ROLE OF FINTECH AND DIGITAL FINANCIAL SERVICES ON FINANCIAL INCLUSION IN NEPAL

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

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Certification of Authorship

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal"**. 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

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Report of Research Committee

Ms. Menaka Poudel has defended research proposal entitled **"Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal"** successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per and submit the thesis for evaluation.

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Approval Sheet

We have examined the dissertation entitled **"Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal"** presented by **Menaka Poudel** a candidate for the degree of Master of Business Studies (MBS). We hereby certify that the dissertation is acceptable for the award of degree.

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Abbreviations

DL	: Digital Literacy
EC	: Economic Condition
FA	: Fintech Adoption
FI	: Financial Inclusion
CV	: Coefficient of Variance
GP	: Government Policies
MBS	: Master in Business Studies
NRB	: Nepal Rastra Bank
RE	: Regulatory Environment
SD	: Standard Deviation
SPSS	: Statistical Package for Social Science
TI	: Technological Infrastructure
TU	: Tribhuvan University

Abstract

The purpose of this study is to analyze the variables that influence fintech adoption and the effect that it has on financial inclusion in Nepal. The study is constructed using a mixed-methods methodology, combining descriptive and causal analysis, and a sample size of 385 respondents from the fintech industry, the government, and academic institutions. The most important results suggest that the adoption of fintech, technical infrastructure, digital literacy and government regulations greatly improve financial inclusion. These factors explain 82% of the variation in financial inclusion. Both correlation and regression studies come to the conclusion that there are significant positive connections between these parameters and financial inclusion. While the regulatory environment and economic circumstances showed a correlation with financial inclusion, the regression model did not find them as significant predictors. The research highlights the need for enhancing regulatory frameworks, making investments in technology infrastructure, creating supporting government policies, and boosting digital literacy in order to propel financial inclusion via the use of fintech. Policymakers, financial institutions, and other stakeholders in Nepal who are working toward the goal of establishing a vibrant financial ecosystem that fosters socioeconomic development may find these insights to be of critical importance.

Keywords: *Fintech adoption, financial inclusion, digital literacy, Technological infrastructure, government policies*

CHAPTER I
INTRODUCTION

1.1 Background of the study

FinTech innovation encompasses a wide array of technologies, including blockchain, artificial intelligence (AI), big data analytics, and mobile payment systems. These innovations have revolutionized traditional financial services, enabling faster, cheaper, and more convenient transactions while also enhancing risk management and customer experience (Yermack, 2017). Blockchain technology, has facilitated secure and transparent transactions through decentralized ledgers, while AI-powered algorithms have revolutionized credit scoring and fraud detection processes (Claessens et al., 2019). Moreover, the proliferation of mobile payment platforms has democratized access to financial services, particularly in underserved regions where traditional banking infrastructure is lacking (Allen et al., 2018). By leveraging these technological advancements, financial institutions can streamline operations, develop new products and services, and ultimately drive innovation in the financial sector.

Financial inclusion, defined as the equitable access to and usage of formal financial services, remains a pressing global challenge. Despite progress in expanding access to banking services, millions of individuals worldwide remain underserved or excluded from the formal financial system (World Bank, 2020). FinTech solutions have emerged as a potent tool in addressing this challenge by overcoming traditional barriers to financial inclusion. Mobile banking applications, for instance, provide individuals with access to basic banking services, such as savings accounts and remittance facilities, without the need for physical bank branches (Demirgüç-Kunt et al., 2018). Additionally, peer-to-peer lending platforms and crowdfunding websites offer alternative sources of financing for entrepreneurs and small businesses, particularly those with limited collateral or credit history (African Development Bank Group, 2019). By leveraging technology to lower transaction costs, expand outreach, and mitigate risks associated with serving marginalized populations, FinTech initiatives play a pivotal role in promoting financial inclusion and empowering underserved communities.

While the potential of FinTech to drive innovation and financial inclusion is evident, the realization of these benefits hinges on effective financial technology strategy. Financial institutions and policymakers must formulate comprehensive strategies that

harness the transformative power of technology while addressing regulatory, security, and ethical considerations (Brearley et al., 2020). A well-crafted FinTech strategy should encompass elements such as digital infrastructure development, regulatory reforms, talent acquisition, and strategic partnerships with technology firms and startups (International Monetary Fund, 2021). Moreover, collaboration between public and private sectors is essential to create an enabling environment for FinTech innovation and ensure that the benefits of technological advancements are shared equitably across society (World Economic Forum, 2021). By aligning financial technology strategy with broader development objectives, stakeholders can leverage FinTech as a catalyst for sustainable growth, innovation, and inclusive economic development.

Enhanced financial inclusion not only has the potential to alleviate poverty but also to foster the growth of the small business sector. Fintech encompasses both access to and usage of financial services, with a focus on affordability, availability, promoting financial literacy, establishing regulatory frameworks, and fostering fair competition. Given that the drivers of financial inclusion vary across different contexts, policymakers, regulators, and innovators must possess a clear understanding of the unique needs of their respective markets. However, while adopting fintech solutions, stakeholders often encounter significant challenges such as the high cost associated with mobile wallet transactions, inadequate value proposition, limited financial literacy, and regulatory requirements (Chetty, 2019).

The Nepal Financial Inclusion Report 2023, conducted by the IFC, underscores a remarkable increase in fintech adoption among Nepali consumers. Over the span of eight years, mobile banking users demonstrated impressive growth, with a Compound Annual Growth Rate of 58.14%, reaching 18.31 million users, representing 62.8% of the population by mid-July 2022. Similarly, QR-based payments experienced a surge, with transaction volumes escalating from Rs. 7.76 billion in 2022 to Rs. 20.77 billion by mid-March 2023. Noteworthy is the digital transformation in government revenue collection, with 30% now attributed to digital payments, and a striking 90% of transactions executed digitally. The proliferation of Payment Service Providers (PSPs) applications, downloaded by over 10 million users, has greatly facilitated utility payments, purchases, subscriptions, and more. These apps offer seamless money transfers and have significantly enhanced ecommerce and merchant payments.

Commercial banks like NIC ASIA and Machhapuchhre have introduced innovative voice-based QR payments, particularly benefiting visually impaired users. Despite Nepal's impressive fintech adoption rates, the NRB's Financial Access report from mid-June 2020 reveals that only 67.3% of the population holds a bank account. Traditional methods such as cheques and cash deposits continue to handle a considerable portion of transactions, suggesting areas for further development (Mulmi, 2023).

The need for this study arises from the imperative to address the persistent challenges hindering the widespread adoption of financial technology (FinTech) solutions and the promotion of financial inclusion in Nepal. Despite efforts to enhance access to formal financial services and foster innovation in the financial sector, significant gaps and barriers remain that impede progress towards inclusive economic growth and development. Understanding the role of financial technology strategy in driving innovation and promoting financial inclusion is essential to inform evidence-based policymaking, guide strategic investments, and develop targeted interventions that address the unique needs and challenges faced by Nepal's diverse population. This study aim to generate actionable insights that can catalyze positive change, drive sustainable development, and empower individuals and communities across Nepal to participate fully in the digital economy.

1.2 Problem statement

The emergence of new digital technologies has catalyzed a surge in the FinTech sector, which harnesses innovations such as blockchain and data analytics to streamline the delivery of financial services to end users (Lynn et al., 2018). Central to this provision of products and services is the FinTech companies' emphasis on improving the customer experience while devising optimized business strategies to navigate the challenging economic landscape. Leveraging cutting-edge technologies like artificial intelligence (AI), FinTech entities are introducing innovative solutions that hold significant promise for addressing financial inclusion barriers with practicality and effectiveness.

Fintech presents promising prospects in Nepal, as both governmental and private entities diligently work to meet local demands and explore new opportunities in this sector. The increasing appetite for digital solutions within Nepali society has notably accelerated the integration of Financial Technology. However, Nepal must confront challenges hindering the progress and sustainability of Fintech. This necessitates

independent promotion and implementation of Fintech companies and their services, thereby propelling Nepal's technological advancement to align with global trends, fostering financial inclusion and nurturing the digital economy (Mulmi, 2023).

However, research on FinTech and its impact on financial inclusion remains relatively underexplored. Moreover, the disruptive business models of FinTech companies play a crucial role in shaping the sector, emphasizing the importance of developing policies to align these models with the prevailing economic conditions. Additionally, despite being a priority on the political agenda, a significant portion of the population remains excluded from formal financial systems, indicating the need for further efforts to enhance inclusion. Nepal, emerging as a global financial hub, offers a conducive empirical environment to investigate this subject, as it steadily progresses towards financial inclusion, benefiting its population in the process.

Salampasis and Mention (2018) highlighted the critical issue of financial exclusion and its impact on global economic empowerment and equality. Their study underscores the urgent need to address financial exclusion, emphasizing the potential of FinTech to drive long-term societal transformation and promote inclusive economic growth. Baber (2019) conducted a comparative analysis between countries adhering to Islamic finance and those adopting conventional finance systems, finding that Islamic finance countries demonstrate higher levels of financial inclusion. Mehrotra (2019) explored the imperative of financial inclusion and inclusive growth, emphasizing the potential of FinTech revolution to enhance service quality and product delivery.

Beck (2020) explored the relationship between digital financial innovation and financial inclusion, highlighting the opportunities and risks associated with financial innovation. Demir et al. (2020) examined the relationship between FinTech, financial inclusion and income inequality across countries, finding that financial inclusion serves as a crucial mechanism through which FinTech reduces income inequality. Oshora et al. (2021) argued for the pivotal role of FinTech innovation in promoting financial inclusion, particularly in countries like Ethiopia.

Goswami et al. (2022) explored the critical success factors influencing the adoption of disruptive financial technology for financial inclusion in rural India, emphasizing the importance of social influence in driving FinTech adoption. Muganyi et al. (2022) examined the influence of fintech on the development of China's financial sector,

finding a positive association between fintech and financial development. Odei-Appiah et al. (2022) analyzed the impact of FinTech usage on financial inclusion amidst the digital divide, finding a positive influence of FinTech usage on financial inclusion. Heng and Tok (2022) investigated the role of FinTech in financial inclusion, finding a stronger positive correlation with digital financial inclusion compared to traditional measures.

Aloulou et al. (2023) investigated the impact of FinTech on the banking sector's competitiveness and performance, finding that FinTech adoption significantly influences competitiveness and performance. Asif et al. (2023) examined the impact of fintech and digital financial services on financial inclusion in India, finding that fintech businesses have played a substantial role in enhancing financial inclusion, benefiting the middle class.

The existing research on FinTech and financial inclusion provides valuable insights into the global landscape, but there is a notable research gap when it comes to understanding these dynamics within the context of Nepal. Specifically, there is limited empirical research that examines the role of FinTech in driving financial inclusion and addressing the unique challenges faced by Nepali society. While studies from other countries offer valuable insights, the Nepali context presents its own set of socio-economic, cultural, and regulatory factors that may influence the adoption and impact of FinTech solutions. Mainly, the following research questions are raised:

i. How does fintech adoption influence financial innovation and financial inclusion in the context of Nepal?
ii. Does the regulatory environment and technological infrastructure impact on financial inclusion through fintech solutions in Nepal?
iii. How do government policies, economic conditions, and digital literacy contribute to enhancing financial inclusion and driving financial innovation through fintech in Nepal?

1.3 Objectives of the study

The main aim of the study is to examine the fintech in driving financial innovation and financial inclusion in Nepal. However, the specific objectives of the study are as follows:

i. To investigate the effect of fintech adoption on financial innovation and financial inclusion in Nepal.
ii. To examine the influence of the regulatory environment and technological infrastructure on fostering financial inclusion through fintech solutions in Nepal.
iii. To analyze the impact of government policies, economic conditions and digital literacy on enhancing financial inclusion and driving financial innovation through fintech in Nepal.

1.4 Research hypothesis

Based on the empirical studies, research questions of the study and objectives of the study, the following hypotheses are formulated and examined:

H1: Fintech adoption positively influences financial innovation and financial inclusion in Nepal.

H2: The regulatory environment and technological infrastructure positively affect financial inclusion through fintech solutions in Nepal.

H3: Government policies, economic conditions and digital literacy positively contribute to enhancing financial inclusion and driving financial innovation through fintech in Nepal.

1.5 Rationale of the study

This study lies in the need to address the complex challenges hindering financial inclusion and innovation in Nepal's financial sector. Despite notable progress in recent years, Nepal continues to grapple with high levels of financial exclusion, particularly among marginalized and remote communities. Additionally, the evolving landscape of financial technology (FinTech) presents both opportunities and challenges for advancing financial inclusion and driving economic growth in the country.

By investigating the role of financial technology strategy in driving innovation and promoting financial inclusion, this study seeks to fill critical gaps in knowledge and inform evidence-based policymaking and strategic interventions. By examining the barriers and facilitators to FinTech adoption and financial inclusion in Nepal, the study will shed light on the factors that impede or enhance the effectiveness of FinTech initiatives in reaching underserved populations and promoting inclusive economic development. The findings of this study will provide valuable insights for

policymakers, regulators, and other stakeholders in designing and implementing policies and initiatives aimed at fostering FinTech innovation and expanding access to financial services for all segments of society.

Understanding the dynamics of FinTech adoption and financial inclusion in Nepal will help investors and financial institutions make informed decisions about where to allocate resources and prioritize investments to maximize impact and reach underserved markets. By engaging with key stakeholders, including financial institutions, regulators, policymakers, and consumers, the study aims to empower individuals and communities to actively participate in shaping the future of the financial sector and driving inclusive growth and development in Nepal.

This study seeks to contribute to the body of knowledge on FinTech adoption and financial inclusion in Nepal, with the ultimate goal of fostering a more inclusive and resilient financial system that serves the needs of all citizens, fosters economic empowerment, and promotes sustainable development across the country.

6. Limitations of the study

In research, limitations are constraints that may affect the study's outcomes or generalizability. In this study, the following limitations are addressed.

i. The study's sample size of 385 respondents, primarily from management-level positions in FinTech companies, academic professors, government and policymaker employees may limit the generalizability of the findings to other stakeholders within the FinTech ecosystem.
ii. The use of purposive sampling may introduce bias, potentially overlooking perspectives from individuals outside the management level or from other sectors of the economy.
iii. The study's reliance on descriptive, correlation, and regression analyses restricts the depth of analysis, potentially overlooking qualitative factors that could influence FinTech adoption and financial inclusion.
iv. The study may not fully account for unique socio-economic, cultural and regulatory factors specific to Nepal, limiting its applicability to other contexts.
v. Findings may not be broadly applicable beyond Nepal due to differences in cultural norms, regulatory frameworks, and market dynamics in other countries.

