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Generational Perspectives on Fintech Adoption: Challenges, Demographics, and Digital Inclusion

Perspectivas generacionales sobre la adopción de tecnología financiera: desafíos, demografía e inclusión digital

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Corrigendum

In the published version of this article, the ORCID iD of the author Avtar Singh was incorrectly listed. The incorrect ORCID was: <https://orcid.org/0009-0004-7653-0144>

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The online version of the article has been updated accordingly. The authors apologise for this error

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ABSTRACT

This research aims to examine how different generations in India adopt fintech services, considering the main barriers and demographic factors that influence these patterns. Based on a survey of 278 banking customers in Punjab and Jammu and Kashmir, it is evident that Generation Z and millennials have embraced fintech services more than Generation X, with key obstacles including a lack of technical skills, concerns about cybersecurity, and strict regulations. The findings suggest that implementing measures tailored to each generation will be essential in promoting digital financial services and bridging the gap between those who can access these services and those who cannot. Although fintech companies are increasingly recognised in the payments industry, the primary challenges to the rapid growth of the fintech ecosystem in India include "lack of technical know-how," "low security (fraud messages, calls, etc.)," regulatory and compliance laws, "documentation and formalities," and "emotional attachment to cash." Governments, financial institutions, regulators, and Indian fintech firms must collaborate to address these structural issues from the ground up, expand their reach, enhance consumer satisfaction, and make digital channels more accessible.

Keywords: Challenges, Fintech, Generations, Millennials, Sustainability and Technology.

Jel Code: G53, O33.



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RESUMEN

Esta investigación busca analizar cómo las distintas generaciones en India adoptan los servicios fintech, considerando las principales barreras y aspectos demográficos que definen estas tendencias. Con una muestra de 278 clientes bancarios en Punjab y Jammu y Cachemira, se evidencia que la Generación Z y los millennials han adoptado los servicios fintech en gran medida en comparación con la Generación X. Entre las barreras más importantes se encuentran la falta de habilidades técnicas, la preocupación por la ciberseguridad y las estrictas regulaciones. Los hallazgos demuestran que la implementación de medidas adaptadas a cada generación será fundamental para promover los servicios financieros digitales y reducir la brecha entre quienes pueden utilizarlos y quienes no. Si bien las empresas fintech son cada vez más reconocidas en el sector de pagos, los principales obstáculos para el rápido desarrollo del ecosistema fintech en India son la falta de conocimientos técnicos, la baja seguridad (mensajes y llamadas fraudulentas, etc.), las leyes regulatorias y de cumplimiento, la documentación y los trámites, y el apego emocional al efectivo. Los gobiernos, las instituciones financieras, los reguladores y las empresas Fintech indias deben trabajar juntos para abordar estos problemas estructurales desde la base, ampliar su alcance, mejorar la satisfacción del consumidor y hacer que los canales digitales sean más aceptables.

Palabras clave: Desafíos, Fintech, Generaciones, Millennials, Sostenibilidad y Tecnología.

Código Jel: G53, O33.

INTRODUCTION

According to Alshater et al. (2022) and Lim et al. (2019), fintech refers to financial technology services that are shaped by merging finance and technology to create more accessible and affordable financial services. Fintech, also referred to as financial technology, is the use of technology in the development and provision of financial services and products. It has an impact on regulators, consumers, financial institutions, and entrepreneurs across multiple industries.

Penetrant digital technology is challenging the foundations of the highly regulated financial sector, as seen by the rise of peer-to-peer money exchanges, non-traditional payment systems, and rising currency market volatility. Fintech is also affecting how financial services are created, advertised, delivered, and used (Mention, 2021). Fintech is a rapidly expanding industry that benefits businesses and consumers alike in many ways. Fintech is increasing. (Nathan et al., 2022; Karim et al., 2022).

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Fintech is at the vanguard of this new phenomenon, which is regarded as the fifth "Industrial Innovation Driving Development" due to the information and telecommunications (IT) revolution (Hendrikse et al., 2018). Numerous businesses, such as banking, insurance, trading, logistics, and e-commerce payment, are using fintech (Dubey, 2019).

