

IMPACT OF FINTECH INNOVATION TO TRANSFORM REGIONAL RURAL BANKS (RRBs) IN INDIA: A STUDY WITH SPECIAL REFERENCE TO KARNATAKA

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ABSTRACT

Indian banking is incomplete without mentioning the exponential growth in digital banking and technological advancements. India is leveraging fintech innovations to transform Regional Rural Banks (RRBs). As the Government pushes ahead with the “One State, One RRB” policy to consolidate RRBs, fintech companies have a golden opportunity to play a pivotal role in rapidly moving RRBs into the digital age. With widespread penetration in rural areas, RRBs are crucial in driving financial inclusion across the country. However, given the changing dynamics in digital payments and financial services, it is critical for RRBs to modernize and integrate with modern technology-based payment ecosystems such as Aadhaar Enabled Payments System (AePS), Unified Payments Interface (UPI), and Unified Lending Interface (ULI). The research paper highlights and examines how fintech innovation transforms RRBs in India and examines how the use of FinTech solutions has resulted in financial inclusion and banking services in rural areas. This study also analyses the impact of fintech on the rural banking operations and performance. This study is based on both primary data and secondary data. This is descriptive in nature. The data will be analyzed through some statistical tools such as percentage, Mean, Kendall’s ‘W’ test, and Chi-square test.

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KEYWORDS: *Rural Sector, Banking Services, Fintech and Modern Technology, Regional Rural Banks.*

Introduction

Financial technology, also known as Fintech, plays a vital role in the banking industry. Banks are now able to offer global coverage thanks to fintech, including those who are officially available in rural areas. The provision of banking services was heavily influenced by FinTech, which increases accessibility, cost-efficiency, and efficiency. The degree of accessibility of rural fintech services is much lower compared to metro cities. Rural development in rural areas has always been challenging due to a lack of access to basic infrastructure and services, including banking. Traditional financial institutions often fail to notice these areas due to the substantial cost of creating and maintaining rural physical branches. For this reason, many people are not exposed to access basic financial services such as credit and savings accounts. FinTech has also improved the effectiveness and efficiency of banking services. Digitalization allowed banks to be well organized in their business activities, reducing costs and lowering fees and interest rates to the benefit of their customers (Bose, 2020). As a result, many people are quarantined in these rural areas, and now they have access to financial services. Fintech has influenced rural development, so financial integration is another option. Banks now offer more financial services. Mobile money and microfinance thanks to Fintech. For this reason, rural people now have opportunities for lending, savings, and additional financial services that were previously unavailable. This contributes to improving the financial well-being of residents, along with increasing economic growth in these locations. (World Bank Group, 2018). Fintech has also improved security in its banking services. Digitalization has allowed banks to implement stronger security measures, including two-factor authentication and biometric identification. This has made banking services more secure and reduces the risk of fraud and identity theft (Bhattacharya et al., 2019).

The impact of fintech on rural development has expanded beyond banking services alone. Fintech also supported rural

development in other fields such as agriculture. With the introduction of fintech, farmers are now eligible for financial services such as credit and insurance. Agriculture is an important source of income for many people in rural areas and benefits from increasing productivity and profitability. (World Bank Group, 2018). Additionally, fintech has advanced access to information and education in rural locations. Rural citizens can get access to academic resources and equipment for monetary literacy with the use of mobile applications and online systems. As a result, people can now make better financial decisions, and their financial literacy has improved. (Bose, 2020) Banks are now able to serve a much wider reach of customers, cut expenses, reorganize operations, and boost security with the help of fintech. Fintech had a particularly superb impact on rural improvement because it has improved its method to banking services in remote regions. Fintech has aided in the growth in financial inclusion, promoting economic enlargement, and enhancing rural citizens' monetary well-being.

Role of Fintech in Enhancing RRB Services in India

Fintech services have played a crucial role in modernizing RRBs, which historically relied on manual processes. Collaborations with fintech companies have enabled RRBs to offer:

Digital Payments: Integration of UPI, mobile wallets, and AePS for convenient transactions.

Microfinance and Credit Scoring: Use of AI and data analytics for better loan disbursement and risk assessment.

Kisan Credit Card (KCC) Digitization: Facilitating faster loan approvals for farmers through digital channels.

Karnataka Vikas Grameena Bank (KVGB): Collaborated with fintech firms to launch digital wallets and doorstep banking services.