CHAPTER II
LITERATURE REVIEW

This chapter presents a comprehensive literature review, encompassing a theoretical review to establish foundational concepts and frameworks related to FinTech and financial inclusion. It includes an empirical review of relevant studies conducted both internationally and within the national context of Nepal, highlighting key findings and trends. Additionally, this chapter identifies research gaps, underscoring the necessity for further investigation into the specific dynamics of FinTech adoption and its impact on financial inclusion in Nepal.

2.1 Theoretical review

The theoretical review involves an in-depth examination and critique of theoretical frameworks and models that inform the study's conceptual framework and research design. It entails a systematic exploration of relevant theories, such as innovation diffusion theory, technology acceptance model, and Silber's Constraint Theory of Innovation, among others, to identify their applicability and relevance to the study's objectives. The theoretical review helps researchers establish theoretical foundations, conceptual frameworks, and analytical frameworks for their study, guiding the selection of variables, formulation of hypotheses, and interpretation of findings.

Innovation diffusion theory

The theory of innovation diffusion, initially proposed by Rogers in 1962, is a seminal framework in understanding how innovations are adopted within organizations and societies. This theory posits that organizations selectively adopt innovations to maintain competitive advantage, defend strategic positions, and minimize costs (Rogers, 1962). It suggests that the adoption of an innovation is influenced by its perceived relative advantage, with new products often garnering greater acceptance due to their potential benefits. Moreover, consumer behavior plays a crucial role in the diffusion process, as individuals may be more inclined to adopt innovations perceived to offer higher value compared to existing products (Back, 2013).

The theory further categorizes the population into five segments based on their adoption behaviors: innovators, early adopters, early majority, late majority, and laggards (Buckley, 2012). These segments follow a bell-shaped distribution curve when traversing innovations, with innovators and early adopters typically embracing new

products first, followed by the early and late majority, and finally, the laggards. This categorization helps explain the varying rates of adoption among different segments of the population and provides insights into the diffusion process of innovations across society.

In the context of financial services, traditional technology acceptance frameworks align with the adoption and implementation of transformative financial innovations. These frameworks emphasize the importance of understanding users' perceptions, attitudes, and behaviors towards technology adoption. The theory of innovation diffusion thus serves as a guiding framework for exploring how financial technology (FinTech) innovations are adopted and integrated into the financial sector to drive innovation and promote financial inclusion.

In the study on the role of financial technology strategy in driving innovation and financial inclusion, the theory of innovation diffusion provides valuable insights into how FinTech initiatives are strategically adopted to enhance competitiveness and broaden access to financial services. By leveraging FinTech innovations such as big data analytics, mobile payments, and blockchain technology, financial institutions can extend services to previously unserved and underserved markets (Back, 2013). However, it is essential to acknowledge a weakness of the theory, which lies in its assumption that most innovations are inherently valuable and should be adopted promptly, without thorough testing and proof of concept. This highlights the importance of balancing innovation with careful evaluation and risk assessment in the implementation of FinTech solutions.

The theory of innovation diffusion offers a comprehensive framework for understanding the adoption and diffusion of FinTech innovations in driving financial inclusion and fostering economic development. By examining the dynamics of innovation adoption across different segments of the population and considering the implications for financial inclusion efforts, this study aims to contribute to the ongoing discourse on the role of FinTech in shaping inclusive financial systems in Nepal.

Technology acceptance model

The technology acceptance model (TAM) is a widely recognized theoretical framework developed to understand and predict users' acceptance and adoption of new technologies. Initially proposed by Davis in 1989, TAM has since evolved and been

extended to various contexts, including the adoption of financial technology (FinTech) innovations. TAM posits that users' behavioral intentions to adopt a new technology are determined by two primary factors: perceived ease of use (PEOU) and perceived usefulness (PU). Perceived ease of use refers to the degree to which users perceive a technology as effortless to use and understand, while perceived usefulness refers to the extent to which users believe that using the technology will enhance their performance and productivity (Davis, 1989).

In the context of FinTech adoption, TAM has been widely used to examine users' attitudes and behaviors towards various FinTech applications, such as mobile banking, online payment systems, and robo-advisors. Researchers utilize TAM to assess users' perceptions of the ease of use and usefulness of these technologies and their impact on adoption decisions (Venkatesh et al., 2003). TAM has also been extended to incorporate additional factors that may influence technology adoption, such as subjective norms, compatibility, and trust (Venkatesh & Davis, 2000). The perceived compatibility of FinTech solutions with users' existing behaviors and preferences can significantly impact their adoption decisions. Similarly, trust in the security and reliability of FinTech platforms plays a crucial role in shaping users' perceptions and intentions to adopt these technologies.

In practical applications, TAM is used to design and evaluate FinTech solutions by identifying potential barriers to adoption and developing strategies to enhance users' acceptance and usage. By understanding users' perceptions of ease of use, usefulness, and other relevant factors, FinTech providers can tailor their products and services to better meet users' needs and preferences, thereby facilitating adoption and improving user satisfaction (Venkatesh & Bala, 2008). TAM provides a valuable framework for understanding and predicting users' acceptance and adoption of FinTech innovations. By considering factors such as perceived ease of use, usefulness, compatibility, and trust, researchers and practitioners can gain insights into the drivers and barriers of FinTech adoption and develop strategies to promote widespread adoption and usage in the financial sector.

Silber's constraint theory of innovation

Silber's constraint theory of innovation, proposed by Robert Silber in 1976, offers a unique perspective on innovation within organizations. Unlike traditional innovation

theories that focus solely on the positive drivers and facilitators of innovation, Silber's theory emphasizes the role of constraints and limitations in shaping the innovation process. According to Silber, constraints can take various forms, including organizational structures, resource limitations, regulatory requirements, cultural norms, and technological barriers. These constraints act as barriers that restrict the ability of organizations to innovate effectively. However, Silber argues that constraints are not necessarily negative; instead, they can serve as catalysts for innovation by forcing organizations to think creatively and find alternative solutions to overcome limitations (Silber, 1976).

In the context of financial technology (FinTech) innovation, Silber's constraint theory offers valuable insights into the challenges and opportunities faced by financial institutions and FinTech startups. Regulatory constraints such as compliance requirements and licensing procedures can pose significant barriers to the development and adoption of FinTech solutions (Hutchinson & Warren, 2018). Similarly, resource limitations, such as funding constraints and talent shortages, can impede the innovation efforts of FinTech firms (Lacity & Willcocks, 2016).

However, Silber's theory suggests that these constraints can also spur innovation by encouraging organizations to explore new approaches, collaborate with partners, and leverage existing resources more effectively (Silber, 1976). For instance, FinTech startups may find innovative ways to navigate regulatory requirements through partnerships with traditional financial institutions or by developing regulatory-compliant solutions (Hutchinson & Warren, 2018). Similarly, resource-constrained startups may utilize open-source technologies, cloud computing, or crowdsourcing to overcome funding and talent limitations (Lacity & Willcocks, 2016).

In practice, Silber's Constraint Theory is used by organizations to identify and prioritize constraints that may impact their innovation efforts. By understanding the specific constraints they face, organizations can develop strategies to mitigate or leverage these constraints to foster innovation. This may involve reallocating resources, restructuring processes, fostering a culture of experimentation and risk-taking, or seeking external partnerships and collaborations (Silber, 1976).

Silber's constraint theory of innovation provides a nuanced perspective on innovation that acknowledges the role of constraints in shaping the innovation process. In the

context of FinTech innovation, this theory offers valuable insights into the challenges and opportunities faced by financial institutions and FinTech startups and provides a framework for developing strategies to navigate constraints and drive innovation forward.

Network effects theory

The network effects theory, proposed by Brian Arthur, provides valuable insights into the role of fintech startups in driving innovation and financial inclusion. This theory suggests that the value of a product or service increases as more people use it, creating a positive feedback loop that attracts even more users. Fintech startups often leverage network effects to reach a larger customer base and offer more inclusive financial services.

Peer-to-peer (P2P) lending platforms are an excellent example of how fintech startups leverage network effects to drive financial inclusion. Lending Club and Prosper, two prominent P2P lending platforms, allow individuals to lend money directly to borrowers, bypassing traditional financial intermediaries. As more lenders and borrowers join these platforms, the network effect kicks in, increasing the availability of credit and lowering borrowing costs for previously underserved individuals and small businesses.

Lin et al. (2018) supported the network effects theory and provides empirical evidence of the impact of network effects on financial inclusion in the context of online peer-to-peer lending platforms. The study examines friendship networks and information asymmetry in online P2P lending and finds that borrowers with larger and more diverse social networks are more likely to receive loans at lower interest rates. This suggests that network effects play a crucial role in improving access to credit for underserved individuals.

Additionally, Schwienbacher and Larralde (2012) explored the crowdfunding of small entrepreneurial ventures, another domain where network effects are prominent. Their study examines the concept of crowdfunding and its implications for financial inclusion. They find that crowdfunding platforms, which leverage network effects, have the potential to provide funding opportunities to individuals and businesses that have limited access to traditional financing channels. By connecting entrepreneurs with a

large pool of potential investors, crowdfunding platforms facilitate financial inclusion and enable innovative projects to obtain the necessary funding.

The impact of network effects on financial inclusion is not limited to lending and crowdfunding platforms. In the realm of mobile payments, network effects have played a significant role in driving financial inclusion. Jack and Suri (2014) investigated the impact of M-Pesa on financial behavior and welfare in Kenya. The research finds that the introduction of M-Pesa has led to an increase in savings, consumption, and female-headed households' empowerment. It also shows that the adoption of M-Pesa has reduced the costs associated with financial transactions and improved access to formal financial services for previously underserved populations. Suri and Jack (2016) explored the long-term effects of M-Pesa adoption in Kenya. The research reveals that households with access to M-Pesa experienced an increase in consumption levels, a reduction in the frequency of negative shocks, and an improvement in business outcomes. The study concludes that mobile money platforms like M-Pesa have the potential to drive financial inclusion and improve overall welfare.

The network effects theory provides a compelling explanation for the role of fintech startups in driving financial inclusion. By leveraging network effects, fintech platforms can expand their customer base, increase access to financial services, and create positive feedback loops that benefit previously underserved individuals and businesses. The studies mentioned above provide empirical evidence supporting the positive impact of network effects on financial inclusion in the context of P2P lending, crowdfunding, and mobile payment platforms.

Behavioral economics theory

The behavioral economics theory provides valuable insights into the role of fintech startups in driving innovation and financial inclusion. This theory combines insights from psychology and economics to understand how individuals make financial decisions. It suggests that individuals often exhibit biases and irrational behavior when it comes to financial choices, which can lead to suboptimal outcomes. Fintech startups leverage behavioral economics principles to design user-friendly interfaces, personalized recommendations, and nudges that encourage individuals to make better financial decisions. By leveraging technology and understanding human behavior,

fintech platforms can improve financial literacy, promote savings behavior, and enhance overall financial well-being.

Robo-advisors are a prime example of how fintech startups incorporate behavioral economics principles to drive financial inclusion. Robo-advisors use algorithms to provide low-cost investment advice and automate investment decisions based on an individual's risk appetite and financial goals. By simplifying the investment process, providing personalized recommendations, and automating investment decisions, robo-advisors can attract previously excluded individuals and enable them to participate in the financial markets.

Choi et al. (2020) explored the impact of default options and nudges on retirement savings behavior. The study focuses on the automatic enrollment feature in retirement plans, which is a type of nudge that encourages employees to participate in retirement savings programs by automatically enrolling them unless they explicitly opt-out. The research finds that automatic enrollment significantly increases retirement plan participation rates, especially among individuals with limited financial knowledge and resources. It suggests that behavioral interventions, such as default options and nudges, can have a substantial impact on financial inclusion by overcoming behavioral barriers.

Another study by Karlan et al. (2016) investigated the impact of personalized SMS reminders on loan repayment rates in the context of microfinance. The research finds that borrowers who receive personalized SMS reminders are more likely to make timely loan repayments compared to those who do not receive reminders. This behavioral intervention improves repayment behavior and reduces default rates, thereby enhancing financial inclusion by providing individuals with access to credit on more favorable terms.

The incorporation of behavioral economics principles is not limited to robo-advisors and SMS reminders. Fintech startups also leverage gamification techniques to promote financial education and improve financial decision-making. By turning financial education into an interactive and engaging experience, fintech platforms can captivate users' attention and facilitate learning about essential financial concepts.

Gaur et al. (2019) examined the impact of gamified financial education on financial knowledge and savings behavior. The research finds that individuals who receive gamified financial education interventions exhibit higher financial literacy levels and

are more likely to engage in positive savings behavior compared to those who receive traditional financial education. This suggests that gamification can be an effective tool for promoting financial inclusion by enhancing financial literacy and empowering individuals to make informed financial decisions.

The behavioral economics theory provides a valuable framework for understanding the role of fintech startups in driving financial inclusion. By incorporating behavioral interventions into their platforms, fintech startups can overcome behavioral barriers, improve financial decision-making, and promote financial well-being. The empirical studies mentioned above provide evidence of the positive impact of behavioral economics principles on retirement savings, loan repayment behavior, and financial education.

2.2 Empirical review

International Context

Salampasis and Mention (2018) highlighted the critical issue of financial exclusion and its profound impact on global economic empowerment and equality. They argue that despite its central role, financial inclusion has received limited attention from financial, regulatory, and policy perspectives, leaving disadvantaged and low-income populations without adequate access to basic financial services, thereby exacerbating inequality worldwide. The paper underscores the urgent need to address financial exclusion, which not only hinders poverty eradication efforts but also contributes to social dependency and civil unrest. The emergence of FinTech is presented as a promising solution, bridging the gap between unbanked, under-banked, and developed societies by leveraging financial innovation and technology. The study suggests that FinTech has the potential to drive long-term societal transformation, promote inclusive economic growth, and contribute to a more just and equitable society. The implications of this research underscore the importance of embracing FinTech as a tool for advancing financial inclusion and addressing global economic disparities.