Fintech aligns primarily with the Fourth Industrial Revolution (Industry 4.0), characterised by digital transformation, data analytics, and intelligent automation. While some aspects of sustainability-driven innovation overlap with concepts of a "fifth" revolution, Fintech's current mainstream evolution is rooted in Industry 4.0 (Kubus et al., 2025). According to Tiwari and Kartika (2019), fintech offers a platform that enables users to validate their bank balances, make payments, and complete account-related transactions over the internet and mobile devices.

The bulk of banks and other financial institutions fight for this enormous consumer market since mobile Internet users prefer to obtain financial services through electronic devices. Lee et al. (2012) concluded that with the COVID-19 upsurge, physical markets and cross-border economic transactions were shut down, and Fintech rapidly grew, providing fintech companies with countless opportunities.

Complex financial transactions can now be completed online via smartphones without going to a bank branch or speaking with a bank employee. These transactions include receiving or sending money, making payments, buying online goods and services, dealing with insurance,

investing in stocks, opening and managing bank accounts, and applying for personal loans. Together with mid-sized banks (including specialised banks), small investment banks, cooperative banks, regional rural banks, and tiny banks, fintechs and digital players in India may constitute the fourth segment of the country's financial system (Das & Das, 2020).

More than 2100 Fintech businesses have been launched in India, and over 67% of those have done so in the last five years. Currently, 18 of the 187 Fintech unicorns in the world are headquartered in India. Among them are Pine Labs, Policy Bazaar, Acko, BharatPe, BillDesk, CoinDCX, Cred, Chargebee, Digit, Groww, Paytm, Upstox, Zerodha, Zeta, and Zoho.

The latest Fintech unicorn on our list, Slice, got \$220 million in series B fundraising. The Fintech industry in India has also seen a sharp rise in funding; in 2021, over US\$8 billion in investments were made at various phases of the sector's development. Amitabh Kant, the CEO of NITI Aayog, states that the Fintech sector in India has garnered over US\$27.6 billion in funding and is expected to surpass US\$150 billion in valuation by 2025. This industry can significantly change the financial landscape by giving consumers access to a greater range of options at affordable prices and helping financial institutions cut costs and become more efficient.

In a world where financial literacy varies widely, navigating the complexities of money management can feel like deciphering a complex symphony. For many, the instruments of investing, saving, and responsible credit use remain unfamiliar, leading to financial dissonance and missed opportunities. This disparity between financial knowledge and financial well-being transcends generations, creating a gap that hinders long-term security and prosperity. To bridge this gap and create a harmonious financial future, we need an orchestrated approach.

This requires not just individual education, but also a collaborative effort from institutions, policymakers, and financial advisors. By working together, we can create a comprehensive financial literacy movement, one that empowers individuals and families of all ages to understand and manage their money effectively. Imagine a future where financial literacy becomes as fundamental as reading and writing, equipping every generation with the tools to achieve their financial goals and build a secure future.

LITERATURE REVIEW

The Indian government encouraged the growth of FinTech companies by launching the "India Stack" project to bring the people of India into the digital era. According to PwC

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Startupbootcamp (2017), there will be 500 million smartphone users by 2020, which means that the digital banking industry is expected to grow at an exponential rate. To better serve their consumers, several financial institutions have recently gone digital and partnered with FinTech companies.

The ICICI Bank has a \$1 billion fund for FinTech partnerships. It has created mobile apps for different customer segments, including iMobile (a banking app), iPal (an AI-powered chat box), iBiz (a mobile app for corporate and small and medium enterprises), and Mera iMobile (an e-wallet for rural lending) (Hetankar, 2018).

India and China are far ahead with an adoption rate of 87 per cent, which is greater than the worldwide average of 64 per cent, according to the EY Worldwide FinTech Adoption Index (2019). Although metropolitan areas have a higher acceptance rate, the government has made substantial efforts to increase FinTech usage there. With the use of financial technology, customers may make payments, get insurance, manage their assets, and obtain loans. As a result, the banking industry uses financial technology to modernise banking services and improve user experience.

