



International Journal of Research in Finance and Management

P-ISSN: 2617-5754
E-ISSN: 2617-5762
Impact Factor (RJIF): 5.32
IJRFM 2025; 8(2): 352-357
www.allfinancejournal.com
Received: 01-08-2025
Accepted: 04-09-2025

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Perception and attitude of bank employees towards central bank digital currency in India with special reference to Tumkur district

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DOI: <https://www.doi.org/10.33545/26175754.2025.v8.i2d.564>

Abstract

This study examines bank employees' perceptions and attitudes toward Central Bank Digital Currencies (CBDCs) in India, specifically in the Tumakuru district. CBDCs, a sovereign digital currency project backed by the Reserve Bank of India, seek to change monetary systems, enhance the efficiency of payment systems and improve access to finance. This study used structured questionnaires using descriptive-exploratory research design to garner the awareness, familiarity, and concerns of banking professionals in relation to CBDC implementation. The study discovered a moderate to high level of awareness among each respondents' level of awareness, as well as a variety of attitudes from positive to confusion. The study highlights the need for enhanced employee education and training; adequate communication and related strategies, and infrastructure support to facilitate the transition to this new technology. This study helps provide useful information for policy makers, regulators and banking institutions at the ground/grassroots level as they prepare to establish a balanced and fair strategy for the future of digital currencies.

Keyword: Central bank digital currency, banking sector, deposit mobilisation, financial inclusion, Tumakuru, India

Introduction

The Indian banking sector has undergone a paradigm shift over the past few decades, evolving from traditional brick-and-mortar banking services to a highly digitalized financial ecosystem. This transformation has been significantly propelled by advancements in information and communication technologies, policy support, and growing consumer acceptance of digital platforms. From the introduction of Electronic Funds Transfer (EFT) systems and Automated Teller Machines (ATMs) to the advent of internet banking, mobile banking, and the revolutionary Unified Payments Interface (UPI), India has embraced digitization with remarkable speed and scale (Harshvardhan Govind *et al.*, 2024; P, 2019) ^[7]. The transition toward digital banking in India is not just about improving convenience and speed. It also represents a structural transformation aimed at enhancing financial inclusion, reducing transaction costs, increasing transparency, and promoting a less-cash economy. Initiatives such as Real-Time Gross Settlement (RTGS), National Electronic Funds Transfer (NEFT), Immediate Payment Service (IMPS), and UPI have made banking services more accessible, especially in remote and underserved regions (Concept Note on Central Bank Digital Currency FinTech Department Reserve Bank of India, 2022; Haque & Shoaib, 2023a) ^[5].

As the next evolutionary step, Central Bank Digital Currency (CBDC)—particularly India's digital rupee or e₹—emerges as a pivotal innovation. The Reserve Bank of India (RBI) launched pilot projects for e₹ in December 2022, recognizing its potential to serve as a sovereign digital alternative to cash, improve payment efficiency, and counter the volatility and risks associated with private cryptocurrencies (Concept Note on Central Bank Digital Currency FinTech Department Reserve Bank of India, 2022; Haque & Shoaib, 2023a) ^[5]. The e₹ is intended to operate alongside existing forms of money while ensuring the trust, security, and finality that central bank money guarantees (Ceylan, 2024; Ghosh & Das, 2024) ^[1,4].

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Moreover, studies emphasize that digital currency may redefine the relationship between individuals, commercial banks, and central monetary authorities. It can foster real-time monetary transactions, enhance policy transmission mechanisms, and offer significant macroeconomic benefits, including improved liquidity management and reduced dependency on physical cash (Ghosh & Das, 2024; Jović *et al.*, 2019) ^[4, 8].

However, the journey toward full-scale digital currency adoption involves critical challenges such as technological readiness, financial literacy, data security, and ensuring equitable access—particularly in rural and semi-urban areas (Cnaan *et al.*, 2023; Harshvardhan Govind *et al.*, 2024) ^[2, 7]. Therefore, understanding the historical evolution of digital banking in India provides crucial context for examining the feasibility, impact, and future prospects of CBDCs.