Baber (2019) conducted a comparative analysis between countries adhering to Islamic finance and those adopting conventional finance systems, focusing on financial inclusion and FinTech utilization. Using data from the World Bank and the Global Islamic Finance Report, the study selects ten countries from each financial system and analyzes data from 2011 to 2017, with 2011 as the base year. The findings indicate that

Islamic finance countries demonstrate higher levels of financial inclusion and greater empowerment of women financially compared to their conventional finance counterparts. However, countries with conventional finance systems exhibit a greater number of FinTech users. The study suggests that while there is a slight difference in financial inclusion performance between the two systems, future research should incorporate more indicators to further explore this aspect. This research provides valuable insights into the nature of both financial systems and suggests avenues for future exploration into the determinants of financial inclusion, thus contributing to the understanding of global financial dynamics.

Mehrotra (2019) delved into the imperative of financial inclusion and inclusive growth, aligning with the global trend recognizing the sustainability of growth through inclusivity. It explores the FinTech revolution's impact, questioning the traditional players' role in fostering inclusion and highlighting the challenges and opportunities presented by technology. The study observes the remarkable growth in electronic markets, smartphone penetration, and the emergence of FinTech companies providing services akin to banking. While acknowledging FinTech's potential to enhance service quality and product delivery through technological innovation, the paper emphasizes the necessity of a robust regulatory framework to balance innovation with compliance and prioritize service orientation over purely commercial interests. The findings underscore the importance of regulating FinTech to ensure it serves the broader goal of inclusive growth while addressing the needs of the most vulnerable populations, suggesting a nuanced approach to leverage technology for societal benefit amidst commercial interests.

Beck (2020) assessed how financial innovation, including mobile money and crowdfunding platforms, has expanded access to finance while also blurring regulatory boundaries and enabling nonbanks like telecom companies and bigtech firms to offer financial services. It summarizes research on the relationship between digital financial innovation and financial inclusion and discusses regulatory implications and future research directions. The paper highlights the opportunities and risks associated with financial innovation, emphasizing the need for dynamic regulatory frameworks to address the evolving financial landscape. Additionally, it speculates on the potential impact of COVID-19, suggesting that the pandemic may accelerate digitalization trends and strengthen bigtech companies' positions in the financial sector, posing competitive

challenges to traditional banks. The paper concludes by posing critical questions about the future of financial services provision, the necessity of face-to-face interactions, and the balance between a contestable financial system and regulatory oversight. It underscores the importance of collaboration among academics, regulators, and practitioners in addressing these complex issues and shaping the future of finance.

Demir et al. (2020) examined the relationship between FinTech, financial inclusion, and income inequality across 140 countries using data from the Global Findex surveys of 2011, 2014, and 2017. The paper aims to investigate how FinTech influences income inequality directly and indirectly through its impact on financial inclusion. Employing quantile regression analysis, the study examines whether these effects vary across countries with different levels of income inequality. The findings reveal that financial inclusion serves as a crucial mechanism through which FinTech reduces income inequality. Additionally, the study observes that while financial inclusion effectively diminishes inequality across all levels of the income distribution, its impact is more pronounced in higher-income countries. The implications suggest that policymakers should prioritize initiatives that foster financial inclusion through FinTech, particularly in higher-income countries, to mitigate income disparities and promote sustainable development.

Oshora et al. (2021) argued that FinTech innovation is pivotal for promoting financial inclusion, particularly in countries facing challenges in expanding access to financial services, such as Ethiopia. Utilizing survey data from the Global Findex waves of 2014 and 2017, alongside an extensive review of relevant literature, the paper investigates the role of FinTech in fostering financial inclusion, as well as the opportunities and barriers within the Ethiopian context. The findings reveal a significant growth in account ownership between 2014 and 2017; however, a substantial portion of the population still lacks access to financial services, particularly women, less educated individuals, youth, and poorer adults. Key barriers to FinTech innovation for promoting financial inclusion include a lack of funds, limited access to financial institutions, low penetration of mobile and internet usage, and inadequate documentation. The study suggests that investing in financial literacy, creating a conducive environment for business firms catering to youths and poorer adults, and integrating digital innovation into strategic plans within the financial sector are essential steps to overcome these barriers and achieve inclusive economic growth. These findings underscore the

importance of targeted interventions and policy initiatives to harness the potential of FinTech for enhancing financial inclusion and fostering economic development in Ethiopia and similar contexts.

Goswami et al. (2022) analyzed the critical success factors influencing the adoption of disruptive financial technology for financial inclusion in rural India, aiming to measure the impact of technology in promoting entrepreneurship in underdeveloped regions and future adoption of fintech in rural areas. Employing a quantitative approach with inferential statistics for hypothesis testing, the study utilizes exploratory factor analysis to identify critical factors and Structural Equation Modeling to measure the impact of fintech on financial inclusion in rural India. The findings reveal that factors related to social influence positively affect the behavioral intention to use financial technology in rural sectors, with end-user habit and perceived ease of use also playing significant roles. The study presents empirical evidence to inform policymakers, regulators, and investors about the critical success factors and growth drivers for fintech services, suggesting opportunities for the mobile service industry to offer low-cost services with maximum social benefits and for financial institutions to provide banking services via mobile to low-income customers in remote areas. These findings contribute valuable insights for stakeholders navigating the evolving financial landscape and underscore the potential of fintech to drive financial inclusion and economic growth in rural India.

Muganyi et al. (2022) examined the influence of fintech on the development of China's financial sector across 290 cities and 31 provinces from 2011 to 2018. Employing a two-stage least squares instrumental variable regression approach, the study corrects for cross-sectional dependency, simultaneity, and endogeneity of regressors to establish a positive association between fintech and financial development. The findings indicate that fintech contributes to financial sector development by enhancing access, depth, and savings within China's financial institutions, with a notable impact observed in the realm of regulatory technology (regtech). The study emphasizes the importance of regulatory policies that support balanced fintech sector growth while mitigating associated risks, highlighting the positive effects of policy measures such as interest rate liberalization on financial development. In conclusion, the paper proposes a policy framework for fostering balanced fintech sector growth in developing countries. These findings underscore the significant role of fintech in driving financial sector development and advocate for regulatory measures to harness its benefits effectively

while managing potential risks, offering valuable insights for policymakers and regulators alike in navigating the evolving financial landscape.

Odei-Appiah et al. (2022) analyzed the impact of FinTech usage on financial inclusion amidst the digital divide, aiming to address the lack of comprehensive theories on financial inclusion and the limited attention given to inhibitors such as the digital divide in existing FinTech literature. Employing the unified theory of acceptance and use of technology (UTAUT2) and the model of digital inequality, the study utilizes structural equation modeling on data collected from 282 respondents through an online survey. The findings reveal a positive influence of FinTech usage on financial inclusion, as well as the significant effects of performance expectancy and facilitating conditions on behavioral intentions. Additionally, the study highlights the moderating role of the digital divide, measured by access, resources, and force, in influencing the use of FinTech. These findings contribute to a deeper understanding of the dynamics between FinTech adoption, financial inclusion, and the digital divide, emphasizing the need for targeted strategies to address barriers to access and utilization of FinTech services, particularly among marginalized populations.

Heng and Tok (2022) investigated the role of Fintech in financial inclusion by utilizing Global Findex data and emerging fintech indicators. Through their empirical analysis, they find that Fintech exhibits a stronger positive correlation with digital financial inclusion compared to traditional measures of financial inclusion. In a subsequent stage of their investigation, the authors examine the factors associated with the Fletcher School's three digital divides: gender, class (rich-poor), and rural divides. The results suggest that increased fintech usage is significantly linked to a reduction in the class and rural divides but has no discernible impact on the gender divide. This implies that while Fintech plays a crucial role in narrowing certain aspects of financial inclusion, it may not be adequate to address gender disparities in access to financial services. The study suggests that alongside fintech development, targeted policy interventions aimed at directly addressing gender disparities and altering social norms may be necessary to bridge the gender gap in financial access. These findings underscore the importance of a comprehensive approach that combines fintech innovation with targeted policy measures to achieve inclusive financial systems.

Aloulou et al. (2023) assessed the financial technology (FinTech) and its impact on the banking sector's competitiveness and performance amidst the backdrop of the COVID-19 pandemic. Employing a quantitative research approach, the study utilizes data from 260 banking authorities and administrators in the UAE to validate their research model. The findings suggest that FinTech adoption significantly influences the competitiveness and performance of the UAE banking industry, particularly during challenging times such as the COVID-19 pandemic. The research underscores the importance of effective FinTech implementation and alignment with technology management practices in enhancing the banking sector's performance. This study provides valuable insights into the role of FinTech in driving innovation and competitiveness within the UAE banking sector, highlighting the importance of continued investment in digital transformation for sustainable growth and resilience in the face of adversity.

Asif et al. (2023) examined the impact of fintech and digital financial services on financial inclusion in India, noting a significant improvement in India's financial inclusion landscape over recent years, with approximately 80% of Indians now possessing bank accounts. Employing regression and correlation analysis on secondary data from the RBI, the study aims to elucidate the influence of fintech on financial inclusion, particularly targeting the underbanked segments of the population. The findings indicate that fintech businesses have played a substantial role in enhancing financial inclusion in India, particularly benefiting the middle class. These results hold significant implications for policymakers striving to integrate all individuals into the formal financial system, underscoring the importance of fostering fintech innovation to expand financial access and inclusion in the country.

Telukdarie and Mungar's (2023) investigated the relationship between financial inclusion and economic growth in Africa, acknowledging the continent's rapid economic expansion alongside persistent poverty and inequality. With a focus on the potential of digital financial technology, including Artificial Intelligence, the study aims to explore its role in advancing financial inclusion, particularly for rural populations with limited access to traditional financial services. Employing a review methodology, the authors synthesize existing literature to examine the impact of financial inclusion on economic development and the potential of digital technologies in fostering inclusive growth. The review reveals substantial evidence supporting the positive correlation between financial inclusion and economic progress, highlighting the

transformative potential of digital tools. The findings underscore the significance of leveraging digital financial technology, including AI, to bridge the gap in financial access and empower marginalized communities. The conclusion emphasizes the need for concerted efforts to harness these technologies to accelerate financial inclusion, thereby unlocking broader economic opportunities and driving sustainable development in Africa.

Amnas et al. (2024) explored the potential of financial technology (FinTech) in promoting financial inclusion, with a focus on understanding the drivers of FinTech usage and its impact on access to financial services, considering the mediating role of digital financial literacy and the moderating effect of perceived regulatory support. The research employed partial least squares structural equation modeling (PLS-SEM) to analyze data collected from 608 FinTech users in India. The findings indicated that trust, service quality, and perceived security are crucial factors influencing the adoption of FinTech services, which in turn positively impacts financial inclusion by facilitating access to formal financial services. Moreover, the study identified digital financial literacy as a key mediator in the relationship between FinTech usage and financial inclusion, highlighting its importance in enhancing financial access and inclusion. Additionally, perceived regulatory support was found to significantly moderate the relationship between FinTech and financial inclusion.

Menza et al. (2024) analyzed the impact of financial technology (Fintech) on financial inclusion in Ethiopia, within the context of the rapidly evolving digital economy. By collecting secondary data from nine commercial banks spanning the years 2015 to 2020, the study employed a random effects model to estimate the influence of various explanatory variables on financial inclusion. The authors found that ATM, mobile banking, point-of-sale (POS) systems, and agent banking significantly and positively affected financial inclusion in Ethiopia. These findings underscore the importance of leveraging digital financial technologies to achieve financial inclusion objectives, particularly in both rural and urban areas. The study suggests that increasing the adoption of Fintechs can contribute positively to the financial inclusion strategies of policymakers and banking practitioners, ultimately aiding in socio-economic enhancement, especially in developing countries like Ethiopia, amidst the digital economic era.

Table 1

International Context

S.N.	Author(s)	Variables	Methodologies	Major Findings
1	Salampasis and Mention (2018)	Financial exclusion, financial inclusion, FinTech, equality	Literature review	Financial exclusion exacerbates global economic inequality; FinTech holds promise in bridging the gap between unbanked populations and developed societies, potentially driving societal transformation towards inclusive economic growth.
2	Baber (2019)	Islamic finance, conventional finance, financial inclusion, FinTech utilization	Comparative analysis, Data analysis	Islamic finance countries demonstrate higher financial inclusion and empowerment of women; conventional finance countries exhibit more FinTech users; future research should explore additional indicators of financial inclusion.
3	Mehrotra (2019)	Financial inclusion, FinTech, traditional players, regulation, service quality, technological innovation	Literature review	FinTech revolution impacts service quality and delivery; regulation necessary to balance innovation with compliance; emphasizes prioritizing service orientation over commercial interests.
4	Beck (2020)	Financial innovation, digital financial	Literature review	Digital financial innovation expands finance access; regulatory implications;

		innovation, financial inclusion		COVID-19 may accelerate digitalization trends, strengthening bigtech companies' roles in finance.
5	Demir et al. (2020)	FinTech, financial inclusion, income inequality	Quantile regression analysis	FinTech reduces income inequality through financial inclusion; impact more pronounced in higher-income countries.
6	Oshora et al. (2021)	Financial inclusion, account ownership, FinTech adoption, barriers to FinTech innovation	Survey, Literature review	Significant growth in account ownership but substantial portion lacks access; barriers include lack of funds, limited access to institutions, low mobile/internet penetration, inadequate documentation; need for investment in financial literacy, business environment improvements, and digital integration in strategic plans.
7	Goswami et al. (2022)	Financial inclusion, FinTech adoption, social influence, habit, ease of use	Quantitative analysis	Social influence, habit, and ease of use positively affect fintech adoption in rural India; potential for mobile service industry to offer low-cost, socially beneficial services; financial institutions can provide banking services via mobile in remote areas.
8	Muganyi et al. (2022)	Financial development, FinTech,	Instrumental variable regression	FinTech contributes to financial development by enhancing access, depth, and savings in

		regulatory policies		financial institutions; emphasizes need for regulatory policies supporting balanced fintech growth.
9	Odei-Appiah et al. (2022)	Financial inclusion, FinTech usage, performance expectancy, facilitating conditions, digital divide	Structural equation modeling, Online survey	FinTech usage positively influences financial inclusion; performance expectancy and facilitating conditions significant in behavioral intentions; digital divide moderates FinTech use.
10	Heng and Tok (2022)	Digital financial inclusion, Fintech usage, digital divide, gender disparities	Regression analysis	Fintech correlates strongly with digital financial inclusion; reduced class and rural divides but not gender divide; comprehensive approach needed to address gender disparities.
11	Aloulou et al. (2023)	Banking competitiveness, banking performance, FinTech adoption, technology management practices	Quantitative analysis	FinTech adoption positively impacts UAE banking competitiveness and performance, particularly during the COVID-19 pandemic; underscores the importance of effective FinTech implementation and technology management.
12	Asif et al. (2023)	Financial inclusion, FinTech, digital financial services	Regression, Correlation analysis	Fintech businesses contribute to enhanced financial inclusion in India, particularly benefiting the middle class; suggests fostering

				fintech innovation for broader financial access and inclusion.
13	Telukdarie and Mungar (2023)	Economic growth, financial inclusion, digital financial technology	Literature review	Financial inclusion positively correlates with economic growth, particularly in Africa; digital technologies, including AI, hold potential to bridge financial access gap and empower marginalized communities.
14	Amnas et al. (2024)	Financial inclusion, FinTech usage, digital financial literacy, perceived regulatory support	Partial least squares structural equation modeling	Trust, service quality, and security influence FinTech adoption; digital financial literacy mediates FinTech's impact on financial inclusion; regulatory support moderates FinTech's effect on financial inclusion.
15	Menza et al. (2024)	Financial inclusion, ATM, mobile banking, POS systems, agent banking	Random effects regression model	ATM, mobile banking, POS systems, and agent banking positively affect financial inclusion in Ethiopia; emphasizes leveraging FinTech to enhance financial inclusion strategies in both rural and urban areas.