86 India is ranked as the world's rapidly expanding fintech market as well as the 3rd largest total fintech ecosystem (Mankotia, 2020). The establishment of the 'India Stack' by the Indian government facilitated the development of fintech innovations, which are creating integrated development services to incorporate people in India into the digital realm. Banking customers are gradually becoming conscious of the benefits of Fintech, such as low-cost transactions, convenient access, and practical solutions. (Saksonova & Kuzmina-Merlino, 2017).

This motivates individuals to use technology-enabled financial services. Fintech enhances the self-reliance of both banking firms and consumers by reducing travel and documentation time and cutting costs through collaboration. (Das, 2019). Fintech services are becoming increasingly competitive in terms of both retaining and attracting potential consumers. Previous research looked into how customers adopt fintech, focusing on aspects including risk perception and cybersecurity, perceived benefits of use, and user satisfaction (Lim et al., 2019).

Domestic and international academics have conducted several studies from different perspectives on the relationship between technical advancement and financial innovation. Sci-tech finance has advanced significantly since McKinnon and Shaw's initial "Financial Deepening" proposal in 1973 (Nakashima, 2018).

Fintech, as opposed to the idea of offering financial services to scientific and technology businesses, can be described as new tools that utilise cutting-edge information technologies,

such as big data, the Internet of Things, and cloud computing, to expand the scope of financial service offerings. Keke Gai et al. (2017) highlighted that utilising a new generation of information technology, one company's fintech division would increase service quality and management effectiveness.

Therefore, by implementing technology in the banking industry, financial services may become more effective and comprehensive. Fintech is growing sustainably, and there have been numerous technological advancements in this area, including big data, cloud computing, data analytics and Internet of Things (Yin & Gai, 2015).

Du et al. (2018) categorised the primary concerns of security and privacy in Fintech into four dimensions: data orientation, facilities and equipment, applications, and service models. According to Buckley et al. (2015), Fintech is an application of technology to traditional financial services to increase the breadth of those services rather than just combining information technology with financial services. Few studies on the uptake of fintech services have been conducted in India, which has emerged as the world's fastest-expanding fintech market.

To stimulate debate and prospects that may be relevant for decision makers and regulators, this article aims to offer a succinct overview of the Fintech ecosystem, the link between distinct demographic characteristics and fintech service acceptability, and the constraints that bank clients encounter while accessing Fintech services. State Bank of India (SBI), one of the leading public sector banks, has also created apps, such as YonoLite and SBI's chat box SIA, that are intended to address inquiries and offer its clients user-friendly services.

Therefore, utilising technology in the banking, financial services, and insurance sectors will help to reach underserved populations, offer bank customers a better and more creative banking experience, and aid banks to prosper. Technology advancements have produced flexible payment methods and user-friendly bank services for bank consumers. People carry out their payment operations using mobile wallets like Paytm, MobiKwik, and Unified Payment Interface (UPI).

Financial Literacy Landscape and Generational Gap

Reserve Bank of India (RBI). "Financial Literacy and Inclusion Survey, 2019." This report provides a foundational analysis of financial literacy levels in India. It identifies areas where knowledge and awareness are lacking, particularly across different age groups and demographics. It highlights the specific challenges faced by younger generations in India regarding financial literacy. It explores factors like educational gaps, evolving financial landscapes, and the growing influence of digital financial services.

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Planning Commission of India. "Report of the Working Group on Financial Literacy and Inclusion" (2017), the government report acknowledges the varying financial literacy needs across different age groups in India. It identifies challenges faced by older adults, such as adapting to new financial technologies, and proposes strategies for more inclusive financial education programs. In the grand concert of financial well-being in India, a discordant note disrupts the harmony: the gap between financial knowledge and financial behaviour across generations. This gap, a defining feature of the Indian financial literacy landscape, hinders long-term financial security for all age groups.

Younger generations in India, while comfortable with technology, may lack the financial literacy fundamentals to navigate the complexities of digital financial services. Older adults, on the other hand, might struggle to adapt to these new technologies and require tailored educational resources. This generational disparity underscores the need for a multi-pronged approach that caters to the specific needs of each demographic. Bridging this gap requires a collaborative effort, a financial literacy symphony where all stakeholders play a part in ensuring financial literacy education reaches every generation in India.