Review of Literature

The popularity of digital banking in India has provided the framework for the shift to digital currency, particularly through advancements in platforms like RTGS, NEFT, IMPS, and UPI, which have boosted the speed, security, and accessibility of transactions (Haque & Shoaib, 2023b) ^[6]. The Reserve Bank of India (RBI) has acknowledged these trends and proposed the e-Rupee—a Central Bank Digital Currency (CBDC)—as a digital form of legal tender with the goal of decreasing physical currency handling expenses, promoting financial inclusion, and enhancing payment systems. Central Bank Digital Currencies (CBDCs) represent a transformative shift in monetary systems, driven globally by objectives to enhance payment efficiency, promote financial inclusion, counter private cryptocurrencies (e.g., stablecoins), and preserve monetary sovereignty (Priyadarshini & Kar, 2021; Kulkarni, n.d.; Raman *et al.*, 2024) ^[11, 9, 12]. India's phased Digital Rupee pilot—launching CBDC-Wholesale (CBDC-W) for interbank settlements and CBDC-Retail (CBDC-R) as a digital cash alternative—prioritizes design choices balancing token-based accessibility with account-based regulatory control to mitigate disintermediation risks to the banking sector (RBI, 2022; Priyadarshini & Kar, 2021) ^[11]. Public perception studies reveal moderate-to-high awareness (84.2%) and support (63.9%) for the Digital Rupee, primarily driven by expectations of eased domestic/cross-border payments; however, security concerns and distrust among cryptocurrency investors persist as adoption barriers (Kulkarni, 2022; Raman *et al.*, 2024) ^[9, 12]. Critically, India's advanced digital payments infrastructure (e.g., UPI) questions the *domestic necessity* of CBDC-R, suggesting its primary value lies in addressing externalities: enabling global CBDC interoperability to replace costly SWIFT systems and preempting "digital dollarization" by sovereign CBDCs like China's e-CNY (Priyadarshini & Kar, 2021; Raman *et al.*, 2024) ^[11, 12].

Research Gap and Objectives

India-focused empirical studies regarding banking sector employees present limited options in terms of variety compared to the global academic literature. Tumakuru, as a fast-moving district, offers an excellent representation to study both the preparedness and response of institutions to innovations in digital currency.

Objectives of the Study

1. To measure the extent of awareness of CBDCs among banking professionals in Tumakuru.
2. To evaluate perceptions of possible benefits and drawbacks of CBDCs.
3. To analyse expected implications for core banking functions such as deposit mobilization and lending.

Hypotheses

H₀: There is no significant association between awareness of CBDCs and employee attitudes regarding their deployment.

H₁: There is a substantial association between awareness of CBDCs and employee attitudes regarding their adoption.

Methodology

This study uses a descriptive and exploratory approach to analyze bank employees' perceptions and attitudes about Central Bank Digital Currency (CBDC) in Tumakuru district, Karnataka.

Population and Sampling

The research was aimed at bank employees in public, private and cooperative banks in Tumakuru district. Due to time constraints and limited access to respondents, convenience sampling was used. 64 valid responses were obtained on the structured questionnaire as Google form.

Sample Profile

The respondents were different in terms of gender, age, education, bank type, and work experience. The respondents were composed of males and females working at banks, who were below 25 years to above 55 years of age. The sample also had participants with education levels of graduation, post-graduation, and professional degree. Different types of banks were represented through the sample; and provided a combination of different experience levels at 2, 5, and greater than 10 years of experience.

Data Collection

Primary data was acquired through an online structured questionnaire (Google Forms). This questionnaire focused on dimensions including awareness; familiarity; perceived benefits and challenges of adopting CBDC. The questionnaire included both closed-ended questions (Likert scale and multiple choice) as well as demographic questions.

Secondary data has been collected from reliable resources including RBI Concept Notes and Reports on CBDC, BIS publications, peer-reviewed journals, and government documents/policy papers.

Tools and Techniques of Analysis

The data was cleaned and analyzed using Microsoft Excel and SPSS software. Responses were summarized for descriptive statistics by using frequency and percentage distributions. Associations between demographic variables (e.g., experience, education) and awareness/perception levels regarding CBDCs were examined using chi-square tests. To aid in the easier analysis of findings, all findings were expressed in graphs and tables.

Limitations

Because convenience sampling was utilized, the findings cannot be applied to India's whole banking system.

