanked and underbanked populations. All five variables show statistically significant and positive effects. The study found mobile banks have a positive significant effect on financial inclusion. This result is consistent with the findings of Niraula and Adhikari (2019) who showed the important role of mobile access and digital infrastructure in promoting financial inclusion in Nepal. Pradhan and Dahal (2021) also found that mobile banking significantly supports financial inclusion across urban and rural landscapes. This supporting its role as a widely accessible digital channel. While both studies concluded its promise the current research found mobile banking's predictive power slightly lower than POS and financial technology.

The study found ATMs have a positive significant effect on financial inclusion. This aligns with the work of Pradhan and Dahal (2021) who also reported ATM usage as a meaningful contributor to inclusive financial access. Nofirda and Kinasih (2021) observed that expanding branchless banking technology like ATMs empowers underserved populations. The findings of the study confirms that ATMs reduce dependence on brick-and-mortar branches in semi-urban areas. Compared to newer tools like financial technology platforms the influence of ATMs appears slightly less impactful. This is possible due to limitations in service availability or transaction types.

The study found bank correspondents have a positive significant effect on financial inclusion. This result is strongly supported by Nisha et al. (2020) who identified agent banking as an effective strategy to extend financial services to rural populations in Nepal. The contribution is also consistent with findings from Rachmawati et al. (2020) who concluded that agent-based models help improve inclusion across both urban and rural contexts. The present study confirms the role of human intermediaries in building trust and expanding reach where digital literacy barriers exist.

The study found point of sale terminals have a positive significant effect on financial inclusion. This finding is consistent with Pradhan and Dahal (2021) who found POS infrastructure to be a healthy enabler of digital financial behavior. The result also mirrors findings from Shrestha and Tamang (2023) where perceived usefulness and convenience of digital wallets including POS systems were linked to enhanced inclusion. In this study POS terminals shows a strong predictive effect. This shows that regular, cashless transactions in local shops have now become a gateway to formal financial engagement for many.

The study found financial technology has the most significant positive effect on financial inclusion. This is consistent with multiple studies Han (2023) who showed the transformative power of digital finance in China despite regulatory challenges. In Nepal, the role of fintech platforms is echoed by Niraula and Adhikari (2019) and by Chaurasiya (2024) who found that technological access and smart financial tools are important in improving inclusion. The findings of this study support by showing that financial technology offers the strongest impact. This shows the growing importance of scalable, user-friendly and secure platforms in connecting marginalized populations to formal finance.

The study's findings subsidize meaningfully to the literature by confirming the relevance of branchless banking components in promoting financial inclusion. The results strengthen the conclusions of Prior and Mora (2019), Dzombo et al. (2018) and Mangani et al. (2019) who each concluded the role of branchless banking in driving economic engagement and institutional performance. They also showed the need for continued investment in digital infrastructure, regulatory frameworks, service quality and user education to maximize the inclusive potential of these technologies. The comparative analysis positions financial technology and POS as the most impactful tools, while mobile banking, ATMs and bank correspondents provide important support in building a inclusive financial system.

CHAPTER V

SUMMARY AND CONCLUSION

5.1 Summary

In Nepal's financial scenery a sizable portion of the population those in rural and semi-urban regions remains unbanked or underbanked. Traditional banking systems fail to reach these communities due to geographical constraints, infrastructural limitations and economic inequalities. Branchless banking has appeared as a promising alternative in this backdrop. Branchless banking gives mobile-based services, agent networks, point-of-sale systems and financial technology platforms to deliver banking services beyond physical branches. These digital and decentralized tools are reforming the way Nepali citizens access and engage with financial systems. This also holding the possible to adopt inclusive and equitable financial participation across the country.

The study was designed with a focus on uncovering how branchless banking channels influence financial inclusion in Nepal. This is focused for those historically excluded from formal financial services. It aimed not only to assess current access levels but also to understand the depth of usage and trust placed in mobile banks, ATMs, bank correspondents, POS terminals and financial technology tools. The study tries to addressed an important gap how digital innovations and alternative banking methods contribute to financial empowerment for marginalized groups. It shows Nepal's growing digital maturity and the pressing need to build frameworks that make financial inclusion sustainable and far-reaching.

This study used both descriptive and causal research designs to explore the role of branchless banking in promoting financial inclusion among the unbanked and underbanked populations in Nepal. The research focused on Bagmati Rural Municipality in Lalitpur District. The study used Yamane's formula to select a sample for the study. a sample size of 388 respondents was determined from a total population of 13,453 which was proportionally distributed across the municipality's seven wards. Primary data was collected using structured questionnaires based on a five-point Likert scale. This captures perceptions of mobile banking, ATMs, bank correspondents, point of sale (POS) systems and financial technology (FinTech). The

data was analyzed using SPSS software through descriptive statistics, Pearson correlation analysis and multiple regression analysis.

