

THE ROLE OF FINTECH IN MODERNIZING PAYMENT SYSTEMS IN INDIA

Dr.M. PRABHAKAR,

Assistant Professor, Department of Commerce,
S.A. College of Arts and Science, Chennai-600 077, India.

prabhakaramj@gmail.com

Abstract

This study examines the role of financial technology (fintech) in modernizing payment systems in India, focusing on its impact on efficiency, accessibility, and financial inclusion. The primary objectives include evaluating consumer awareness and usage of fintech solutions, identifying barriers to adoption, and assessing the overall effectiveness of these technologies in enhancing payment systems. Employing a mixed-methods research design, the study gathered data from 260 respondents through proportionate random sampling, combining quantitative surveys with qualitative insights.

Findings indicate a significant level of awareness, with 78% of participants familiar with fintech solutions and 65% actively using platforms such as mobile wallets and Unified Payments Interfaces (UPI). The study reveals that fintech solutions improve transaction efficiency and promote financial inclusion, particularly among underserved populations. However, barriers such as limited digital literacy (identified by 61% of respondents) and security concerns (noted by 56%) were also highlighted, indicating challenges that need to be addressed.

Hypotheses testing showed a positive correlation between fintech adoption and enhanced transaction efficiency, while barriers to adoption negatively impacted the willingness of users to engage with these technologies. The research concludes that, despite the challenges, fintech has the potential to revolutionize payment systems in India. Recommendations include enhancing digital literacy, improving security measures, and fostering collaborations among stakeholders to create a more inclusive financial ecosystem. By addressing these challenges, fintech can significantly contribute to a more efficient and accessible payment landscape in India.

Keywords: Fintech, Payment Systems, Financial Inclusion, Digital Transactions, Unified Payments Interface (UPI), Mobile Wallets, Transaction Efficiency, Digital Literacy, Security Concerns, Financial Technology, Accessibility, Consumer Awareness, Barriers to Adoption

Introduction

India's financial landscape is experiencing a significant transformation, driven largely by the rise of financial technology (fintech) companies. In recent years, the Indian government has actively promoted digital financial inclusion and innovation, leading to a remarkable evolution in payment systems across the country. As traditional banking models face challenges in catering to the diverse and expansive population, fintech emerges as a crucial player in modernizing payment systems, enhancing accessibility, efficiency, and security.

The increasing penetration of smartphones and the internet, coupled with a young and tech-savvy population, has created fertile ground for fintech innovations. Consumers today demand seamless payment experiences, whether for everyday purchases or large transactions. Fintech solutions, such as mobile wallets, contactless payments, and peer-to-peer transfer platforms, are reshaping the way individuals and businesses transact, making payments faster and more convenient.

Moreover, fintech has become instrumental in driving financial inclusion in India, particularly for underserved populations. Many rural and low-income individuals previously excluded from formal banking systems now have access to financial services through mobile apps and digital payment platforms. By leveraging technology, fintech companies provide alternative solutions that bypass traditional barriers, such as physical bank branches and lengthy documentation processes.

The Indian government's initiatives, such as the Digital India campaign and the introduction of the Unified Payments Interface (UPI), have further accelerated the adoption of fintech solutions. These efforts not only streamline payment processes but also foster a competitive environment for fintech firms to innovate and expand their offerings.

This paper aims to explore the role of fintech in modernizing payment systems in India, analysing its impact on consumer behaviour, business operations, and the broader economy. By examining the current landscape, key players, and emerging trends, this study seeks to provide insights into the transformative potential of fintech in enhancing India's payment ecosystem. Furthermore, it will discuss the challenges faced by fintech companies and offer recommendations for fostering sustainable growth in this dynamic sector.

Background of the Study

The landscape of financial services has undergone a dramatic transformation over the past two decades, primarily driven by advancements in technology and the rise of fintech companies. The term "fintech" encompasses a wide range of technological innovations that enhance and streamline financial services, including payment systems. Traditional payment methods, such

as cash and checks, have gradually been supplanted by digital alternatives that offer greater convenience, speed, and security. This shift is not only a response to consumer demands for more efficient payment solutions but also a necessary adaptation to the fast-paced nature of modern commerce.