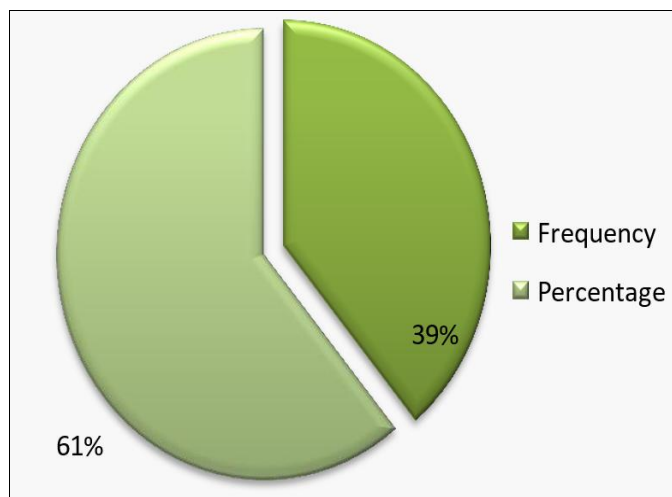
However, they provide valuable early insights regarding employee readiness and perception in a tier-2 city setting.

Analysis and Findings

Table 1: Aware of the concept of central bank digital currencies (CBDC)

Particulars	Frequency	Percentage
Yes	59	92.2
No	5	7.8
Total	64	100

Source: Field Survey



Graph 1: Ware of the concept of central bank digital currencies (CBDC)

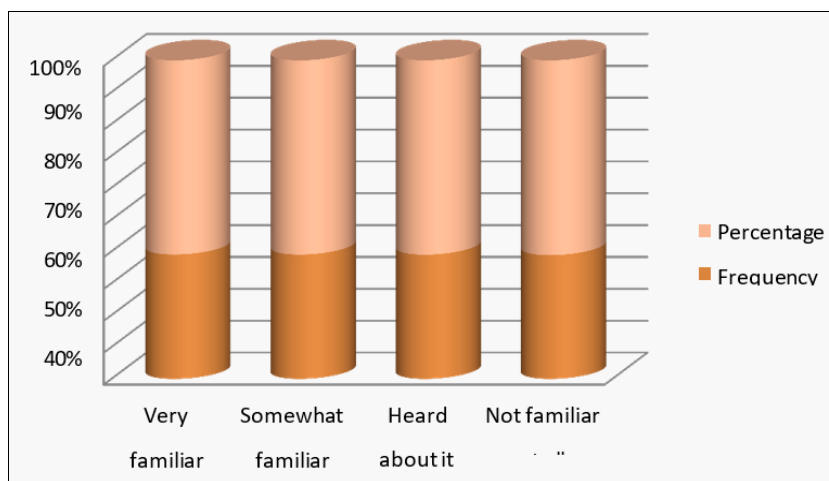
Analysis and Interpretation

Out of 64 respondents, 92.2% (59 employees) were aware of the concept of Central Bank Digital Currency (CBDC), with only 7.8% (5 employees) uninformed. This suggests a high level of initial knowledge among banking professionals in Tumakuru district, implying that information was successfully disseminated through internal and external communication channels.

Table 2: Familiar with the concept of CBDC

Particulars	Frequency	Percentage
Very familiar	13	20.3
Somewhat familiar	27	42.2
Heard about it only	20	31.3
Not familiar at all	4	6.3
Total	64	100