Nepalese context

Pant (2016) assessed the existing scenario of financial inclusion in Nepal, review policy measures implemented to enhance it, and provide recommendations for improvement. The author utilizes a combination of data assessment and policy review to analyze the challenges hindering financial inclusion in the country. The major findings highlight the persistent exclusion of a significant portion of the population from the formal

financial system due to factors such as low financial literacy, lack of infrastructure, and inadequate technology-based facilities. As a result, policy measures aimed at enhancing financial inclusion have not been effectively executed. The study concludes by proposing several recommendations, including the promotion of financial literacy programs, the introduction of digital financial services, the formulation of a National Financial Inclusion Strategy, and the implementation of a Financial Inclusion Roadmap, with a special emphasis on the role of microfinance institutions. The implication of this study underscores the critical need for comprehensive and targeted interventions to address the barriers to financial inclusion in Nepal.

Giri (2018) explored a roadmap for the digital transformation of Nepal and exploring the various dimensions of the Digital Nepal framework. Employing content analysis methodology, the researcher examines the Government of Nepal's initiative of Digital Nepal, positioning it as a broad conception aimed at driving socioeconomic growth and facilitating the achievement of sustainable development goals. The study outlines the Digital Nepal Framework, comprising one nation, eight sectors, and 80 digital initiatives, emphasizing its role in guiding Nepal towards becoming a digital state. The paper identifies eight dimensions within the framework, including digital foundation, agriculture, health, education, energy, tourism, finance, and urban sectors, highlighting their significance in Nepal's digital journey. The author acknowledges the challenges ahead, particularly in infrastructure development and service and application, while noting the recent advancements in ICT development in the country.

Niraula and Adhikari (2019) examined the role of technology in promoting financial inclusion as a means to enhance income and foster inclusive economic development in Nepal. Employing a secondary data analysis approach, the researchers analyze relevant data on digital technology, financial access, and financial products and services. The study utilizes multiple regression analysis to investigate the relationship between mobile and internet access and the number of deposit accounts, serving as a proxy for financial inclusion. The findings reveal a significant and positive correlation between mobile and internet access and the number of deposit accounts, indicating the potential of technology adoption to broaden financial inclusion in Nepal. The conclusion emphasizes the importance of promoting mobile and internet usage among the population to improve financial inclusion, highlighting the role of technology in driving socioeconomic progress and inclusive development. The implication of this study

underscores the need for continued investment in technology infrastructure and policy frameworks to further enhance financial inclusion efforts in Nepal, ultimately fostering equitable economic growth and development across all segments of society.

Shrestha (2020) analyzed the evolution of financial inclusion in Nepal over time and compare it with other South Asian countries, particularly Sri Lanka and India, using available secondary data. The paper aims to assess the effectiveness of past policy initiatives in improving financial inclusion and identify areas where Nepal lags behind its regional counterparts. Utilizing a comparative analysis approach, the study examines various dimensions of financial inclusion, including access and usage of formal financial services. The findings indicate that while Nepal has made satisfactory progress in financial inclusion, it still trails behind countries like Sri Lanka and India in several aspects. Particularly concerning are the inadequate and unequal access and low usage of credit, highlighting the need for comprehensive measures to enhance inclusivity in the financial system. The study concludes by advocating for the adoption of modern technology, implementation of inclusive policies, awareness campaigns, and increased benefits to promote access to finance and boost the usage of formal financial services, ultimately fostering meaningful financial inclusion.

Rahman (2023) investigated the factors influencing digital financial inclusion in Nepal's Madhesh Province, recognizing its importance in reducing poverty, promoting economic growth, and supporting secondary sectors. Employing a quantitative research approach, the study examines societal behavior regarding digital financial inclusion and identifies key components that facilitate it. The research utilizes regression analysis to assess the impact of digital banking access, usage, and quality on digital financial inclusion. The findings reveal a significant positive relationship between digital banking access, usage, and quality, emphasizing their crucial role in achieving digital financial inclusion. The study also highlights a high rate of voluntary exclusion in Madhesh Province, underscoring the need for targeted interventions to promote digital financial inclusion. The implication of this research suggests that by addressing factors such as access, usage, and quality, the banking industry and policymakers can enhance digital financial inclusion, thereby fostering socioeconomic development in the region.

Table 2

Nepalese Context

S.N.	Author(s)/Year	Variables	Methodologies	Major Findings
1	Pant (2016)	Financial inclusion, Policy measures	Data assessment, Policy review	Persistent exclusion from formal financial system, Challenges hindering inclusion, Recommendations for improvement
2	Giri (2018)	Digital transformation, Digital Nepal Framework	Content analysis	Government's initiative of Digital Nepal, Digital Nepal Framework, Challenges and advancements in ICT development
3	Niraula and Adhikari (2019)	Technology adoption, Financial access	Secondary data analysis, Multiple regression	Positive correlation between technology access and financial inclusion, Importance of promoting mobile and internet usage
4	Shrestha (2020)	Financial inclusion, Policy initiatives	Multiple Regression Analysis	Progress of financial inclusion in Nepal, Lag compared to other South Asian countries, Recommendations for improvement
5	Rauniyar et al. (2021)	FinTech innovation, Digital financial inclusion	Descriptive, Correlation and Regression	Positive and negative dimensions of FinTech's role in financial inclusion, Future prospects and limitations
6	Risal and Pandey (2021)	Financial accessibility, Financial literacy	Descriptive and analytical research design, Regression	Urban-centered financial services, Low literacy and inclusiveness, Policy implications

7	Tan (2022)	Digital banking, Fintech sandbox	Literature review, Conceptual analysis	Potential benefits of Fintech sandbox in Nepal, Role of legal community, Implications for financial inclusion
8	Rahman (2023)	Digital financial inclusion, Banking access	Quantitative research, Regression analysis	Positive relationship between digital banking access, usage, and quality, High rate of voluntary exclusion

2.2 Research gap

In the context of Nepal, there is a distinct lack of comprehensive research on the impact of financial technology (fintech) startups in driving innovation and financial inclusion. While there have been some studies conducted on the adoption and usage of fintech services in Nepal, there is a significant research gap in understanding the specific challenges and opportunities faced by fintech startups in the country. One research gap that needs to be addressed is the limited understanding of the regulatory environment and its implications for fintech startups in Nepal. Fintech startups operate within a complex regulatory landscape, and it is crucial to assess how these regulations impact their ability to innovate and provide inclusive financial services. Exploring the regulatory challenges faced by fintech startups in Nepal, such as licensing requirements, data protection, and consumer protection regulations, would shed light on the barriers they face and the potential for regulatory reforms to foster fintech innovation and financial inclusion. The research gap in the context of Nepal lies in the limited understanding of the regulatory environment, the specific needs and preferences of the Nepalese population, the effectiveness of fintech platforms in promoting financial literacy, and the social and economic impact of fintech startups. Addressing these research gaps would not only contribute to the academic literature on fintech but also provide actionable insights for policymakers and stakeholders to foster innovation and financial inclusion in Nepal's financial sector.

CHAPTER III
RESEARCH METHODOLOGY

This chapter outlines the methodological approach employed in the study, detailing the research design that integrates both descriptive and causal methodologies. It describes the population and sample selection, the nature and sources of data, and the data collection procedures. Additionally, it presents the research framework and the methods of analysis used to examine the data, including descriptive statistics, correlation analysis, and regression analysis.

3.1 Research design

The research design employed in this study has integrates elements of both descriptive and causal comparative methodologies to effectively address the study objectives. The descriptive research aspect aims to comprehensively define and characterize the variables under investigation. This involves the development of survey instruments tailored to the research objectives and the use of convenience sampling techniques to ensure representation across diverse stakeholder groups within the FinTech ecosystem. Through structured questionnaire surveys, data is collected to provide detailed insights into the perceptions and experiences of respondents regarding FinTech and financial inclusion. The causal research design seeks to establish causal relationships between independent variables and dependent variable (financial inclusion). By systematically examining the associations between variables, the study amid to elucidate the extent to which FinTech influences financial inclusion. The combined research design enables a systematic exploration of the role of FinTech in driving innovation and financial inclusion.

3.2 Population and sample, and sample design

The population for this study comprises individuals involved in the financial technology (FinTech) sector, including employees at management levels in FinTech companies, government officials related to financial regulation and policymaking, academics, and professors with expertise in finance and technology. The sample size consists of 385 respondents selected through purposive sampling to ensure representation from various stakeholders within the FinTech ecosystem. Convenience sampling was chosen for this study to ensure that the sample accurately represents the diverse perspectives within the FinTech ecosystem. Given the specific focus on individuals with relevant expertise and

involvement in the FinTech sector, it is crucial to select respondents who can provide informed insights.

3.3 Nature and source of data

The data collected for this study consisted of quantitative measurements aimed at investigating the relationships between variables relevant to financial technology (FinTech) and financial inclusion. The primary data source comprised structured questionnaire surveys administered to a diverse sample population, including management-level employees in FinTech firms, government officials, academics, and professors. These surveys are designed to capture quantitative data through Likert scale items, allowing for a detailed examination of respondents' perspectives on key variables outlined in the research framework.

3.4 Data collection procedures

Data for this study is primarily collected through a structured questionnaire administered to the selected respondents. The questionnaire is design to gather information on the variables outlined in the research framework, including financial inclusion, FinTech adoption, regulatory environment, technological infrastructure, digital literacy, economic conditions and government policies. The questionnaire incorporates Likert scale items to measure respondents' perceptions and opinions regarding these variables.

3.5 Research framework and definition of variables

The variables in this research framework, including financial inclusion as dependent variables and fintech adoption, regulatory environment, technological infrastructure, digital literacy, economic conditions, and government policies as independent variables, are derived from insights provided by Salampasis and Mention (2018), Oshora et al. (2021), Aloulou et al. (2023) and Asif et al. (2023). Salampasis and Mention (2018) offer valuable perspectives on fintech adoption and its role in driving financial innovation and inclusion. Oshora et al. (2021) contribute insights into the significance of technological infrastructure and the regulatory environment in fostering financial inclusion through fintech solutions. Aloulou et al. (2023) provide insights into the impact of government policies, particularly amidst challenging economic conditions such as the COVID-19 pandemic. Asif et al. (2023) delve into the importance of digital literacy in enhancing financial inclusion, emphasizing the need for comprehensive

approaches to address barriers to access. By integrating findings from these studies, this study research framework aims to provide a comprehensive understanding of the fintech role in driving financial innovation and financial inclusion, offering valuable insights for stakeholders in the financial sector.

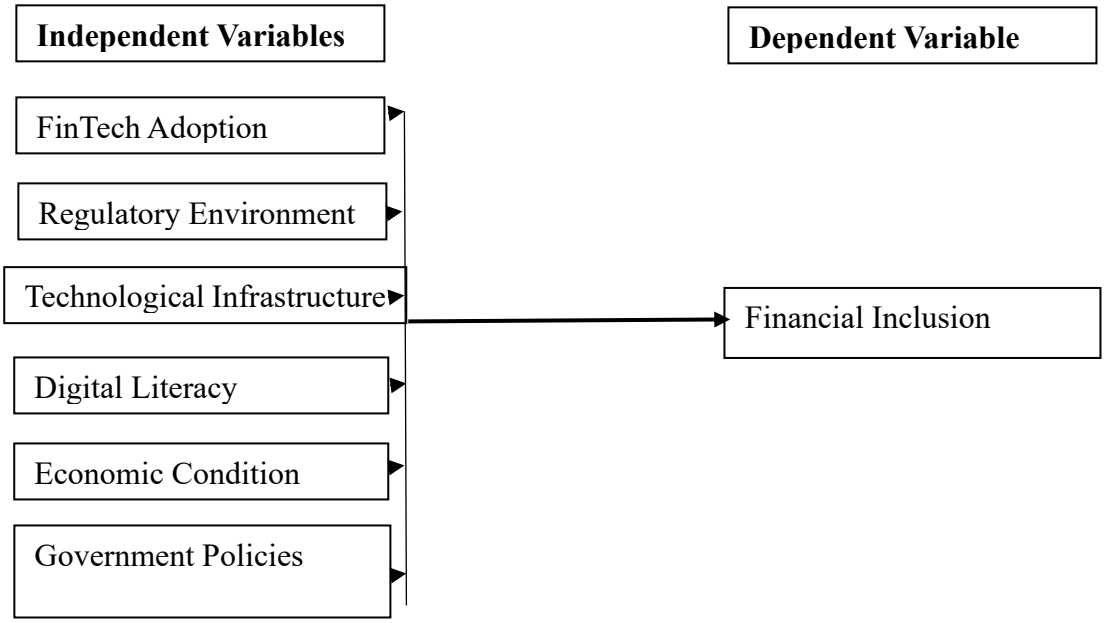

Figure 1 *Research Framework*

Source: Salampasis and Mention (2018); Oshora et al. (2021); Aloulou et al. (2023); Asif et al. (2023)

Financial inclusion

Financial inclusion, as defined in the literature (Demir et al., 2020; Asif et al., 2023), encapsulates the accessibility and utilization of a broad spectrum of formal financial services by individuals and businesses, particularly those traditionally marginalized or excluded from conventional banking systems. It encompasses not only the availability and affordability of financial products and services like savings accounts, credit facilities, insurance, and payment mechanisms but also the degree to which these services are accessed and utilized by diverse segments of the population. Financial inclusion seeks to empower individuals economically, enhance their financial resilience, and contribute to broader socio-economic development goals by ensuring that all members of society have the opportunity to participate fully in the financial system.