The study found that all five variables of branchless banking mobile banking, automated teller machines, bank correspondents, point-of-sale systems, and financial technology have a significant and positive impact on financial inclusion in Nepal. The regression analysis showed that financial technology had the strongest effect on financial inclusion with a beta coefficient of 0.321 and a significance level of 0.000. This was followed by point-of-sale systems with a beta value of 0.229 and significance of 0.000, and mobile banking with a beta of 0.204 and significance of 0.000. Bank correspondents also had a positive effect with a beta value of 0.126 and significance of 0.008, while automated teller machines had a beta value of 0.125 and significance of 0.009. The overall model showed strong explanatory power with an R square value of 65.6 percent, indicating that these five variables together explain more than half of the variation in financial inclusion.

This study suggests meaningful benefits for both practice and policy. It equips financial institutions and regulators with evidence-based information to strengthen branchless banking models where they're needed most. It showed which services are most impactful. This helps helping guide future investments in infrastructure, training and user outreach. By revealing the strong predictive roles of digital platforms and agent networks it positions branchless banking as not just a workaround. Researchers and policymakers now have a roadmap to improve access, improve user experience and make trust in financial systems among those who need it most.

5.2 Conclusion

The study explores the role of branchless banking in improving financial inclusion among unbanked and underbanked populations. The study is guided with three objectives which examined both the current state of access to financial services and the effectiveness of digital and decentralized banking channels in connecting individuals to formal financial systems. The study concluded the major points based on the findings of the study.

The first objective assessing the current state of financial inclusion, the study found that a growing number of individuals those in rural and semi-urban areas are

beginning to engage with financial services through alternative delivery mechanisms. Mobile banking, ATMs, bank correspondents, POS terminals and financial technology platforms have made banking more accessible and less dependent on physical infrastructure. The data revealed moderately high usage levels and positive perceptions across all service types. This shows that branchless banking is actively breaking down long-standing barriers geographic isolation, affordability and limited institutional reach. While the overall level of financial inclusion is promising there remains scope for increasing outreach, simplifying digital tools and improving financial literacy to confirm broader and more equitable participation.

The second objective focused on analyzing the relationships between five key service types mobile banks, ATMs, bank correspondents, point of sale terminals and financial technology and financial inclusion. All variables show strong and statistically significant positive correlations with financial inclusion. This confirms that greater engagement with these services is closely tied to improvements in access and use of financial tools. Financial technology showed the strongest relationship. This shows that digital platforms offering budgeting, savings, emergency support and investment services are effective in extending the reach of formal finance. POS terminals also appeared as a major contributor. This shows their role in transforming everyday transactions into gateways to the formal banking system. Mobile banking, bank correspondents and ATMs also showed compact associations. This validates their relevance in local contexts and among communities that may lack access to full-service bank branches.

The third objective analyzed the range to which these components predict financial inclusion. The regression analysis confirmed that each independent variable had a significant and positive effect on financial inclusion. This strengthening the idea that branchless banking tools are not only correlated with inclusive financial access but also capable of driving measurable improvements. Financial technology was identified as the strongest predictor, followed by point-of-sale systems and mobile banking. This means that strategic investment in fintech infrastructure, digital literacy and retail payment networks could have significant impact on empowering underserved populations. Bank correspondents and ATMs slightly less influential but remain important touchpoints for individuals with limited digital capabilities or those

residing in more remote regions. In overall conclusion this study concluded that branchless banking is a powerful instrument for achieving financial inclusion. The combination of digital platforms and decentralized service channels enables greater access, convenience and trust in financial systems for those historically excluded.

5.3 Implications

Based on the findings, discussion and conclusion of the study, the following implications are made:

- The study found that financial technology has the strongest influence on financial inclusion among all variables. So, it is recommended to invest in expanding fintech services and digital literacy programs.
- The study found that point of sale terminals significantly supports everyday digital transactions. So, it is recommended to increase POS infrastructure in rural and semi-urban areas.
- The study found that mobile banking is positively linked to financial inclusion but its usage is not yet universal. So, it is recommended to promote mobile banking through user-friendly designs and inclusive outreach.
- The study found that bank correspondents are trusted and useful but face variation in service quality. So, it is recommended to provide regular training and support to bank correspondents for consistent service delivery.
- The study found that ATMs continue to reduce reliance on physical bank branches. So, it is recommended to strengthen ATM networks and improve their reliability.
- The study found no serious multicollinearity among independent variables. So, it is recommended to adopt multi-channel strategies for financial inclusion without worrying about overlap.
- The study found that all branchless banking tools significantly predict financial inclusion. So, it is recommended to use these findings as a base for designing inclusive national financial strategies.
- The study found that perceptions and experiences vary across demographic groups. So, it is recommended that future research should focus on disaggregated analysis by age, income, gender and location.