Source: Field Survey



Graph 2: Familiar with the concept of CBDC

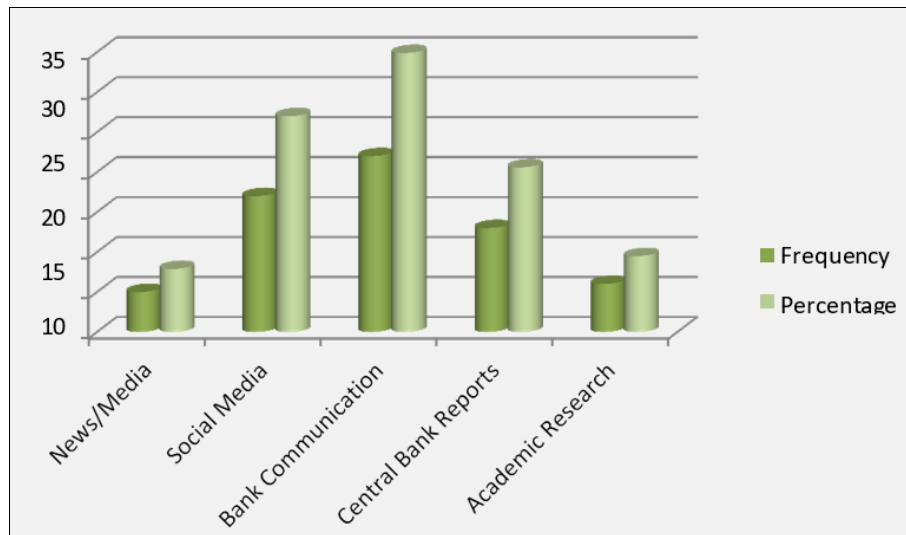
Analysis and Interpretation:

Respondents reported varying levels of familiarity: 20.3% were Very familiar and 42.2% were somewhat familiar. 31.3% had only heard about it, whereas 6.3% were not familiar at all.

Although awareness is strong, a sizable proportion of respondents lack deep familiarity, highlighting the importance of targeted training and internal sensitization programs.

Table 3: Primary source of CBDC information

Particulars	Frequency	Percentage	Mean	Standard Deviation
News/Media	5	7.9	12.60	7.23
Social Media	17	27		
Bank Communication	22	34.9		
Central Bank Reports	13	20.6		
Academic Research	6	9.5		
Total	63	100		

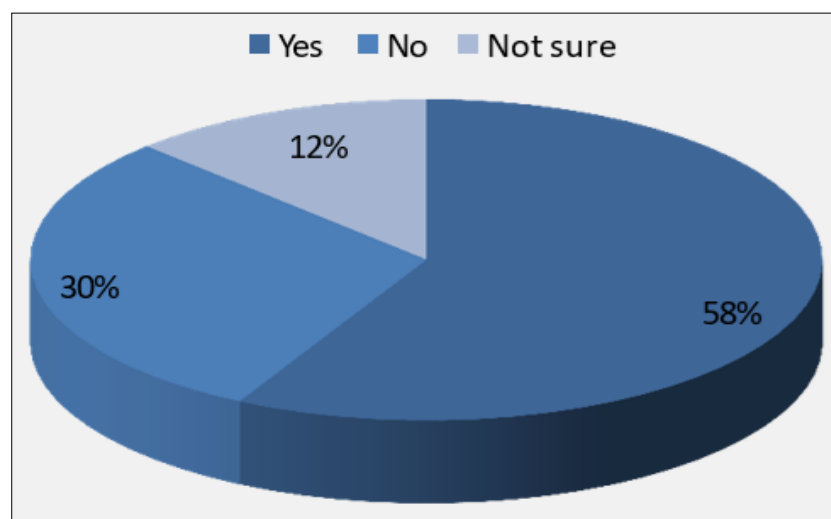
Source: Field Survey**Graph 3:** Primary source of CBDC information**Analysis and Interpretation:**

When questioned about their main source of knowledge on CBDC, respondents cited bank communication (34.9%), social media (27%), central bank reports (20.6%), academic research (9.5%), and news/media (7.9%).

This demonstrates the importance of internal communication from banks in creating staff knowledge and understanding.

Table 4: Differences between CBDC and cryptocurrency

Particulars	Frequency	Percentage
Yes	37	57.8
No	19	29.7
Not sure	8	12.5
Total	64	100

Source: Field Survey**Graph 4:** Differences between CBDC and cryptocurrency**Analysis and Interpretation:**