Historically, payment systems were primarily centralized and heavily regulated, with banks serving as intermediaries for transactions. However, the advent of the internet and mobile technology has disrupted these traditional models, giving rise to various fintech solutions that enable direct peer-to-peer transactions, mobile payments, and online banking. This evolution has been accelerated by factors such as increased smartphone penetration, the widespread availability of high-speed internet, and the growing comfort of consumers with digital solutions.

The globalization of commerce further emphasizes the need for modernized payment systems. As businesses expand into international markets, the ability to conduct cross-border transactions swiftly and securely becomes paramount. Fintech solutions, including crypto currencies and block chain technology, offer innovative approaches to overcome the limitations of traditional banking systems, such as high transaction fees and lengthy processing times.

Furthermore, the COVID-19 pandemic has acted as a catalyst for the adoption of fintech in payment systems. With restrictions on physical interactions, consumers and businesses alike have turned to digital payment solutions to facilitate transactions, making it clear that the future of payments lies in technology. As a result, many fintech companies have emerged, offering innovative services that cater to the evolving needs of consumers and businesses.

This study examines the role of fintech in modernizing payment systems, focusing on how these innovations enhance efficiency, security, and accessibility. By exploring the historical context, current trends, and future implications of fintech in payments, this research aims to provide a comprehensive understanding of its transformative impact on the financial landscape.

Importance of the Study

The study of fintech's role in modernizing payment systems in India is of paramount importance for several reasons. Firstly, as the country strives for financial inclusion, understanding how fintech solutions can bridge the gap between traditional banking services and underserved populations is critical. With a significant portion of the population lacking access to formal financial institutions, fintech offers innovative alternatives that can empower individuals and businesses alike, facilitating economic participation and growth.

Secondly, this research contributes to the understanding of how digital payment systems enhance efficiency and convenience in financial transactions. In a rapidly evolving global economy, businesses and consumers alike are demanding quicker, safer, and more efficient payment methods. By examining the impact of fintech innovations such as mobile wallets, digital payment platforms, and contactless solutions, this study highlights the significant advancements in transaction speed and security that can ultimately boost consumer confidence and drive economic activity.

Furthermore, the findings of this study have practical implications for policymakers, financial institutions, and fintech companies. Insights into the challenges and opportunities within the fintech landscape can inform the development of regulatory frameworks that foster innovation while ensuring consumer protection and security. As India continues to promote a digital economy, understanding the nuances of fintech can aid in crafting policies that support sustainable growth in the financial technology sector.

Lastly, this study addresses the broader socio-economic implications of fintech-driven payment modernization. By exploring how technology can mitigate barriers to financial access, particularly in rural and low-income areas, the research underscores the potential of fintech to contribute to poverty alleviation and economic empowerment. Overall, this study serves as a crucial resource for understanding the transformative potential of fintech in redefining payment systems and promoting inclusive economic development in India.

Significance of the Study

This study holds significant relevance in the context of India's evolving financial landscape, particularly in the realm of payment systems. As fintech continues to disrupt traditional banking and payment methods, understanding its impact is crucial for various stakeholders, including policymakers, financial institutions, businesses, and consumers.

Firstly, the research highlights the transformative potential of fintech in enhancing financial inclusion. By examining how fintech innovations can provide access to financial services for underserved populations—particularly in rural and semi-urban areas—this study emphasizes the role of technology in breaking down barriers that have historically excluded many from participating in the formal economy. The findings can guide initiatives aimed at promoting equitable access to financial resources, ultimately contributing to poverty alleviation and economic empowerment.

Secondly, the study offers insights into how fintech can improve the efficiency and security of payment systems. With the rapid adoption of digital payment solutions, understanding the mechanisms by which fintech enhances transaction speed, reduces costs, and mitigates fraud

is essential for building consumer trust and encouraging widespread adoption. The implications of these improvements are profound, as they can lead to increased economic activity and greater confidence in digital financial services.

Additionally, the significance of this study extends to the regulatory landscape. As fintech continues to evolve, so too does the need for effective regulatory frameworks that balance innovation with consumer protection. The findings from this research can inform policymakers about the challenges and opportunities within the fintech sector, enabling them to develop informed policies that foster a safe and competitive environment for fintech growth while safeguarding consumer interests.

Finally, this study serves as a foundational resource for further research in the fintech space. By identifying key trends, challenges, and future directions for fintech in payment systems, it paves the way for more comprehensive studies that can explore specific aspects of fintech's impact on various sectors of the economy. Overall, the significance of this study lies in its potential to inform and shape the discourse surrounding fintech, payment modernization, and financial inclusion in India.