Review of Literature

Pant (2020): This paper's goal is to discover across the world relevant emergent fintech developments. A literature overview and conversations with professionals and academics were used in conjunction with the qualitative studies approach. The IMF is concentrating on the usage of distributed ledger technology for

global bills, and other new developments encompass augmented reality for customer delight, crowd-funding, crowd-investing, robotic funding advisory, future collaborations among banks and fintech corporations, and crucial financial institution regulatory roles.

Raj & Upadhyay (2020): This examines how FinTech groups may improve access to economic offerings for underserved populations, low-income people, rural areas, and other underprivileged sectors of the Indian economy while additionally assisting to enhance competition and accelerate economic inclusion in India. Additionally, it covers the regulatory actions carried out in India to assist the FinTech movement, the Regulatory Sandbox framework, and the steps vital to assist recognize the capacity for growth and inclusiveness presented by using the arena.

Rajeswari & Vijay (2021): This study examines the adoption of fintech, the fintech information network, the structure of the Indian fintech enterprise, fintech startups in India, and fintech trends in India. It also involves the boom of fintech, which is pushed through startups and provides demanding situations for both market members and regulators. This is especially authentic when attempting to balance the potential blessings of innovation with the capability dangers of novel monetary processes.

Kukreja & Bahl (2021): This study examines the increase, opportunities, and problems going through India's financial sector as an end result of latest technology. This chapter highlights the opportunities which have arisen because of the demographic dividend, excessive penetration, and access to the maximum current, cost-effective era, in addition to government tasks like Digital India, Startup India, Make in India, and others. Ultimately, this chapter illustrates India's unrealized capacity for fintech.

Gupta & Agrawal (2021): This study gives insights about FinTech in India and its effect on the country's financial area. Additionally, the aim is to have an extra comprehensive understanding of ways the financial industry is converting because of FinTech breakthroughs. Three special sub-sets of empirical facts had been collected making use of the qualitative technique. This subset consists of FinTech mission experts, monetary organization

personnel, and end customers. The analysis showed that a number of extraordinary causes are responsible for changing the Indian financial system's landscape.

Goel & Kulsrestha (2022): A direction for Fintech evolution is usually recommended by this study in light of converting sectors and clients. It will discover deeper into the relationship between economic inclusion and fintech in addition to the logical continuation of technological advances based totally on fintech. The report claims that there is benefit in searching into new views on growing financial generation and how it affects the banking region.

Asif & Khan (2023): Regression and correlation had been used in this study, alongside secondary information amassed from the RBI, to research this effect, with the aim of figuring out the impact of fintech and digital financial services on financial inclusion in India. The consequences had been interpreted to show that fintech businesses have notably aided economic inclusion in this country, in particular for the middle class.

Objectives of the Study

- To study the importance of fintech services and products in banking services.
- To assess the benefits of fintech in banking services.
- To assess the impact and perception towards fintech services in regional rural banks in the study area.
- To offer suitable suggestions based on the findings of the study.

Hypothesis of the Study

- **H0:** There is no high level of agreement about the impact of fintech services among respondents from different employees' occupational categories of Regional Rural Banks in Karnataka.
- **H1:** There is a high level of agreement about the impact of fintech services among respondents from different employees' occupational categories of Regional Rural Banks in Karnataka.

Methodology of the Study

- **Nature of Study:** Descriptive and analytical in nature.
- **Population of the Study:** All the employees of the Regional Rural Banks in Karnataka.

- **Sample Size and Sampling Element:** n=150 respondents, and the researcher has selected only employees of Regional Rural Banks in Karnataka.
- **Sampling Method:** Simple random sampling method has been adopted to select sample respondents for the study.
- **Collection of Data:** The research paper is based on primary data. Data has been collected from sample respondents through a structured questionnaire, and interviews are also conducted for the purpose of data collection from sample respondents.

Area of Study

This study focuses on Mysuru District, Karnataka.

- **Tools for Analysis:** Data has been analyzed through some statistical tools such as Percentage, Mean, Average weights, Kendall's 'W' Test, and Chi-square test by applying SPSS.

Limitations of the Study:

- The study is restricted to only RRBs in Karnataka.
- The study is limited to the study area of Mysuru District.
- The study is limited to its Sample Size, i.e., 150.
- Sample data is collected from only employees of RRBs in Karnataka.