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Appendices

Appendix I

Questionnaire on **"Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population"**

Dear Respondent,

I am a student at Shanker Dev Campus, Tribhuvan University, conducting a survey on the topic of Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population. Your honest and accurate responses to this questionnaire will be invaluable for the successful completion of my thesis. Please rest assured that all information provided will be kept confidential and will be used solely for research purposes. Your participation is greatly appreciated and will contribute significantly to understanding this important issue.

Thank you for your cooperation!

Best regards,

Sumitra Shrestha
Shanker Dev Campus, Tribhuvan University

Demographic Questions

1. **Age**
    - Under 18
    - 18–24
    - 25–34
    - 35–44
    - 45–54
    - 55 and Above
2. **Gender**
    - Male
    - Female

3. **Educational Level**
    - No formal education
    - Primary education
    - Secondary education
    - Bachelor's degree
    - Master's degree and above
4. **Occupation**
    - Student
    - Employed (full-time)
    - Employed (part-time)
    - Self-employed
    - Unemployed
    - Retired
5. **Monthly Income**
    - Less than NPR 10,000
    - NPR 10,000 – NPR 30,000
    - NPR 30,001 – NPR 50,000
    - NPR 50,001 – NPR 100,000
    - More than NPR 100,000
6. **Location**
    - Urban area
    - Semi-urban area
    - Rural area

Branchless Banking and Financial Inclusion: Reaching the Unbanked and Underbanked Population

Below are some of the possible factors on branchless banking might influence the financial inclusion. To what extend do you get agree with the below factors.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Statements		1	2	3	4	5
A. Mobile Bank						
MB1	I regularly use mobile banking services for my financial transactions.					
MB2	Mobile banking provides me with convenience and flexibility in managing my finances.					
MB3	I feel secure when conducting financial transactions through mobile banking.					
MB4	Mobile banking has significantly reduced the need for visiting physical bank branches.					
MB5	Mobile banking is accessible to individuals regardless of their geographical location.					
B. ATMs						
ATM1	I find ATMs easily accessible in my community for withdrawing cash.					
ATM2	ATMs are reliable and available whenever I need to perform banking transactions.					
ATM3	Using ATMs has reduced my dependency on visiting physical bank branches.					
ATM4	ATM fees and charges are reasonable for the services provided.					
ATM5	The availability of ATMs has improved my access to financial services.					
C. Bank Correspondents						
CO1	I feel comfortable using bank correspondents for conducting financial transactions.					
CO2	Bank correspondents are knowledgeable and helpful in providing banking services.					
CO3	The presence of bank correspondents has made banking services accessible to my community.					
CO4	I trust bank correspondents to ensure the confidentiality of my financial information.					

CO5	Bank correspondents are an effective way to bring banking services closer to rural and remote areas.					
D. POS (Point of Sales) Terminals						
POS1	I regularly use POS terminals for cashless transactions in shops and stores.					
POS2	POS terminals have made it easier for me to make secure payments without cash.					
POS3	The availability of POS terminals in my community has encouraged me to use digital payment methods.					
POS4	I feel confident about the security of transactions made through POS terminals.					
POS5	POS terminals have made banking services more accessible for everyday transactions.					
E. Financial Technology						
FT1	I regularly use financial technology applications to manage my savings and investment activities.					
FT2	Financial technology platforms have enhanced my ability to manage personal finances effectively.					
FT3	FinTech services provide essential tools to address unexpected financial needs efficiently.					
FT4	I have confidence in financial technology services to offer secure and dependable financial transaction solutions.					
FT5	Financial technology applications have made financial services more affordable and easily accessible to users.					
F. Financial Inclusion						
FI1	I have easy access to banking services, including savings accounts, credit options, and loan facilities.					
FI2	I frequently utilize financial services such as mobile banking, ATMs, and online transactions to manage my finances.					
FI3	The costs associated with using financial services, such					

	as transaction fees and account maintenance, are affordable for me.					
FI4	I possess adequate knowledge about financial services and products, enabling me to make informed decisions.					
FI5	I trust formal financial institutions, such as banks and microfinance organizations, to safeguard my money and provide reliable services.					

Sources: Sarma (2008); Demirgüç-kunt and Klapper (2013); Lusardi and Mitchell (2014); Allen et al. (2016); Gomber et al. (2017); González et al (2022); Beybur(2022),

Thank You!!

PAPER NAME

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