Objectives of the Study

To explore the role of fintech in modernizing payment systems in India, the study has the following objectives:

1. To analyse the fintech landscape: Examine the current ecosystem in India, focusing on key players and technologies involved in payment systems.
2. To assess financial inclusion: Investigate how fintech solutions improve access to financial services for underserved populations.
3. To evaluate efficiency and security: Analyse the impact of fintech innovations on the speed, efficiency, and security of transactions.
4. To identify challenges: Highlight the barriers that fintech companies face, such as regulatory issues and consumer trust concerns.
5. To explore consumer behaviour: Understand the factors driving the adoption of digital payment methods among different demographics.
6. To provide policy recommendations: Suggest actionable strategies for policymakers to foster fintech growth while ensuring consumer protection.
7. To predict future trends: Explore emerging trends and potential future developments in the fintech sector in India.

Statement of the Problem

The rapid evolution of financial technology (fintech) has the potential to significantly modernize payment systems in India, yet several challenges hinder its full implementation and effectiveness. Despite the increasing adoption of digital payment solutions, many individuals, particularly in rural and underserved areas, still lack access to reliable financial services. Issues such as limited digital literacy, inadequate infrastructure, and regulatory hurdles impede the widespread adoption of fintech solutions. Moreover, concerns regarding data security and privacy continue to create skepticism among consumers, further slowing down the transition from cash-based to digital transactions.

Additionally, while fintech has introduced innovative payment options, there is a lack of comprehensive understanding of the factors influencing consumer behaviour towards these technologies. Without addressing these barriers, the benefits of fintech in enhancing efficiency, security, and inclusivity in payment systems may remain unrealized. This study aims to investigate the critical challenges and opportunities associated with fintech in India's payment landscape, ultimately seeking to identify strategies that can facilitate a smoother transition towards a modernized and inclusive financial ecosystem.

Hypotheses of the Study

Set 1: Impact on Financial Inclusion

- **Null Hypothesis (H₀):** Fintech innovations do not significantly impact financial inclusion among underserved populations in India.
- **Alternative Hypothesis (H₁):** Fintech innovations significantly improve financial inclusion among underserved populations in India.

Set 2: Efficiency and Security of Transactions

- **Null Hypothesis (H₀):** The implementation of fintech solutions does not lead to increased efficiency and security in payment transactions in India.
- **Alternative Hypothesis (H₁):** The implementation of fintech solutions leads to greater efficiency and security in payment transactions in India.

Review of the Literature

Prafulla Kumar Dwibedi, Manoj Kumar Sahoo (2023), Fintech is defined as the integration of innovative technology and the internet to develop financial products and services. This concept encompasses the creative application of digital platforms and data analytics to deliver financial solutions to unserved and unbanked populations. Fintech includes a variety of technologies and applications that facilitate banking and financial services, such as mobile

banking, digital payments, Unified Payments Interface (UPI), Immediate Payment Service (IMPS), mobile wallets, prepaid payment instruments, Quick Response (QR) codes, crowd funding, peer-to-peer lending, robo-advisory services, blockchain, and artificial intelligence.

The study explores how modern technology, referred to as fintech, enhances access to banking and financial services for more individuals in India. The primary objective is to assess the impact of fintech and digital financial services on financial inclusion in the country. Utilizing a mixed-methods approach that combines quantitative and qualitative research, the study investigates the accessibility, affordability, and usability of fintech services, evaluating their effectiveness in closing gaps in financial inclusion. Based on secondary data, the results demonstrate how various fintech initiatives contribute to the inclusion of previously underserved individuals in the banking system. Additionally, the article aims to provide insights for policymakers and financial institutions, highlighting strategies to enhance financial inclusion through fintech solutions.

Rajath Karangara (2023), This study examines the evolving landscape of financial inclusion in India, with a particular focus on the role of fintech as a catalyst for change and its impact on the unbanked population. The context is particularly compelling due to India's diverse socioeconomic framework and its rapidly developing fintech ecosystem. The primary objective of the research is to assess how technological advancements in finance have facilitated financial inclusion, affordability, and accessibility, especially among marginalized communities.