Demographical Profile of the Respondents

Table 1 Source: Primary Data

Sl No	Variable	Sub Category	Frequency	%
1.1	Age	20-30 years	49	32.7
		30-40 years	47	31.3
		40-50 years	20	13.3
		Above 50 years	34	22.7
		Total	150	100
1.2	Gender	Male	133	88.7
		Female	17	11.3
		Total	150	100

1.3	Occupation	Officers	67	44.66
		Manager	42	28
		Senior Manager	12	8
		Assistant General Manager	19	12.7
		General Manager	10	6.66
		Total	150	100
1.4	Marital Status	Unmarried	34	22.66
		Married	116	77.3
		Total	150	100
1.5	Experience	5-10 years	23	15.3
		10-15 years	27	18
		15-20 years	59	39.3
		Above 20 years	41	27.3
		Total	150	100
1.6	Familiar with Fin-tech applications	Yes	145	96.66
		No	5	3.33
		Total	150	100

Table 1.1 shows the highest: 20-30 years (32.7%) and lowest: 40-50 years (13.3%). The age group of 20-30 years dominates, indicating a youthful sample, while the 40-50 age group is the least represented. Table 1.2 highlights the highest: Males (88.7%) and lowest: Females (11.3%). There is a significant gender gap, with males overwhelmingly dominating the sample. Table 1.3 indicates the highest: Officers (44.66%) and lowest: General Manager (6.66%). The workforce is predominantly made up of officers, while few hold top-level managerial positions. Table 1.4 depicts the highest: Married (77.3%) and lowest: Unmarried (22.66%). A large majority are married, suggesting that family-oriented initiatives might resonate better. Table 1.5 tells that the highest: 15-20 years (39.3%) and lowest: 5-10 years (15.3%). The majority of respondents are experienced professionals, with fewer early-career individuals. Table 1.6 indicates the highest: Yes (96.66%) and lowest: No (3.33%). The data reflects a high level of fintech literacy, indicating readiness for digital financial services. The population is youthful, male-dominated, and predominantly experienced in their fields. There is a high level of fintech awareness, which could

facilitate digital transitions in financial services. However, the low representation in top managerial positions and among females may indicate areas for potential growth or intervention.

Results and Discussions:

Average Weighted Score Corresponding to Degree of Respondents' Consent Average Weighted Scores show the agreed levels of the respondents belonging to different levels of education over the given factors are presented in Table 2. General managers show greater agreement on the importance of digitalization, i.e., 1.03, while senior managers are less convinced, i.e., 0.73. Managers find convenience and accessibility more significant, i.e., 1.10, whereas officers rate it lower, i.e., 0.64. Assistant general managers see greater value, i.e., 1.14, in innovative solutions compared to senior managers, i.e., 0.57. Top management recognizes, i.e., 1.10, the importance of financial inclusion more strongly than senior managers, i.e., 0.63. Efficiency is a priority for both general managers and officers, i.e., 1.09, while senior managers rate it lower, i.e., 0.82. Customer satisfaction is most important for assistant general managers, i.e., 1.34 and 1.24. Risk management is prioritized by both general managers and officers, i.e., 1.10 and 1.09, but senior managers opined that it is not prioritized, i.e., 0.94.

Table 2 Average Weighted Score Corresponding to Degree of Respondents' Consent

Opinion State- ments	Occupation Level					AWS
	General Manager	Assistant General Manager	Senior Manager	Manager	Officer	
Digitalization Drive	1.03	0.99	0.73	0.83	0.73	0.95
Convenience and Accessibility	0.93	0.95	0.8	1.1	0.64	0.93
Innovative Solutions	0.78	1.14	0.57	1.1	0.64	0.91
Financial Inclu- sion	1.1	1.13	0.63	1	1	1.04
Increased Effi- ciency	1.1	1.09	0.82	1.07	1.09	1.06

Enhanced customer satisfaction	1.17	1.34	1.24	1.12	1.09	1.23
Improved risk management	1.1	1.11	0.94	0.86	1.09	1.06
Mean Value of AWS	1.03	1.11	0.82	1.01	0.9	

The mean value of Average Weighted Scores corresponding to the degree of agreement expressed by the respondents regarding various opinion statements shows the highest mean value for the occupation-wise group of Assistant General Manager (1.11), followed by the occupation group of General Manager (1.03), Manager (1.01), Officers (0.90), and Senior Manager (0.82).