FinTech adoption

FinTech adoption, as elucidated in the literature (Asif et al., 2023; Menza et al., 2024; Beck, 2020), signify the dynamic process of introducing and embracing novel financial products, services, and technologies within the financial landscape. This encompasses a wide array of innovations, including digital platforms, mobile banking applications, blockchain technology, peer-to-peer lending platforms, and other fintech solutions aimed at revolutionizing the delivery and accessibility of financial services. Financial innovation and fintech adoption represent a paradigm shift in the traditional banking sector, leveraging technological advancements to enhance efficiency, transparency, and inclusivity in financial service provision, thus addressing longstanding barriers to financial access and inclusion.

Regulatory environment

The regulatory environment, as described in the literature (Beck, 2020; Odei-Appiah et al., 2022), constitutes the framework of laws, regulations, policies, and supervisory mechanisms established by regulatory authorities to govern the operations and conduct of financial institutions and market participants. This encompasses a wide range of measures designed to ensure the stability, integrity, and fairness of financial markets, as well as to protect consumers, promote market competition, and foster innovation while mitigating risks and safeguarding systemic stability. The regulatory environment plays a pivotal role in shaping the operating landscape for financial service providers and influences the level of consumer trust, market confidence, and investor sentiment within the financial ecosystem.

Technological infrastructure

Technological infrastructure, as articulated in the literature (Oshora et al., 2021; Amnas et al., 2024), comprises the physical and virtual components necessary to support the delivery and uptake of digital financial services. This encompasses telecommunications networks, internet connectivity, digital platforms, and information systems that form the backbone of digital financial ecosystems. Technological infrastructure plays a foundational role in enabling financial innovation and expanding access to financial services, particularly in remote and underserved areas where traditional banking infrastructure may be limited or nonexistent. A robust technological infrastructure facilitates seamless transactions, enhances data security, and promotes financial

inclusion by overcoming geographical barriers and increasing the reach of financial services to previously underserved populations.

Digital literacy

Digital literacy, as defined in the literature (Amnas et al., 2024; Telukdarie and Mungar, 2023), encompasses the knowledge, skills, and competencies required to effectively navigate and utilize digital technologies and online platforms for financial purposes. This includes proficiency in internet usage, mobile banking applications, cybersecurity awareness, and the ability to critically evaluate and manage digital financial risks and opportunities. Digital literacy plays a crucial role in facilitating individuals' engagement with digital financial services, enabling them to make informed financial decisions, protect their digital assets, and capitalize on the benefits of digital financial innovation. Moreover, digital literacy initiatives can help bridge the digital divide by empowering individuals with the skills and confidence needed to access and leverage digital financial tools effectively.

Economic conditions

Economic conditions, as outlined in the literature (Pant, 2016; Menza et al., 2024), encompass the macroeconomic factors and trends that influence the overall economic environment, including GDP growth, income levels, employment rates, inflation, and economic stability. These conditions shape individuals' financial behaviors, preferences, and access to resources, thereby impacting their ability to participate in and benefit from formal financial services. Favorable economic conditions, characterized by robust economic growth, rising incomes, and low unemployment, tend to correlate with higher levels of financial inclusion, as individuals have greater resources and confidence to engage with formal financial institutions and services. Conversely, adverse economic conditions may exacerbate financial exclusion by limiting individuals' capacity to save, invest, or access credit, highlighting the interplay between macroeconomic factors and financial inclusion outcomes.

Government policies

Government policies, as articulated in the literature (Telukdarie and Mungar, 2023; Rahman, 2023), encompass the regulatory measures, initiatives, and interventions implemented by public authorities to promote financial inclusion, regulate the financial sector, and address socio-economic inequalities. These policies may include measures

to expand access to financial services, enhance consumer protection, promote digital infrastructure development, and foster inclusive economic growth and development. Government policies play a crucial role in shaping the regulatory framework and institutional incentives that govern financial service provision, influencing the extent to which financial services are accessible, affordable, and inclusive for all segments of society. Moreover, proactive policy interventions can help address structural barriers to financial inclusion, such as lack of access to banking infrastructure, limited financial literacy, and entrenched socio-economic disparities, thus fostering a more inclusive and equitable financial ecosystem.

3.6 Method of analysis

Quantitative data analysis techniques are employed to analyze the collected data and test the relationships between the variables. Descriptive statistics, such as frequencies, means, and standard deviations, are utilized to summarize the characteristics of the sample and the distribution of responses. Inferential statistical methods, including correlation analysis and regression analysis, are employed to examine the associations and causal relationships between the independent and dependent variables. In this study, the SPSS software is used to examine the relationships between variables.

Descriptive statistics

Descriptive statistics will be employed in this study using SPSS software to provide a comprehensive summary of the dataset. Measures mean, standard deviation and range were computed to describe the central tendency and distribution of variables. These statistics offer valuable insights into the characteristics of the dataset, facilitating a better understanding of the underlying data structure and variability. Descriptive statistics help researchers to identify trends, outliers, and potential patterns within the data, thus laying the groundwork for further analysis.

Correlation analysis

Correlation analysis is conducted in this study to explore the relationships between variables. Utilizing SPSS software, Pearson's correlation coefficient are computed to assess the strength and direction of associations among variables. This analysis helps to identify potential patterns or dependencies between pairs of variables, providing insights into their interrelationships. Correlation analysis is essential for understanding

the extent to which variables co-vary with each other, guiding researchers in identifying potential predictors or factors influencing the outcome variables.

Regression analysis

Regression analysis is utilized in this study to examine the predictive power of independent variables on the dependent variables, financial innovation and financial inclusion. SPSS software is employed to perform multiple regression analysis, allowing for the estimation of the relationship between multiple independent variables and the dependent variables. This analytical approach will help to determine the extent to which variations in the independent variables are associated with changes in the dependent variables, thus enabling researchers to identify significant predictors and their respective contributions to the outcomes of interest. The following regression model is used in this study:

$FI = \beta_0 + \beta_1 FA + \beta_2 RE + \beta_3 TI + \beta_4 DL + \beta_5 EC + \beta_6 GP + \acute{\varepsilon}$ ……(ii)

FI= Financial Inclusion

β_0 = Constant Variable

FA = Fintech Adoption

RE= Regulatory Environment

TI= Technological Infrastructure

DL= Digital Literacy

EC= Economic Conditions

GP= Government Policies

$\acute{\varepsilon}$ = Error Term

CHAPTER IV
RESULTS AND DISCUSSION

The results and discussion chapter displays and evaluates research results, making it essential. Start with the results, which are presented using descriptive statistics to show mean, standard deviation, minimum, and maximum values. These measures show the dataset's main trends and variability. Then correlation and regression analysis is performed to examine the relationship and effect of fintech and digital financial services on financial inclusion. The discussion part then analyzes and interprets these results, referring them to the literature and comparing them to past investigations. A full narrative that summarizes the study results and contextualizes and evaluates their field value requires this chapter.

4.1 Results

The results section covers respondent demographics, descriptive statistics of research variables, and inferential statistics. FinTech adoption, regulatory environment, technical infrastructure, digital literacy, economic situation, and government policies are summarized by descriptive statistics, including mean and standard deviation. Correlation and regression studies explore variable connections in inferential statistics. Correlation study shows how FinTech acceptance, regulatory environment, technical infrastructure, digital literacy, economic situation, government policies, and financial inclusion are related. Regression analysis shows key predictors and quantifies their effects on financial inclusion by measuring each variable's predictive power.

Demographic profile of respondents

This study's respondents have a wide demographic profile that helps understand the results. The sample includes a fair mix of young people, middle-aged, and senior respondents, representing diversified population. Near-equal gender representation ensures male and female opinions are reflected. Participants' education levels range from secondary to higher degrees, showing a diverse educational background. This broad demographic profile is essential for analyzing FinTech and digital financial services' impact on financial inclusion. The demographic profile of respondents is presented in Table 3.

Table 3

Demographic Profile of Respondents

Items	Categories	Frequency	Percent
Gender	Male	210	54.55
	Female	175	45.45
Age Group	18-24	50	12.99
	25-34	135	35.06
	35-50	140	36.36
	50 and above	60	15.58
Education	SLC	45	11.69
	Plus Two	60	15.58
	Bachelor Degree	190	49.35
	Masters and above	90	23.38
Employment	Employed	180	46.75
	Businessman	80	20.78
	Student	95	24.68
	Retired	30	7.79
Monthly Income	Less than NPR 30,000	40	10.39
	NPR 30,001 - NPR 50,000	110	28.57
	NPR 50,001 - NPR 75,000	120	31.17
	NPR 75,001 - NPR 100,000	75	19.48
	More than NPR 100,000	40	10.39
Total		385	100

Source: Survey, 2024

Table 3 shows a demographic profile of respondents in study the influence of FinTech and digital financial services on financial inclusion in Nepal. There is a small majority of male respondents (54.55%) compared to female respondents (45.45%), which indicates a stronger representation of men while still maintaining a somewhat balanced sample. The gender distribution reveals a small majority of male respondents.

Age-wise, the biggest group consists of people who are between the ages of 25 and 34 (35.06%), closely followed by those who are between the ages of 35 and 50 (36.36%).

Those who are between the ages of 18 and 24 make up 12.99% of the responses, while those who are 50 and over make up 15.58%. This demonstrates that people of varying ages are using FinTech services.

In terms of education 49.35% of the respondents have earned a bachelor's degree, and 23.38 percent of them have earned a master's diploma or above. This indicates that the majority of the respondents have completed their education. There is also a representation of individuals with education levels ranging from SLC (11.69%) to Plus Two (15.58%), which indicates that the respondents have various degrees of digital literacy and access to technology. The majority of the population (46.75 percent) holds an employment status, with 20.78 percent being company owners and 24.68 percent being students. There is a lower number of retired persons (7.79%), which shows that this demographic has certain requirements and difficulties when it comes to embracing FinTech services.

Individuals earning between NPR 50,001 and NPR 75,000 constitute the largest group in terms of monthly income, accounting for 31.17%, while those earning between NPR 30,001 and NPR 50,000 make up 28.57% of the total. Individuals with salaries ranging from less than NPR 30,000 to more than NPR 100,000 make up 10.39% of the sample, while those earning between NPR 75,001 and NPR 100,000 make up 19.48%. There is a wide range of capabilities for utilizing and profiting from financial technology services, as demonstrated by the various income distributions. When taken as a whole, the demographic statistics demonstrate a diversified sample in terms of age, education, work status, and income levels. This is critical for understanding the various effects and adoption rates of FinTech and digital financial services across different population groups. Furthermore, this diversity highlights the possible obstacles and possibilities that exist for promoting financial inclusion in Nepal through the implementation of specialized FinTech solutions.

Owned digital services

The sample respondents were asked about the digital devices they own and use regularly, including smartphones, tablets, laptops, desktop computers, and none. This question aimed to understand the level of access to digital technology among the respondents, which is crucial for engaging with FinTech and digital financial services. The response is presented in Table 4.

Table 4

Owned Digital Services

Owned Digital Services	Frequency	Percent
Smartphone	250	64.94
Tablet	80	20.78
Desktop Computer	55	14.29
None	0	0
Total	385	100.00

Source: Survey, 2024

Table 4 shows the data on owned digital devices shows a significant majority of respondents, 64.94%, own and regularly use smartphones. Tablets are the second most commonly owned device at 20.78%, followed by desktop computers at 14.29%. No respondents indicated that they do not own any digital devices. This high ownership of digital devices, especially smartphones, indicates a strong potential for engagement with digital financial services among the respondents.

Usage of internet

Respondents were queried on their frequency of internet usage, ranging from multiple times a day to never. This information is essential to gauge their digital engagement and potential ease of accessing online financial services. The response is detailed in Table 5.

Table 5

Usage of Internet

Usage of Internet	Frequency	Percent
Multiple Times a Day	290	75.32
Once a Day	65	16.88
A Few Times in Week	15	3.90
Once a Week	10	2.60
Less than Once a Week	5	1.30
Total	385	100.00

Source: Survey, 2024

Table 5 shows the internet usage data reveals that the vast majority of respondents, 75.32%, use the internet multiple times a day, while 16.88% use it once a day. A smaller

proportion of respondents use the internet a few times a week (3.90%), once a week (2.60%), or less than once a week (1.30%). This frequent internet usage highlights a high level of digital engagement, which is conducive to the adoption and use of FinTech services.

Own bank account

The survey included a question on whether respondents have a bank account, as this is a fundamental factor for accessing most FinTech services. The response is summarized in Table 6.

Table 6

Own Bank Account

Own Bank Account	Frequency	Percent
Yes	385	100
No	0	0
Total	385	100

Source: Survey, 2024

Table 6 indicate all respondents (100%) reported owning a bank account. This universal banking access is a critical enabler for financial inclusion and indicates that the foundational requirement for engaging with FinTech services is met for the entire sample population.

Usage of fintech services

Lastly, respondents were asked about their usage of FinTech services, such as mobile banking and online payment platforms. This question aimed to capture their actual engagement with digital financial services. The response is provided in Table 7.

Table 7

Usage of FinTech Services

Usage of FinTech Services	Frequency	Percent
Yes	385	100
No	0	0
Total	385	100

Source: Survey, 2024

Table 7 depicts that all respondents (100%) reported using FinTech services such as mobile banking and online payment platforms. This indicates a complete penetration of FinTech services among the sample population, reflecting high acceptance and usage of digital financial services.

Descriptive statistics

The descriptive statistics for this study were analyzed using SPSS 25.0, focusing on seven key variables, including the dependent variable. Each variable is measured through five specific statements, resulting in a total of 35 observations. For each statement, descriptive statistics such as the number of respondents (N), minimum (Min), maximum (Max), mean (Mean), and standard deviation (SD) were calculated.