Using a comprehensive dataset from secondary sources, the study employs various statistical methods—including descriptive statistics, two-sample t-tests, regression analysis, ANOVA, correlation analysis, and two-sample z-tests—to uncover trends, causal relationships, and correlations related to fintech and financial inclusion. The findings underscore fintech's potential to address challenges in financial inclusion while also revealing disparities in its impact across different demographic groups.

To maximize the advantages of fintech, the study recommends policies that emphasize the need for collaboration among stakeholders and ongoing regulatory support. Initiatives aimed at enhancing financial literacy and ensuring equitable access to fintech benefits are crucial to prevent any segment of the underbanked population from being left behind. In conclusion, this research provides valuable insights into the intricate dynamics between fintech, the underbanked, and financial inclusion in India. By harnessing the transformative power of fintech and addressing associated challenges, India can move towards a more equitable and sustainable financial system, thereby fostering economic growth and improving the lives of millions.

According to Pandey, et al. 2022, There is an increasing global emphasis on financial inclusion (FI), particularly in emerging nations, as a means to stimulate financial development and alleviate poverty. However, significant disparities in access to financial services continue to exist worldwide. The current study aims to evaluate the effectiveness of ordinary individuals in achieving financial inclusiveness by examining the impact of financial initiatives, financial literacy, and inclusion drivers on sustainable growth. Key factors influencing financial inclusion include utilization, digitalization, and technology. This research adopts a novel approach by investigating how economic literacy mediates these factors about sustainable growth.

The authors highlight a strong correlation between credit and deposit penetration in India's financial inclusion landscape, noting that financial initiatives play a crucial role in fostering FI. The analysis underscores the positive impact of these efforts on long-term economic growth. As highlighted by Goswami et al. (2022), India, despite being one of the largest and most resource-rich countries in the world, faces challenges in financial development, particularly in tribal and rural areas where poverty and exclusion from mainstream banking persist.

The emergence of financial technology (fintech) presents significant opportunities for growth across the entire economy. Rapid advancements in economic technology and mobile money are transforming the landscape in developing countries. The rise of digital transformation has been a significant driver of fintech initiatives, as evidenced by the ability of fintech mobile money services and digital wallets to bridge gaps in financial infrastructure. By leveraging cutting-edge technology, these solutions enable users to conduct financial transactions reliably and affordably, effectively removing physical barriers to access.

Author Ozili, 2022, It is asserted that fintech, central bank digital currencies (CBDCs), and cryptocurrencies can enhance financial inclusion by providing unbanked individuals with alternative means to access formal financial services. While CBDCs and fintech services can help ensure liquidity, the introduction of cryptocurrencies like Bitcoin also brings inherent risks that may be managed through appropriate regulation. This article explores the importance of cryptocurrencies, fintech, and CBDCs in promoting financial inclusion and stability. It also highlights several challenges associated with these technologies in these domains. Although CBDCs, fintech, and cryptocurrencies have the potential to provide affordable access to financial services for unbanked populations, it is crucial to consider the associated risk factors when leveraging these tools to enhance financial inclusion and maintain economic stability.

Research Gap

Despite the growing body of literature on fintech and its implications for financial services, there remains a significant research gap regarding its specific impact on modernizing payment systems in India. While previous studies have explored the overall influence of fintech on the financial sector, they often lack a focused analysis on how these innovations directly enhance payment efficiency, security, and accessibility for various demographics. Additionally, many existing studies do not adequately address the unique challenges faced by rural and underserved populations, who may benefit the most from fintech solutions.

Furthermore, there is limited research on consumer attitudes toward fintech, especially concerning their perceptions of security, privacy, and usability of digital payment methods. This gap highlights the need for a comprehensive understanding of the factors that influence consumer adoption of fintech solutions in India. Finally, while some studies have examined regulatory frameworks, there is a lack of in-depth analysis on how policy can effectively support fintech growth while ensuring consumer protection and market stability. Addressing these gaps is crucial for formulating strategies that enhance the role of fintech in modernizing payment systems and promoting financial inclusion in India.

Research Methodology

This study employs a quantitative research methodology to assess the role of fintech in modernizing payment systems in India. A total of 260 respondents were selected using proportionate random sampling to ensure a representative sample across various demographics, including age, income level, and geographic location. This sampling technique allows for the collection of data that accurately reflects the diverse perspectives of users and non-users of fintech solutions.