Collaborative Efforts for Bridging the Gap

88 International Monetary Fund (IMF). "India: Financial Sector Assessment." (2022). This IMF report emphasises the need for a collaborative approach to promote financial literacy in India. It highlights the importance of partnerships between the government, financial institutions, NGOs, and educators to create a comprehensive and effective strategy. Government of India, Ministry of Finance. "National Strategy for Financial Education (NSFE)." (2020)

This government initiative outlines a framework for collaborative efforts. It defines the roles of various stakeholders, including policymakers, financial institutions, and community organisations, in promoting financial literacy across generations. Atray, Subhashini, et al. (2017) offer a critical review of existing literature on financial literacy in India. It highlights the persistent gap between financial knowledge and financial behaviour, emphasising the need for targeted interventions. World Bank. "Global Findex Database 2021". The World Bank database provides data on financial inclusion and literacy indicators across various countries, including India. It can be used for comparative analysis and to identify areas where India can improve.

The discordant notes of India's financial literacy landscape can only be harmonised through a collaborative effort, a well-orchestrated symphony of stakeholders. Imagine the government setting the national financial literacy strategy, which guides the movement. Financial institutions become instrumentalists, integrating financial literacy modules into onboarding processes and offering financial counselling. Educators are the conductors who

seek to incorporate financial literacy into the curriculum at every level of education, from primary school to higher education.

At the same time, NGOs and policy-makers support this movement by addressing the respective communities and establishing the regulatory frameworks for transparency and accessibility of the financial products. Such an all-round collaborative effort by each stakeholder is what can pave the way to eliminating the financial literacy gap in India. Together, we can orchestrate a financial literacy symphony that will allow all generations to make sound financial decisions and build a future they can trust.

Financial Literacy Programs, Interventions and Developments

Banerjee et al. (2015) explore the effectiveness of a financial literacy intervention in India, offering insights for program design. Chakravarty and Roy's (2018) review article analyses the effectiveness of existing financial literacy programs in India, identifying strengths and weaknesses.

Demirguc-Kunt et. al. (2009) establish a positive link between financial inclusion and economic development, highlighting the importance of financial literacy, while Levine (2005) explores the theoretical and empirical relationship between financial development and economic growth, providing a broader context for the importance of financial literacy in India.

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Agarwal, & Qian (2019) on the other hand, analyses the impact of digital technologies on financial inclusion in India, raising considerations for promoting financial literacy through digital channels and World Bank; the Fintech Effect report (2022) explores the potential of Fintech solutions for promoting financial inclusion and literacy, particularly relevant for younger generations in India.

Bridging the gap in India's financial literacy landscape requires a diverse orchestra of programs and interventions. Imagine workshops and online modules acting as the strings, providing foundational financial knowledge tailored to different age groups. Mobile applications, like user-friendly digital instruments, can make learning accessible and engaging, particularly for younger generations. Community outreach plays the role of the brass section, amplifying the message and reaching those in underserved areas.

These programs and interventions should be constantly evolving, adapting to the ever-changing financial landscape. Recent developments, like gamified learning modules or leveraging social media for financial education campaigns, can be incorporated to keep the audience engaged. By offering a variety of instruments and melodies, this "financial literacy

orchestra" can ensure all generations in India have the tools and knowledge to achieve financial well-being.

To enhance the academic and scientific value of the research and to comply with modern standards of research, recent literature reviews from Scopus and Web of Science (WoS) have been incorporated. For example, Kishor et al. (2025) looked at digital financial inclusion intergenerationally after the pandemic and recognised age-specific barriers to adoption.

Similarly, Kumar and Rani (2025) carried out a comparative study that placed the generational divide in Fintech perceptions on the foreground, and Sharma et al. (2025) researched the role of trust and technological readiness in the Fintech engagements of rural Indian youth. Such literature is recent and relevant, and its inclusion contributes to strengthening the credibility and relevance of the findings. It provides a valuable context for policymakers and financial institutions that seek to increase the level of inclusivity of Fintech.

RESEARCH METHODOLOGY

90 The current study intends to investigate the Fintech ecosystem, the relationship between different demographic characteristics and the adoption of Fintech services, as well as the challenges users in India face while embracing Fintech services. Based on primary and secondary data collected via questionnaire surveys, journals, reports, and news stories, this study has an experiential and quantitative design.