Descriptive statistics of fintech adoption

FinTech Adoption captures the degree to which respondents are incorporating financial technology solutions into their everyday financial transactions and management. The measurement is conducted using a five-point Likert scale, where higher scores indicate a greater extent of adoption. Specifically, an average response above 3 signifies a general agreement with statements reflecting active adoption and utilization of FinTech services. The detailed responses of the participants, indicating their level of engagement with FinTech solutions, are compiled in Table 8.

Table 8

Descriptive Statistics of FinTech Adoption

Statements	N	Min	Max	Mean	S.D.
Fintech services are easily accessible in my region.	385	1.00	5.00	3.49	0.81
I regularly use fintech services for my financial transactions.	385	1.00	5.00	3.52	0.82
Fintech services have made financial transactions more convenient for me.	385	2.00	5.00	3.61	0.74
I trust the security of fintech services for my financial needs.	385	1.00	5.00	3.58	0.79
The availability of fintech services has improved my overall financial inclusion.	385	1.00	5.00	3.59	0.76
FinTech Adoption	385	1.40	5.00	3.57	0.55

Source: Survey, 2024

Firstly, the accessibility of fintech services in the region is moderately high, with an average rating of 3.49 out of 5. This suggests that a significant number of respondents find fintech services within their reach. Secondly, the regular usage of fintech services for financial transactions is also moderately high, with an average rating of 3.52. This indicates that many respondents are actively using fintech services for their financial needs. Thirdly, the convenience brought about by fintech services in financial transactions is slightly higher than the first two aspects, with an average rating of 3.61. This shows that respondents appreciate the ease and efficiency offered by fintech services.

Fourthly, the trust in the security of fintech services for financial needs is moderately high, with an average rating of 3.58. This suggests that respondents have a fair amount of confidence in the security measures of fintech services. Fifthly, the impact of fintech services on overall financial inclusion is moderately high, with an average rating of 3.59. This indicates that fintech services have played a significant role in improving financial inclusion among the respondents. Lastly, the overall adoption of fintech is moderately high, with an average rating of 3.57. This suggests that a considerable number of respondents have embraced fintech in their financial activities. The standard deviation of 0.55 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about the adoption of fintech. The results indicate a positive role of fintech and digital financial services in enhancing financial inclusion in Nepal.

Descriptive statistics of regulatory environment

The regulatory environment conducts an analysis of the regulatory framework that governs FinTech and digital financial services, including an assessment of the appropriateness and consistency of the rules that are already in place. A Likert scale with five points is used to quantify the levels of perception held by respondents. Those who had an average score that was more than three indicate that they believe the regulatory environment is friendly and supportive of advances in the financial technology sector. Table 9 provides a summary of the data, which includes participants' perspectives on the regulatory rules and the influence such policies have on the ecosystem of the financial technology industry.

Table 9

Descriptive Statistics of Regulatory Environment

Statements	N	Min	Max	Mean	S.D.
The regulatory environment in Nepal supports the growth of fintech services.	385	1.00	5.00	3.56	0.82
I am aware of the regulations governing fintech services in Nepal.	385	1.00	5.00	3.45	0.75
The government effectively enforces regulations related to fintech services.	385	1.00	5.00	3.58	0.83
Regulatory policies have made fintech services safer for users.	385	1.00	5.00	3.51	0.77
The current regulations encourage innovation in the fintech sector.	385	1.00	5.00	3.63	0.87
Regulatory Environment	385	1.00	5.00	3.54	0.60

Source: Survey, 2024

Firstly, the perception that the regulatory environment in Nepal supports the growth of fintech services is moderately high, with an average rating of 3.56 out of 5. This suggests that respondents generally feel that the regulations are conducive to the development of fintech services. Secondly, awareness of the regulations governing fintech services in Nepal is slightly lower, with an average rating of 3.45. Thirdly, the effectiveness of government enforcement of regulations related to fintech services is moderately high, with an average rating of 3.58. This suggests that respondents generally believe that the government is doing a good job in enforcing fintech-related regulations.

Fourthly, the belief that regulatory policies have made fintech services safer for users is moderately high, with an average rating of 3.51. This indicates that respondents generally feel safer using fintech services due to the existing regulatory policies. Fifthly, the perception that current regulations encourage innovation in the fintech sector is slightly higher than the other aspects, with an average rating of 3.63. This suggests that respondents believe that the regulations are not stifling innovation, but rather promoting it. Lastly, the overall perception of the regulatory environment is moderately high, with an average rating of 3.54. The standard deviation of 0.60 indicates that the responses

are fairly close to the mean, suggesting a general consensus among the respondents about the regulatory environment. The study indicates that the regulatory environment for fintech services in Nepal is generally perceived as supportive and effective.

Descriptive statistics of technological infrastructure

Technological Infrastructure refers to the quality and robustness of the technological systems that facilitate the delivery of FinTech services. This variable is assessed using a five-point Likert scale, with higher average scores indicating a more favorable evaluation of the technological infrastructure. Specifically, an average response above 3 denotes agreement with the adequacy and reliability of the technological foundations supporting FinTech operations. The respondents' detailed feedback on this variable is presented in Table 10.

Table 10

Descriptive Statistics of Technological Infrastructure

Statements	N	Min	Max	Mean	S.D.
The technological infrastructure in Nepal supports the widespread use of fintech services.	385	1.00	5.00	3.54	0.84
Internet connectivity in my area is reliable enough for using fintech services.	385	1.00	5.00	3.48	0.82
Mobile network coverage is sufficient to access fintech services everywhere I go.	385	1.00	5.00	3.57	0.81
The necessary technology (smartphones, computers) to use fintech services is affordable.	385	1.00	5.00	3.56	0.88
Technological advancements have positively impacted the adoption of fintech services.	385	1.00	5.00	3.50	0.80
Technological Infrastructure	385	1.40	5.00	3.53	0.63

Source: Survey, 2024

Firstly, the perception that the technological infrastructure in Nepal supports the widespread use of fintech services is moderately high, with an average rating of 3.54 out of 5. This suggests that respondents generally feel that the technological infrastructure is conducive to the use of fintech services. Secondly, the reliability of internet connectivity for using fintech services is slightly lower, with an average rating of 3.48. Thirdly, the sufficiency of mobile network coverage to access fintech services

is moderately high, with an average rating of 3.57. This suggests that respondents generally believe that they can access fintech services everywhere they go.

Fourthly, the affordability of the necessary technology (smartphones, computers) to use fintech services is moderately high, with an average rating of 3.56. This indicates that respondents generally find the necessary technology affordable. Fifthly, the impact of technological advancements on the adoption of fintech services is moderately high, with an average rating of 3.50. Lastly, the overall perception of the technological infrastructure is moderately high, with an average rating of 3.53. The standard deviation of 0.63 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about the technological infrastructure.

Descriptive statistics of digital literacy

Digital literacy measures the respondents' ability to effectively navigate and utilize digital tools and platforms associated with FinTech services. The level of digital literacy among users is assessed using a five-point Likert scale, where an average score above 3 indicates that respondents generally agree with the adequacy of their digital skills and knowledge. Insights into respondents' digital competency, crucial for effective FinTech adoption, are detailed in Table 11.

Table 11

Descriptive Statistics of Digital Literacy

Statements	N	Min	Max	Mean	S.D.
I am comfortable using digital platforms for financial transactions.	385	1.00	5.00	3.62	0.82
There are enough resources available to learn about using fintech services.	385	1.00	5.00	3.62	0.81
Educational programs on digital financial literacy are widely available in my community.	385	1.00	5.00	3.73	0.90
I understand how to use various fintech applications and services.	385	1.00	5.00	3.55	0.85
Increasing digital literacy can significantly enhance financial inclusion.	385	1.00	5.00	3.71	0.88
Digital Literacy	385	1.20	5.00	3.65	0.66

Source: Survey, 2024

Firstly, the comfort level of using digital platforms for financial transactions is moderately high, with an average rating of 3.62 out of 5. This suggests that respondents generally feel comfortable using digital platforms for their financial needs. Secondly, the availability of resources to learn about using fintech services is also moderately high, with an average rating of 3.62. This indicates that respondents generally feel that there are enough resources available to learn about fintech services. Thirdly, the availability of educational programs on digital financial literacy in the community is slightly higher than the first two aspects, with an average rating of 3.73. This suggests that respondents generally believe that educational programs on digital financial literacy are widely available in their community.

Fourthly, the understanding of how to use various fintech applications and services is moderately high, with an average rating of 3.55. This indicates that respondents generally understand how to use various fintech applications and services. Fifthly, the belief that increasing digital literacy can significantly enhance financial inclusion is moderately high, with an average rating of 3.71. This suggests that respondents believe that increasing digital literacy can significantly enhance financial inclusion. Lastly, the overall perception of digital literacy is moderately high, with an average rating of 3.65. The standard deviation of 0.66 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about digital literacy.

Descriptive statistics of economic condition

The economic condition provides an analysis of the ways in which the current economic climate affects the use of financial technology services. A Likert scale with five points is used to collect responses, and a score that is more than three on average indicates that respondents believe the current economic circumstances are favorable to the expansion of the financial technology industry. This optimistic prognosis is a reflection of a number of economic aspects, such as sustainability, growth expectations, and consumer spending power, all of which are considered to be crucial in boosting the adoption of FinTech solutions. The data shows the perspectives of the respondents about the ways in which economic issues such as sustainability, growth, and the purchasing power of consumers influence the adoption of FinTech. presented in Table 12 is a compilation of these ideas.

Table 12

Descriptive Statistics of Economic Condition

Statements	N	Min	Max	Mean	S.D.
My current economic situation allows me to use fintech services regularly.	385	1.00	5.00	3.55	0.85
The economic environment in Nepal supports the growth of fintech services.	385	1.00	5.00	3.58	0.85
Fintech services have provided me with better economic opportunities.	385	1.00	5.00	3.64	0.87
My income level influences my ability to use fintech services.	385	1.00	5.00	3.50	0.84
Economic stability in Nepal positively affects the adoption of fintech services.	385	1.00	5.00	3.61	0.87
Economic Condition	385	1.00	5.00	3.58	0.66

Source: Survey, 2024

Firstly, the perception that the respondents' current economic situation allows them to use fintech services regularly is moderately high, with an average rating of 3.55 out of 5. This suggests that respondents generally feel that their economic situation does not hinder their regular use of fintech services. Secondly, the belief that the economic environment in Nepal supports the growth of fintech services is slightly higher, with an average rating of 3.58. This indicates that respondents generally feel that the economic conditions in Nepal are conducive to the growth of fintech services. Thirdly, the perception that fintech services have provided better economic opportunities is moderately high, with an average rating of 3.64. This suggests that respondents generally believe that fintech services have positively impacted their economic opportunities.

Fourthly, the influence of income level on the ability to use fintech services is moderately high, with an average rating of 3.50. This indicates that respondents generally feel that their income level influences their ability to use fintech services. Fifthly, the belief that economic stability in Nepal positively affects the adoption of fintech services is moderately high, with an average rating of 3.61. This suggests that respondents generally believe that economic stability in Nepal has a positive impact on

the adoption of fintech services. Lastly, the overall perception of the economic condition is moderately high, with an average rating of 3.58. The standard deviation of 0.66 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about the economic condition.

Descriptive statistics of government policies

Government Policies involve the initiatives and measures taken by the government to promote and support FinTech and digital financial services. Respondents rate the effectiveness of these policies using a five-point Likert scale. An average response above 3 indicates that respondents agree with the positive impact of government actions on the FinTech sector. Detailed perceptions of government support and its influence on the FinTech landscape are summarized in Table 13.

Table 13

Descriptive Statistics of Government Policies

Statements	N	Min	Max	Mean	S.D.
Government policies in Nepal support the growth of fintech and digital financial services.	385	1.00	5.00	3.63	0.83
I am aware of the government initiatives aimed at promoting financial inclusion.	385	1.00	5.00	3.61	0.82
Government policies have made fintech services more accessible to the population.	385	1.00	5.00	3.66	0.88
The government provides sufficient support for the development of fintech infrastructure.	385	1.00	5.00	3.61	0.84
Government initiatives have positively impacted my use of fintech services.	385	1.00	5.00	3.62	0.86
Government Policies	385	1.60	5.00	3.63	0.64

Source: Survey, 2024

Firstly, the perception that government policies in Nepal support the growth of fintech and digital financial services is moderately high, with an average rating of 3.63 out of 5. This suggests that respondents generally feel that government policies are conducive to the growth of fintech services. Secondly, the awareness of government initiatives aimed at promoting financial inclusion is slightly lower, with an average rating of 3.61. This indicates that while most respondents are aware of these initiatives, there is still a

significant portion that may not be fully informed. Thirdly, the perception that government policies have made fintech services more accessible to the population is moderately high, with an average rating of 3.66.

Fourthly, the belief that the government provides sufficient support for the development of fintech infrastructure is moderately high, with an average rating of 3.61. This indicates that respondents generally feel that the government is providing adequate support for fintech infrastructure development. Fifthly, the impact of government initiatives on the use of fintech services is moderately high, with an average rating of 3.62. Lastly, the overall perception of government policies is moderately high, with an average rating of 3.63. The standard deviation of 0.64 indicates that the responses are fairly close to the mean.

Descriptive statistics of financial inclusion

Financial Inclusion measures the extent to which FinTech services are making financial tools accessible to underserved and unbanked populations. Using a five-point Likert scale, responses that average above 3 indicate agreement that FinTech solutions are effectively enhancing financial inclusion. The data provides a comprehensive overview of respondents' views on the role of FinTech in bridging financial accessibility gaps. These responses are detailed in Table 14.

Table 14

Descriptive Statistics of Financial Inclusion

Statements	N	Min	Max	Mean	S.D.
I have easy access to banking services.	385	1.00	5.00	3.49	0.81
I regularly use financial services such as savings, credit, and insurance.	385	1.00	5.00	3.53	0.82
I feel included in the formal financial system.	385	1.00	5.00	3.49	0.81
Digital financial services have improved my financial well-being.	385	1.00	5.00	3.57	0.81
I have seen an improvement in my economic condition due to better access to financial services.	385	1.00	5.00	3.63	0.81
Financial Inclusion	385	1.20	4.60	3.54	0.54

Source: Survey, 2024

Firstly, the perception that respondents have easy access to banking services is moderately high, with an average rating of 3.49 out of 5. This suggests that respondents generally feel that banking services are within their reach. Secondly, the regular usage of financial services such as savings, credit, and insurance is slightly higher, with an average rating of 3.53. This indicates that many respondents are actively using these financial services. Thirdly, the feeling of inclusion in the formal financial system is moderately high, with an average rating of 3.49. This suggests that respondents generally feel included in the formal financial system.