Ha: There is a high level of agreement about the impact of fintech services among respondents from different employees' occupational categories of Regional Rural Banks in Karnataka.

Test Statistics	
Test Statistics	Value
N	5
Kendall's Wa	0.504
Chi-Square	15.111
df	6
Asymp. Sig.	0.019

a. Kendall's Coefficient of Concordance Kendall's W test is used to find out the significant concurrence of ranking or agreement among various perception factors about fintech services in the rural banking sector. The 'p' value is 0.019, which is less than the critical value of 0.05 at a 5% level of significance. Hence, the null hypothesis (H0) is rejected. It can be inferred that there exists a significant concurrence of ranking (0.504) among the respondents from different occupational level categories, and as per the test, it is understood that it is having significant concordance among the perception factors over the different occupational categories.

Findings

- It is observed that general managers show greater agreement on the importance of digitalization, i.e., 1.03, while senior managers are less convinced, i.e., 0.73.

- It is found that managers find convenience and accessibility more significant, i.e., 1.10, whereas officers rate it lower, i.e., 0.64.
- It is observed that assistant general managers see greater value, i.e., 1.14, in innovative solutions compared to senior managers, i.e., 0.57.
- The study has identified that top management recognizes, i.e., 1.10, the importance of financial inclusion more strongly than senior managers, i.e., 0.63.
- It is found that efficiency is a priority for both general managers and officers, i.e., 1.09, while senior managers rate it lower, i.e., 0.82.
- It is observed that customer satisfaction is most important for assistant general managers, i.e., 1.34 and 1.24.
- It is identified that risk management is prioritized by both general managers and officers, i.e., 1.10 and 1.09, but senior managers opined that it is not prioritized, i.e., 0.94.

Suggestions

- There is a need to improve access to smartphones and the internet in rural areas. This could be achieved through Government initiatives to expand digital infrastructure and promote affordable smartphone options for rural residents.
- There is a need to create awareness campaigns to educate rural people about the benefits and functionalities of Fintech services to reach a wider audience.
- It is suggested that efforts should be made to improve digital literacy among rural residents; this can be done through training programs.
- It is suggested that Fintech companies should develop solutions that are tailored to the specific needs and challenges of rural communities.

Conclusion

Fintech has enabled banks to reach remote customers without building physical branches. Banking digitization options can be provided through mobile applications and web platforms, making

banking available in remote locations. This was restructured by rural development by bringing banking services to under-supplied regions. According to a study on the adoption of fintech in regional rural banks in Karnataka, Fintech services have improved financial knowledge among rural communities and increased access to banking services, despite these obstacles to financial inclusion. Even while Fintech adoption in rural Karnataka is still in its infancy, the overall results show that there is a lot of space for growth. Finally, the study concludes that there is a significant impact of fintech services in the technology transformation of banking services and to create awareness and importance of digital technology in urban as well as rural areas.

References:

1. Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The impact of fintech and digital financial services on financial inclusion in India. *Journal of Risk and Financial Management*, 16(2), 122.
2. Hegde, V. A., Jain, H., Dudhoria, R., & Rathod. (2024). A study on the fintech penetration in rural Karnataka. *International Journal for Research in Applied Science and Engineering Technology*. <https://doi.org/10.22214/ijraset.2024.60020>
3. Karnataka Gramin Bank. (n.d.). Home. <https://karnatakagraminbank.com>
4. Kukreja, G., Bahl, D., & Gupta, R. (2021). The impact of Fintech on financial services in India: Past, present, and future trends. In *Innovative strategies for implementing Fintech in banking* (pp. 191-200). IGI Global.
5. Pant, S. K. (2020). Fintech: Emerging trends. *Telecom Business Review*, 13(1).
6. Raj, B., & Upadhyay, V. (2020). Role of FinTech in accelerating financial inclusion in India. In *Proceedings of the 3rd International Conference on Economics and Finance* (pp. 28-29). Nepal Rastra Bank.
7. Virani, S., Rautela, S., & Sharma, S. (2021). Financial inclusion via Fintech: A conceptual framework for digitalizing the banking landscape of rural India. In *Artificial intelligence and speech technology* (pp. 497-505). CRC Press.