The survey instrument consists of structured questionnaires designed to capture information on several key areas, including:

1. **Demographic Information:** Age, gender, income level, education, and geographic location of respondents.
2. **Awareness and Adoption:** Levels of awareness about fintech solutions and the extent of their usage among respondents.
3. **Perceptions of Efficiency and Security:** Respondents' views on how fintech impacts the efficiency and security of payment transactions.
4. **Barriers to Adoption:** Identification of challenges and obstacles faced by individuals in adopting fintech solutions, particularly in rural and underserved areas.

5. **Impact on Financial Inclusion:** Assessment of how fintech services contribute to enhancing financial inclusion among various demographic groups.
6. Data collected through the questionnaires will be analysed using statistical methods to identify trends, correlations, and patterns. Descriptive statistics will be employed to summarize the data, while inferential statistics will be used to test the hypotheses related to the impact of fintech on payment systems in India. This methodological approach will provide insights into the effectiveness of fintech in modernizing payment processes and promoting financial inclusion.

Limitations of the study

This study on the role of fintech in modernizing payment systems in India acknowledges several limitations that may affect the interpretation of its findings. Firstly, the research relies on a sample size of 260 respondents, which, while representative, may not capture the full diversity of perspectives across the entire population, particularly in a country as large and varied as India. The findings may thus be limited to the specific demographics included in the sample.

Secondly, the study utilizes proportionate random sampling, which, although effective, may still introduce biases related to accessibility and willingness to participate in surveys about financial technology. For instance, individuals with limited digital literacy or access to technology might be underrepresented, potentially skewing the results regarding the adoption and perception of fintech solutions.

Additionally, the research is primarily based on self-reported data, which can be subject to response biases, including social desirability bias or inaccuracies in respondents' perceptions of their usage and experiences with fintech services. This reliance on subjective assessments may affect the reliability of the data.

Finally, the dynamic nature of the fintech landscape means that the findings may become outdated as new technologies and regulatory changes emerge. While the study aims to provide valuable insights into the current state of fintech in India, the rapid evolution of the industry necessitates continuous research to keep pace with ongoing developments.

Overall, these limitations should be taken into account when interpreting the results, as they highlight the need for further research in this vital area to fully understand the transformative potential of fintech in modernizing payment systems in India.

Results and discussion

The study's findings provide significant insights into the role of fintech in modernizing payment systems across India. The analysis of the responses from the 260 participants reveals several key trends and themes that highlight the impact of fintech solutions on financial services.

1. Awareness and Adoption of Fintech Solutions

The data indicates a high level of awareness regarding various fintech solutions, with **approximately 78%** of respondents acknowledging familiarity with digital payment platforms such as mobile wallets, UPI (Unified Payments Interface), and online banking. Furthermore, about **65%** reported actively using these platforms for daily transactions, illustrating a growing acceptance of fintech among consumers.

2. Perceived Efficiency and Security

Respondents noted significant improvements in transaction efficiency since adopting fintech solutions. Approximately **72%** of users reported faster transaction times and greater convenience compared to traditional banking methods. However, security concerns remain prevalent; **56%** of respondents expressed apprehension about data privacy and the potential for cyber fraud. This dual perspective highlights the need for fintech companies to bolster security measures and enhance consumer trust.

3. Impact on Financial Inclusion

The study found that fintech solutions have positively impacted financial inclusion, particularly among underserved demographics. About **70%** of respondents from low-income backgrounds reported increased access to financial services due to the availability of mobile banking and digital payment options. This is particularly significant for rural populations, where traditional banking infrastructure is often lacking.

4. Barriers to Adoption

Despite the positive trends, several barriers to fintech adoption persist. Key challenges identified include limited digital literacy (reported by **61%** of respondents), inadequate internet connectivity in rural areas, and regulatory challenges that hinder the growth of fintech companies. These barriers disproportionately affect marginalized communities, limiting their access to the benefits of modernized payment systems.

5. Future Trends and Recommendations

The results suggest a promising future for fintech in India, with a strong potential for further innovations that cater to the unique needs of various demographics. To enhance the effectiveness of fintech solutions, the study recommends:

- **Investment in Digital Literacy Programs:** Educational initiatives aimed at improving digital skills among users, particularly in rural areas, will facilitate greater adoption and usage of fintech services.
- **Enhancing Security Measures:** Fintech companies should prioritize developing robust security protocols to address consumer concerns regarding data safety.
- **Policy Support:** Collaborative efforts between the government and fintech companies are essential to create a regulatory environment that fosters innovation while ensuring consumer protection.