Fourthly, the belief that digital financial services have improved financial well-being is moderately high, with an average rating of 3.57. This indicates that respondents generally believe that digital financial services have positively impacted their financial well-being. Fifthly, the perception of improvement in economic condition due to better access to financial services is slightly higher than the other aspects, with an average rating of 3.63. This suggests that respondents have seen an improvement in their economic condition due to better access to financial services. Lastly, the overall perception of financial inclusion is moderately high, with an average rating of 3.54. The standard deviation of 0.54 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about financial inclusion. The study indicates that financial inclusion in relation to fintech services in Nepal is generally perceived as good.

Summary of descriptive statistics

The summary of descriptive statistics offers an aggregated view of the responses for each variable: FinTech adoption, regulatory environment, technological infrastructure, digital literacy, economic condition, government policies, and financial inclusion. This comprehensive summary encapsulates the overall perceptions and insights of the respondents, highlighting areas of consensus and variation. The detailed data for each variable is systematically presented in Tables 3 through 9, providing a holistic understanding of the factors influencing the role of FinTech and digital financial services on financial inclusion. The summary of study variables is presented in Table 15.

Table 15

Summary of Descriptive Statistics

Variables	N	Min	Max	Mean	S.D.
FinTech Adoption	385	1.40	5.00	3.57	0.55
Regulatory Environment	385	1.00	5.00	3.54	0.60
Technological Infrastructure	385	1.40	5.00	3.53	0.63
Digital Literacy	385	1.20	5.00	3.65	0.66
Economic Condition	385	1.00	5.00	3.58	0.66
Government Policies	385	1.60	5.00	3.63	0.64
Financial Inclusion	385	1.20	4.60	3.54	0.54

Source: Survey, 2024

The fintech adoption has an average rating of 3.57 out of 5, which is moderately high. This suggests that a significant number of respondents have adopted fintech services in their daily lives. The standard deviation of 0.55 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about the adoption of fintech. This could be due to the increasing availability and accessibility of fintech services, as well as the convenience and efficiency they offer.

Regulatory environment has an average rating of 3.54. This indicates that respondents generally perceive the regulatory environment as moderately supportive of fintech services. The standard deviation of 0.60 suggests a moderate spread in the responses, indicating varying opinions among respondents. This could be due to differences in awareness and understanding of the regulatory environment among respondents.

Technological infrastructure has an average rating of 3.53. This suggests that respondents generally perceive the technological infrastructure as moderately supportive of fintech services. The standard deviation of 0.63 indicates a moderate spread in the responses, suggesting varying opinions among respondents. This could be due to differences in access to and quality of technological infrastructure among respondents.

Digital literacy has an average rating of 3.65, which is moderately high. This suggests that respondents generally feel digitally literate, indicating that they are comfortable

using digital platforms and have the necessary skills to use fintech services. The standard deviation of 0.66 indicates a moderate spread in the responses, suggesting varying levels of digital literacy among respondents.

Economic condition variable has an average rating of 3.58. This indicates that respondents generally perceive the economic conditions as moderately supportive of fintech services. The standard deviation of 0.66 suggests a moderate spread in the responses, indicating varying opinions among respondents. This could be due to differences in personal economic conditions and perceptions of the overall economic environment.

Government policies variable has an average rating of 3.63, which is moderately high. This suggests that respondents generally perceive government policies as supportive of fintech services. The standard deviation of 0.64 indicates a moderate spread in the responses, suggesting varying opinions among respondents. This could be due to differences in awareness and understanding of government policies among respondents.

Financial inclusion has an average rating of 3.54. This suggests that respondents generally feel financially included, indicating that they have access to and can use financial services. The standard deviation of 0.54 indicates that the responses are fairly close to the mean, suggesting a general consensus among the respondents about financial inclusion.

The study indicates that all these factors fintech adoption, regulatory environment, technological infrastructure, digital literacy, economic condition, government policies, and financial inclusion are generally perceived as moderately high in Nepal, indicating a positive environment for the growth and adoption of fintech services.

Correlation analysis

Correlation analysis is employed in this study to examine the strength and direction of the relationships between various variables related to the role of FinTech and digital financial services on financial inclusion. This statistical technique helps identify how closely two variables move in relation to each other, which is critical for understanding the interconnectedness of factors in the FinTech ecosystem. The correlation is measured

from +1 to -1 which indicate a positive and negative relationship between variables. The correlation results is presented in Table 16.

Table 16

Relationship Analysis

	FI	FTA	RE	TI	DL	EC	GP
FI	1						
FTA	.760**	1					
	(.000)						
RE	.619**	.529**	1				
	(.000)	(.000)					
TI	.798**	.545**	.670**	1			
	(.000)	(.000)	(.000)				
DL	.702**	.495**	.585**	.634**	1		
	(.000)	(.000)	(.000)	(.000)			
EC	.621**	.482**	.565**	.665**	.704**	1	
	(.000)	(.000)	(.000)	(.000)	(.000)		
GP	.656**	.573**	.606**	.687**	.722**	.760**	1
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	

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

Table 16 shows the relationship between study variables. There is a strong positive correlation of fintech adoption of 0.76 with financial inclusion. This means that as fintech adoption increases, financial inclusion also tends to increase. The p-value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant. Regulatory environment (RE) has a moderately strong positive correlation of 0.62 with Financial Inclusion. This suggests that a supportive regulatory environment is associated with higher financial inclusion. The p-value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant.

Technological infrastructure has a very strong positive correlation of 0.80 with financial inclusion. this indicates that better technological infrastructure is strongly associated with higher financial inclusion. The p-value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant. Digital literacy (DL): has a strong positive correlation of 0.70 with financial inclusion. this suggests that higher digital literacy is associated with higher financial inclusion. The p-

value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant.

Economic condition (EC) is having a strong positive correlation of 0.62 with financial inclusion. This suggests that better economic conditions are associated with higher financial inclusion. The p-value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant. Government policies (GP) have a strong positive correlation of 0.66 with Financial Inclusion. This indicates that supportive Government Policies are associated with higher Financial Inclusion. The p-value associated with this correlation is less than 0.05 (p = 0.000), indicating that the correlation is statistically significant.

All the independent variables (FTA, RE, TI, DL, EC, GP) have a significant positive correlation with financial inclusion. This suggests that improvements in these areas could potentially lead to higher financial inclusion in Nepal. However, correlation does not imply causation, and further research would be needed to establish causal relationships. The p-values indicate that these correlations are statistically significant, providing strong evidence for these relationships.

Regression analysis

Regression analysis is a powerful statistical method used in this study to identify and quantify the relationships between independent variables (predictors) and the dependent variable (outcome). Specifically, the study employs multiple regression analysis to examine how various factors such as FinTech adoption, regulatory environment, technological infrastructure, digital literacy, economic condition, and government policies influence financial inclusion. The regression results is presented in Table 17 to Table 19.

Table 17

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.906[a]	.820	.817	.22974

a. Predictors: (Constant), Government Policies, FinTech Adoption, Regulatory Environment, Digital Literacy, Technological Infrastructure, Economic Condition

Table 4.17 presents the results of a multiple regression analysis where financial inclusion is the dependent variable and government policies, fintech adoption, regulatory environment, digital literacy, technological infrastructure, and economic condition are the independent variables. The R value is 0.906, which is the correlation between the observed and predicted values of financial inclusion. This value ranges from 0 to 1, and a value of 0.906 indicates a high degree of correlation.

The R Square value is 0.820. This is also known as the coefficient of determination, and it indicates the proportion of the variance in the dependent variable (Financial Inclusion) that can be predicted from the independent variables. An R Square of 0.820 suggests that 82% of the variability in financial inclusion can be explained by the predictors. The Adjusted R Square value is 0.817. This is a modified version of R Square that has been adjusted for the number of predictors in the model. It is always lower than R Square and is a more accurate estimate of the population R Square. An Adjusted R Square of 0.817 suggests that after adjusting for the number of predictors, 81.7% of the variability in Financial Inclusion can be explained. The model appears to be a good fit for the data, as indicated by the high R and R Square values and the relatively low standard error of the estimate.

Table 18

Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.014	6	15.169	287.392	.000[b]
	Residual	19.951	378	.053		
	Total	110.966	384			

a. Dependent Variable: Financial Inclusion

b. Predictors: (Constant), Government Policies, FinTech Adoption, Regulatory Environment, Digital Literacy, Technological Infrastructure, Economic Condition

Table 18 depicts the results of an analysis of variance (ANOVA) for the regression model where financial inclusion is the dependent variable and government policies, fintech adoption, regulatory environment, digital literacy, technological infrastructure, and economic condition are the independent variables. F (F-statistic) is a measure of how significant the fit of the model is. It is calculated by dividing the mean square of

the regression by the mean square of the residual (15.169 / 0.053 = 287.392). The F-statistic is 287.392, which is quite large and indicates that the regression model predicts the dependent variable well. Sig. (p-value) is the probability that the null hypothesis (that the regression coefficients are zero, meaning the predictors have no effect) is true. A p-value less than 0.05 is considered statistically significant. Here, the p-value is 0.000, which is less than 0.05, indicating that the predictors are statistically significant.

The regression model is statistically significant and does a good job of predicting financial inclusion based on the predictors i.e., government policies, fintech adoption, regulatory environment, digital literacy, technological infrastructure, and economic condition which significantly explain the variability in financial inclusion.

Table 19

Regression Coefficients

	Unstandardized Coefficients				Collinearity Statistics	
Model	B	Std. Error	t	Sig.	Tolerance	VIF
(Constant)	.166	.087	1.906	.057	-	-
FinTech Adoption	.431	.028	15.642	.000	.603	1.658
Regulatory Environment	-.027	.028	-.958	.339	.479	2.087
Technological Infrastructure	.408	.030	13.640	.000	.388	2.580
Digital Literacy	.227	.028	7.996	.000	.395	2.528
Economic Condition	-.012	.030	-.408	.683	.352	2.843
Government Policies	-.079	.033	-2.383	.018	.305	3.277

Dependent Variable: Financial Inclusion

Table 19 shows the regression coefficients of study variables. The unstandardized coefficient (B) for fintech adoption is 0.431, indicating that for each one-unit increase in fintech adoption, financial inclusion increases by 0.431 units, assuming all other variables are held constant. The t-statistic is 15.642, and the p-value is less than 0.05 (p = 0.000), indicating that fintech adoption is a significant predictor of financial inclusion. The variance inflation factor (VIF) is 1.658, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The unstandardized coefficient for regulatory environment is -0.027, indicating that for each one-unit increase in regulatory environment, financial inclusion decreases by 0.027 units, assuming all other variables are held constant. However, the t-statistic is -0.958, and the p-value is greater than 0.05 (p = 0.339), indicating that regulatory environment is not a significant predictor of financial inclusion. The insignificant coefficient for regulatory environment suggests that, in the context of the model, variations in regulatory policies and frameworks do not significantly explain changes in financial inclusion. This could imply that while regulatory factors are important in influencing financial services accessibility and usage in theory, the specific regulatory measures included in this model may not have a statistically significant impact on financial inclusion outcomes in this dataset. It could also indicate that other variables in the model, such as FinTech adoption and technological infrastructure, may have a stronger influence on financial inclusion. The VIF is 2.087, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The unstandardized coefficient for technological infrastructure is 0.408, indicating that for each one-unit increase in technological infrastructure, financial inclusion increases by 0.408 units, assuming all other variables are held constant. The t-statistic is 13.640, and the p-value is less than 0.05 (p = 0.000), indicating that technological infrastructure is a significant predictor of financial inclusion. The VIF is 2.580, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The unstandardized coefficient for digital literacy is 0.227, indicating that for each one-unit increase in digital literacy, financial inclusion increases by 0.227 units, assuming all other variables are held constant. The t-statistic is 7.996, and the p-value is less than 0.05 (p = 0.000), indicating that digital literacy is a significant predictor of financial inclusion. The VIF is 2.528, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The unstandardized coefficient for economic condition is -0.012, indicating that for each one-unit increase in economic condition, financial inclusion decreases by 0.012 units, assuming all other variables are held constant. However, the t-statistic is -0.408, and the p-value is greater than 0.05 (p = 0.683), indicating that economic condition is not a significant predictor of financial inclusion. The insignificant coefficient for economic condition suggests that changes in broader economic factors do not

significantly affect financial inclusion outcomes in this model. This could be due to several reasons such as the dataset not capturing diverse economic conditions or financial inclusion being influenced more by other factors like technological adoption and digital literacy rather than economic fluctuations. The VIF is 2.843, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The unstandardized coefficient for government policies is -0.079, indicating that for each one-unit increase in government policies, financial inclusion decreases by 0.079 units, assuming all other variables are held constant. The t-statistic is -2.383, and the p-value is less than 0.05 ($p = 0.018$), indicating that government policies is a significant predictor of financial inclusion. The VIF is 3.277, which is less than 5, suggesting that multicollinearity is not a concern for this variable.

The model suggests that fintech adoption, technological infrastructure, digital literacy, and government policies are significant predictors of Financial Inclusion, while regulatory environment and economic condition are not. However, the absence of multicollinearity, as indicated by the VIF values, suggests that the predictors are not independent of each other, which may not affect the reliability of the coefficient estimates.

4.2 Discussions

The current research delves into the intricate dynamics of financial technology adoption in Nepal, aiming to illuminate its impact on financial inclusion and innovation in the country. The study's findings make a significant contribution to our understanding of how fintech services are influencing Nepal's financial landscape. Comparing these results with those from earlier research leads to several major conclusions. These insights provide a holistic picture of the link between the adoption of fintech, the regulatory environment, technical infrastructure, government policies, economic circumstances, and digital literacy.

The research indicates that there is a significant positive link between the adoption of fintech and financial inclusion. The findings from studies by Odei-Appiah et al. (2022) and Asif et al. (2023) align with this conclusion. According to respondents, there is an increasing dependence on fintech services for day-to-day financial operations, as shown by the moderate to high levels of adoption of various forms of financial technology. It

is important to note that this trend highlights the growing accessibility and ease of fintech services, which in turn encourage financial inclusion by reaching a wider population. Furthermore, the study emphasizes the significant role that trust plays in the security of fintech services. Trust is a component that is vital for maintaining use and adoption among users, which is in line with prior research that emphasized the significance of trust in digital platforms.