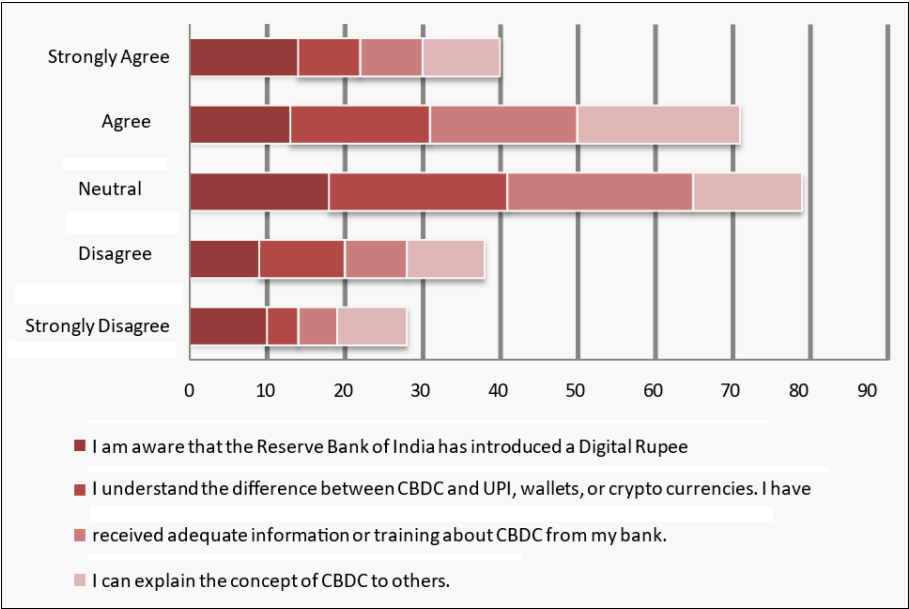
When asked if they could discriminate between CBDCs and cryptocurrencies, respondents answered "Yes" (57.8%), "No" (29.7%), and "Not sure" (12.5%).

This suggests that, while the majority understands the distinction, a sizable proportion either lacks clarity or is unclear, which may undermine confidence in explaining CBDCs to clients.

Table 5: Aware the concept and features of central bank digital currency (CBDC).

Particulars	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am aware that the Reserve Bank of India has introduced a Digital Rupee	10	9	18	13	14
I understand the difference between CBDC and UPI, wallets, or cryptocurrencies.	4	11	23	18	8
I have received adequate information or training about CBDC from my bank.	5	8	24	19	8
I can explain the concept of CBDC to others.	9	10	14	21	10

Source: Field Survey



Graph 5: Aware the concept and features of central bank digital currency

Analysis and Interpretation:

The table and graph assess public awareness and understanding of the Reserve Bank of India's Digital Rupee (CBDC). A notable trend across all statements is the high number of "Neutral" responses, particularly regarding the understanding of differences between CBDC, UPI, and crypto currencies (23 respondents). This indicates a significant segment of the population lacks strong opinions or clear comprehension. While some "Agree" or "Strongly Agree" on awareness, the overall data suggests a need for enhanced public education and communication to improve understanding and clarify the nuances of CBDC.

Observed Patterns and Inferences

- Younger employees (under 36) are more comfortable with digital technologies, including CBDC.
- Private and cooperative bank employees had slightly lesser familiarity than public sector employees.
- Training Gaps: While internal communication was the primary source of knowledge, more than one-third of respondents reported no formal CBDC training.

Summary of Key Findings

- Bank workers are aware of CBDC, but have limited comprehension.
- Internal communication is the most effective information channel.
- Not all staff are prepared to explain and implement CBDC procedures.
- There are training gaps and conceptual uncertainties in identifying CBDC from other digital technologies.

Policy Implications and Recommendations

To ensure CBDCs are effective and sustainable, policymakers must establish clear criteria for CBDC usage, interoperability, and privacy. - Central banks should limit CBDC holding thresholds to avoid banks from experiencing significant deposit withdrawals. - Investment in public digital infrastructure is critical, especially for rural banks. - Training modules for banking professionals must be prioritized in order to boost confidence and operational readiness. - Providing incentives for early adoption among institutions may help to smooth the transition and reduce resistance.

Conclusion

The survey found that while bank personnel in Tumkur district are aware of Central Bank Digital Currency (CBDC), many lack a thorough knowledge. While most see CBDC as a beneficial step toward digital transformation, there are still concerns regarding its influence on traditional banking services. Internal communication is the primary source of information, although formal training is scarce. To ensure successful adoption, targeted employee training, clear regulatory rules, and a robust digital infrastructure are required. CBDC has the potential to transform the Indian banking sector, but its success will be determined by institutional and personnel preparedness.

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