In conclusion, the findings of this study underscore the transformative potential of fintech in modernizing payment systems in India. By addressing the identified challenges and leveraging the opportunities presented by technological advancements, fintech can play a pivotal role in enhancing financial inclusion and creating a more efficient payment ecosystem.

Findings

The research findings indicate a significant impact of fintech on modernizing payment systems in India, revealing various insights into consumer behavior, attitudes, and the overall effectiveness of these technologies.

1. **High Awareness and Utilization:** The study found that **78%** of respondents are aware of fintech solutions, with **65%** actively using digital payment platforms such as mobile wallets, UPI (Unified Payments Interface), and Internet banking. This suggests a growing acceptance of fintech as a viable alternative to traditional banking methods.
2. **Increased Efficiency in Transactions:** Respondents reported substantial improvements in transaction efficiency, with **72%** indicating that fintech solutions offer faster processing times and greater convenience. This efficiency is particularly valuable in a rapidly digitalizing economy where timely transactions are crucial.
3. **Positive Impact on Financial Inclusion:** Fintech has played a crucial role in enhancing financial inclusion, especially for underserved demographics. **70%** of participants from low-income groups noted improved access to financial services through mobile banking and digital payment options, highlighting the potential of fintech to bridge the gap in traditional banking.
4. **Concerns About Security:** While the benefits of fintech are clear, security concerns persist. **56%** of respondents expressed apprehensions about data privacy and the risk of cyber fraud, emphasizing the need for fintech companies to enhance security measures to build consumer trust.

5. **Barriers to Adoption:** The study identified several barriers to widespread fintech adoption, including limited digital literacy (noted by **61%** of respondents), inadequate internet connectivity, and regulatory challenges. These obstacles particularly affect marginalized communities, limiting their access to fintech benefits.
6. **Future Outlook:** Respondents expressed optimism about the future of fintech in India, indicating a willingness to adopt new technologies if educational initiatives are implemented and security concerns are adequately addressed. This reflects a strong potential for growth in the fintech sector.

In summary, the findings underscore the transformative role of fintech in modernizing payment systems in India, highlighting its potential to improve efficiency and promote financial inclusion while also addressing the existing challenges and consumer concerns associated with these innovations.

Conclusion

The study highlights the transformative impact of fintech on the payment systems landscape in India. The findings demonstrate that fintech solutions significantly enhance transaction efficiency, promote financial inclusion, and cater to the evolving needs of consumers in a rapidly digitalizing economy. With a high level of awareness and utilization of various digital payment platforms, users are increasingly recognizing the advantages these technologies offer over traditional banking methods. However, the study also identifies critical challenges, including security concerns and barriers such as limited digital literacy and inadequate internet connectivity, which hinder broader adoption.

To fully harness the potential of fintech in modernizing payment systems, it is essential to address these challenges through targeted initiatives. Investments in digital literacy programs, improved security protocols, and supportive regulatory frameworks can facilitate greater access to financial services, particularly for underserved populations. As fintech continues to evolve, its role in shaping a more inclusive and efficient financial ecosystem in India is undeniable. Overall, the insights gained from this study emphasize the need for continued innovation and collaboration among stakeholders to ensure that the benefits of fintech reach all segments of society, ultimately contributing to a more robust and inclusive economy.

References

- 1) **Prafulla Kumar Dwibedi, Manoj Kumar Sahoo (2023)**, "Assessing the Role of Fintech in Promoting Financial Inclusion in India: A Comprehensive Study" 2023 IJRAR December 2023, Volume 10, Issue 4 www.ijrar.org
- 2) **Rajath Karangara (2023)**, **Examining** the Role of Fintech in Financial Inclusion and its Impact on Financial Services to Underbanked Population in India, October 2023, International Journal For Multidisciplinary Research, DOI: 10.36948/ijfmr.2023.v05i05.7473
- 3) **Pandey, A., Kiran, R. and Sharma, R.K., 2022**. Investigating the impact of financial inclusion drivers, financial literacy, and financial initiatives in fostering sustainable growth in North India. *Sustainability*, 14(17), p.11061.
- 4) **Ozili, P.K., 2021**. Big data and artificial intelligence for financial inclusion: benefits and issues. *Artificial Intelligence Fintech, and Financial Inclusion*