An investigation on the impact of the regulatory framework and technology infrastructure is conducted on achieving financial inclusion through the implementation of fintech solutions. The research emphasizes the importance of a supportive regulatory framework in fostering fintech growth, which is consistent with the findings that Menza et al. (2024) discovered. In general, respondents believe that the rules that are now in place are favorable to the expansion of fintech, which has the effect of encouraging wider financial inclusion. The general technical environment in Nepal is considered to be sufficient to allow the adoption of fintech, despite the fact that there are occasional difficulties with the internet's dependability and device accessibility. Given that this conclusion aligns with the recognized facilitative role of technology infrastructure in previous studies, it underscores the necessity of ongoing investments in enhancing technological capabilities to enhance the reach and efficiency of fintech services.

The research explores how government policies, economic conditions, and digital literacy levels influence financial inclusion and innovation. Participants agree with Telukdarie and Mungar's (2023) findings, acknowledging the beneficial role of government policies in enhancing the accessibility of fintech services. On the other hand, there is a certain degree of disparity in understanding of the steps taken by the government to promote financial inclusion, which suggests that there is a need for improved information transmission. Additionally, respondents widely perceive the economic circumstances as favorable for the expansion of fintech, acknowledging its role in boosting economic possibilities. The research further emphasizes the relevance of digital literacy, reiterating the results of Amnas et al. (2024) and Rahman (2023) by demonstrating that there is a substantial association between digital skills and the efficient use of fintech services. This highlights the significance of measures aimed at promoting digital literacy in terms of fostering innovation in the financial sector and broadening access to financial services.

This research contributes to the existing literature by presenting empirical evidence of the intricate connections between the adoption of fintech, the regulatory environment, the technical infrastructure, government policies, economic conditions, and digital literacy in Nepal. This research provides policymakers, practitioners, and academics with information about the complex interplay of factors that influence the integration of fintech, as well as its implications for advancing financial inclusion and innovation within the country. It does this by aligning with previous findings and offering novel insights that are specific to Nepali context.

CHAPTER V
SUMMARY AND CONCLUSION

This chapter provides a summary of the research findings, highlighting the key insights and contributions of the study. It synthesizes the analysis of fintech adoption and its impact on financial inclusion in Nepal, presenting the conclusions drawn from the data. Finally, the chapter discusses the implications of the study for policy and practice, and offers recommendations for future research in this field.

5.1 Summary

Mobile banking, digital payment systems, peer-to-peer lending, and blockchain are examples of fintech in financial services. These financial technology innovations improve financial services' efficiency, accessibility, and inclusion. In Nepal, the systematic provision of a wide range of financial services to individuals and businesses, particularly those underserved or excluded from traditional banking institutions, is known as financial inclusion. The services offered include savings accounts, credit, insurance, and payment options. To empower economically disadvantaged communities, enhance their financial resilience to overcome challenges, and foster national socio-economic development by integrating more individuals into the formal financial system.

Nepal's ongoing financial inclusion struggles drive this study, as low banking facilities, digital literacy, and economic restrictions exclude a large percentage of the population from the formal financial system. Fintech technology may enhance financial inclusion by overcoming these barriers, according to the study. The study examines fintech adoption, the regulatory environment, technological infrastructure, digital literacy, economic conditions, and government policies to identify effective methods and places for improvement. Policymakers, financial institutions, and other stakeholders need this research to build a more complete financial ecosystem to support the country's economic growth and development.

This study achieves its aims by combining descriptive and causal approaches. Researcher collect and summarize data from 385 respondents in using standardized questionnaire surveys. This clarifies their FinTech and financial inclusiveness views. The causal design shows how FinTech adoption, regulatory environment, technological

infrastructure, digital literacy, economic conditions, and government policies affect financial inclusion. This study uses SPSS to analyze quantitative data. This tool lets to use descriptive statistics to explain data, correlation analysis to analyze variable correlations, and regression analysis to find financial inclusion predictors. This comprehensive approach guarantees a comprehensive understanding of the factors within the FinTech ecosystem that drive financial inclusion.

The study found that fintech adoption, technological infrastructure, digital literacy, and government policies predict financial inclusion in Nepal, with unstandardized coefficients of 0.431 ($t = 15.642$, $p = 0.000$), 0.408 ($t = 13.640$, $p = 0.000$), 0.227 ($t = 7.996$, $p = 0.000$), and -0.079 ($t = -2.383$, $p = 0.018$). These factors account for 82% of financial inclusion variation (adjusted $R2 = 0.817$). Correlation analysis shows strong positive correlations between financial inclusion and fintech adoption ($r = 0.76$, $p = 0.000$), regulatory environment, technological infrastructure, digital literacy, economic conditions, and government policies. The regulatory environment and economic circumstances are not significant predictors in the regression model, with p-values of 0.339 and 0.683. The independent factors in the regression model ($F = 287.392$, $p = 0.000$) may predict financial inclusion.

The results of this study provide important insights into the elements that are boosting financial inclusion in Nepal. These findings demonstrate the significant roles that fintech adoption, technical infrastructure, digital literacy, and government regulations play. The findings emphasize the importance of developing digital literacy as well as technical infrastructure in order to promote greater financial inclusion. Furthermore, the study reveals the beneficial influence that favorable government policies have on financial inclusion. This provides vital insight for policymakers who are striving to establish an atmosphere that is conducive to the expansion of fintech. Through the identification of these important determinants, the research assists stakeholders in understanding where they should concentrate their efforts in order to optimize financial inclusion, which ultimately contributes to Nepal's wider socioeconomic growth and financial empowerment.

5.2 Conclusion

This research aims to comprehensively examine the factors influencing the adoption of fintech and its impact on financial inclusion and innovation in Nepal. The results indicate that there is a positive and substantial association between the adoption of fintech and financial inclusion. This highlights the role that digital financial services play in expanding access to financial resources. The fact that respondents had a generally positive impression of fintech services in terms of accessibility, convenience, and security is indicative of a rising acceptance of these technologies and a growing dependence on them.

It became clear that the legal framework and technology infrastructure were two of the most important accelerators of financial inclusion, driven by fintech developments. However, people generally view the current technical infrastructure as sufficient to sustain the acceptance of fintech, despite occasional dependability concerns. People perceive the supportive legislative framework as beneficial for the growth of fintech services. These results are significant because they emphasize the importance of continuously improving regulatory policies and technology investments in order to support the fintech ecosystem.

The government's policies, the state of the economy, and the level of digital literacy also play a significant role in the development of financial inclusion and innovation. According to the research, supportive government programs and policies must be implemented in order to make financial technology services more accessible. Given the favorable economic conditions in Nepal for fintech growth and the significant impact of digital literacy on efficient fintech service utilization, it is crucial to implement comprehensive strategies. These strategies should include policy support, economic stability, and educational efforts towards improving digital skills.

The research concludes that fostering financial inclusion and driving financial innovation via fintech in Nepal requires a comprehensive strategy that includes regulatory backing, technical improvements, good economic circumstances, and greater digital literacy. It is expected that further work in these areas will result in financial systems that are stronger and more inclusive, which will contribute to the general economic growth of the nation. Policymakers, financial institutions, and other

stakeholders can use the findings of this research to guide the development of initiatives that use fintech to achieve greater financial inclusion and promote innovation.

5.3 Implications

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

i. Policymakers should focus on refining regulatory frameworks to foster a more conducive environment for fintech innovation. Streamlined regulations can help mitigate risks while promoting growth in the fintech sector.

ii. Investments in technological infrastructure should be prioritized to ensure reliable and widespread access to fintech services. Enhancements in internet connectivity and mobile network coverage can further facilitate the adoption of digital financial services.

iii. Government initiatives aimed at promoting financial inclusion should be expanded and better publicized. Increased awareness of these initiatives can lead to higher engagement and utilization of fintech services by the broader population.

iv. Maintaining a stable economic environment is crucial for the sustained growth of fintech. Economic policies that support business development and consumer confidence can indirectly boost fintech adoption and innovation.

v. Educational programs to improve digital literacy should be widely implemented. Increasing the population's ability to use digital platforms effectively will enhance the adoption and utilization of fintech services, thereby improving financial inclusion.

vi. Collaboration between financial institutions, technology providers, and regulatory bodies is essential for creating a holistic ecosystem that supports fintech innovation. Such partnerships can lead to the development of more user-friendly and secure financial solutions.

vii. Future studies should explore the long-term impacts of fintech adoption on economic development and financial inclusion. Longitudinal studies can provide deeper insights into the evolving dynamics of fintech usage and its broader societal implications. Additionally, research can be expanded to include comparative analyses with other regions to identify best practices and successful models of fintech integration.

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APPENDICES

Questionnaire on "Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal"

Dear Sir/Madam

I am the student of Shanker Dev Campus, Tribhuvan University conducting a survey to access the information on the Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal. Your true and accurate information on this questionnaire will be highly appreciated in completion of the research project. The information's will be kept confidential and will be used only for research purpose.

Regards

Menaka Poudel

Shanker Dev Campus

General Background

1. What is your gender?
    - Male
    - Female
2. What is your age?
    - 18-24
    - 25-34
    - 35-50
    - 50 and above
3. What is your highest level of education completed?
    - SLC
    - Plus Two
    - Bachelor's degree
    - Master's degree and Above
4. What is your current employment status?
    - Employed
    - Businessman
    - Student
    - Retired

5. What is your average monthly income?
    - Less than NPR 30,000
    - NPR 30,001 - NPR 50,000
    - NPR 50,001 - NPR 75,000
    - NPR 75,001 - NPR 100,000
    - More than NPR 100,000
6. What digital devices do you own and use regularly?
    - Smartphone
    - Tablet
    - Laptop
    - Desktop computer
    - None
7. How often do you use the internet?
    - Multiple times a day
    - Once a day
    - A few times a week
    - Once a week
    - Less than once a week
    - Never
8. Do you have a bank account?
    - Yes
    - No
9. Have you ever used FinTech services (e.g., mobile banking, online payment platforms)?
    - Yes
    - No

Statement of "Role of Fintech and Digital Financial Services on Financial Inclusion in Nepal"

Below are some of the possible factors that might influence the financial inclusion in Nepal through fintech and digital financial services. To what extend do you get agreed with the below factors.

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

Statements		**SD**	**D**	**N**	**A**	**SA**
A. FinTech Adoption						
FTA1	Fintech services are easily accessible in my region.					
FTA2	I regularly use fintech services for my financial transactions.					
FTA3	Fintech services have made financial transactions more convenient for me.					
FTA4	I trust the security of fintech services for my financial needs.					
FTA5	The availability of fintech services has improved my overall financial inclusion.					
B. Regulatory Environment						
RE1	The regulatory environment in Nepal supports the growth of fintech services.					
RE2	I am aware of the regulations governing fintech services in Nepal.					
RE3	The government effectively enforces regulations related to fintech services.					
RE4	Regulatory policies have made fintech services safer for users.					
RE5	The current regulations encourage innovation in the fintech sector.					
C. Technological Infrastructure						
TI1	The technological infrastructure in Nepal supports the widespread use of fintech services.					
TI2	Internet connectivity in my area is reliable enough for using fintech services.					
TI3	Mobile network coverage is sufficient to access fintech services everywhere I go.					
TI4	The necessary technology (smartphones, computers) to use fintech services is affordable.					

TI5	Technological advancements have positively impacted the adoption of fintech services.					
D. Digital Literacy						
DL1	I am comfortable using digital platforms for financial transactions.					
DL2	There are enough resources available to learn about using fintech services.					
DL3	Educational programs on digital financial literacy are widely available in my community.					
DL4	I understand how to use various fintech applications and services.					
DL5	Increasing digital literacy can significantly enhance financial inclusion.					
E. Economic Condition						
EC1	My current economic situation allows me to use fintech services regularly.					
EC2	The economic environment in Nepal supports the growth of fintech services.					
EC3	Fintech services have provided me with better economic opportunities.					
EC4	My income level influences my ability to use fintech services.					
EC5	Economic stability in Nepal positively affects the adoption of fintech services.					
F. Government Policies						
GP1	Government policies in Nepal support the growth of fintech and digital financial services.					
GP2	I am aware of the government initiatives aimed at promoting financial inclusion.					
GP3	Government policies have made fintech services more accessible to the population.					
GP4	The government provides sufficient support for the development of fintech infrastructure.					

GP5	Government initiatives have positively impacted my use of fintech services.					
G. Financial Inclusion						
FI1	I have easy access to banking services.					
FI2	I regularly use financial services such as savings, credit, and insurance.					
FI3	I feel included in the formal financial system.					
FI4	Digital financial services have improved my financial well-being.					
FI5	I have seen an improvement in my economic condition due to better access to financial services.					

Thank You!!

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Abstract The purpose of this study is to analyze the variables that influence fintech adoption and the effect that it has on financial inclusion in Nepal. The study is constructed using a mixed-methods methodology, combining descriptive and causal analysis, and a sample size of 385 respondents from the fintech industry, the government, and academic institutions. The most important results suggest that the adoption of fintech, technical infrastructure, digital literacy and government regulations greatly improve financial inclusion. These factors explain 82% of the variation in financial inclusion. Both correlation and regression studies come to the conclusion that there are significant positive connections between these parameters and financial inclusion. While the regulatory environment and economic circumstances showed a correlation with financial inclusion, the regression model did not find them as significant predictors. The research highlights the need for enhancing regulatory frameworks, making investments in technology infrastructure, creating supporting government policies, and boosting digital literacy in order to propel financial inclusion via the use of fintech. Policymakers, financial institutions, and other stakeholders in Nepal who are working toward the goal of establishing a vibrant financial ecosystem that fosters socioeconomic development may find these insights to be of critical importance. Keywords: Fintech adoption, financial inclusion, digital literacy, Technological infrastructure, government policies ii CHAPTER I INTRODUCTION 1.1 Background of the study FinTech innovation encompasses a wide array of technologies, including blockchain, artificial intelligence (AI), big data analytics, and mobile payment systems. These innovations have revolutionized traditional financial services, enabling faster, cheaper, and more convenient transactions while also enhancing risk management and customer experience (Yermack, 2017). Blockchain technology, has facilitated secure and transparent transactions through decentralized ledgers, while AI-powered algorithms have revolutionized credit scoring and fraud detection processes (Claessens et al., 2019). Moreover, the proliferation of mobile payment platforms has democratized access to financial services, particularly in underserved regions where