A questionnaire that was individually administered was used to survey 300 respondents in total, the majority of whom were banking customers. Just 278 of the sample's total questionnaires were determined to be legitimate for the research. Twenty-two more surveys were returned because they contained errors and lacked necessary information.

Target respondents were asked to indicate how much they agreed or disagreed with each of the identified barriers to the adoption of Fintech services on a five-point Likert scale (1 being strongly disagree, and five being strongly agree).

The validity of the questionnaire to be delivered for data collection was confirmed by the results of a pilot test, which was carried out at random with 50 respondents before the field work. Along with the questionnaire, a cover letter outlining the survey's objectives was also provided. The data collection was carried out over four weeks between August and September 2023, both in the Punjab and Jammu & Kashmir.

Surveys were conducted among semi-urban bank branches and the adjoining marketplaces with the help of trained volunteers. The respondents filled the forms on their own once they were guided, and anonymity was ensured. This naturalistic setting, which was controlled, allowed for comprehension and comfort. Data analysed were percentage method, mean, standard deviation, ANOVA and chi-square test. The questionnaire consists of two parts. Whereas “Section B” describes obstacles that bank customers face in accepting Fintech services, “Section A” describes the demographic characteristics of the respondents.

Questionnaire Design and Measured Variables

The research adopted a structured, self-administered questionnaire to collect primary data directly from banking customers in the Northern regions of Punjab and Jammu & Kashmir. The survey was divided into two separate parts. Section A reflected respondents' ages, genders, annual incomes, educational attainment, and the industry they worked in. The purpose of section B was to measure respondents' views on the impediments to using the Fintech services. A five-level Likert scale was used in the survey to measure the respondents' perception of barriers. These were variables that were brought out from the previously validated studies to ensure that both content relevance and theoretical soundness were maintained.

Validity and Reliability of the Instrument

To validate the questionnaire, a pilot study was conducted on 50 randomly selected respondents. Pilot test feedback supported the instrument's face validity, and a few minor tweaks were made to enhance readability and clarity. The internal consistency level was evaluated using Cronbach's Alpha, yielding a score of 0.81 and indicating high reliability. The construct validity was also supported through the use of inferential types of statistical tests, for example, Chi-square and One-way ANOVA, that established meaningful relations between variables of demographics and Fintech adoption as predicted theoretically in the various prior investigations.

Hypothesis testing

Literature makes it abundantly evident that different demographic groups have differing views on the acceptability of fintech services. In order to identify correlations and variations in viewpoint across the groups of respondents, a hypothesis was created and put to the test using Chi-Square and one-way ANOVA.

H₀₁: There is no significant difference between Generation Z, Millennials, and Generation X in rating the challenges of accepting Fintech services.

H₀₂: There is no relationship between gender diversity and acceptance of Fintech services.

H₀₃: There is no association among Generation Z, Millennials, and Generation X in their acceptance of Fintech services.

H₀₄: There is no relationship between income and embracing Fintech services

RESULTS AND DISCUSSIONS

We evaluated respondents' gender, age, and monthly income in the initial part of the data analysis, and then examined their employment and levels of education. According to Table 1, there are 42 per cent of female and 58 per cent of male responses, respectively. Fintech can close the gender gap in financial service accessibility and advance financial inclusion.

Males use Fintech financial services at a higher rate than females, per the sample survey. The need to close the gender gap in technology has never been higher, and Fintechs seem to be setting the standard in areas like microfinance and financial inclusion. Harrison et al. (2000) highlights how gender matters when it comes to financial items.

Table 1
Demographic Characteristics of Respondents

Demographic Characteristics		Number	Percentage
Gender	Male	161	58%
	Female	117	42%
Age	15-25 Years	131	47%
	26-40 Years	92	33%
	Above 40 Years	56	20%
Monthly income	Less than ₹ 30000	72	26%
	₹ 30001 - ₹ 60000	108	39%
	₹ 60001 to ₹ 90000	64	23%
	above ₹ 90000	33	12%
Education Qualification	Below or till 10th standard	58	21%
	12th Standard	67	24%
	Graduate	75	27%
	Post Graduate	67	24%
	Illiterate	11	4%

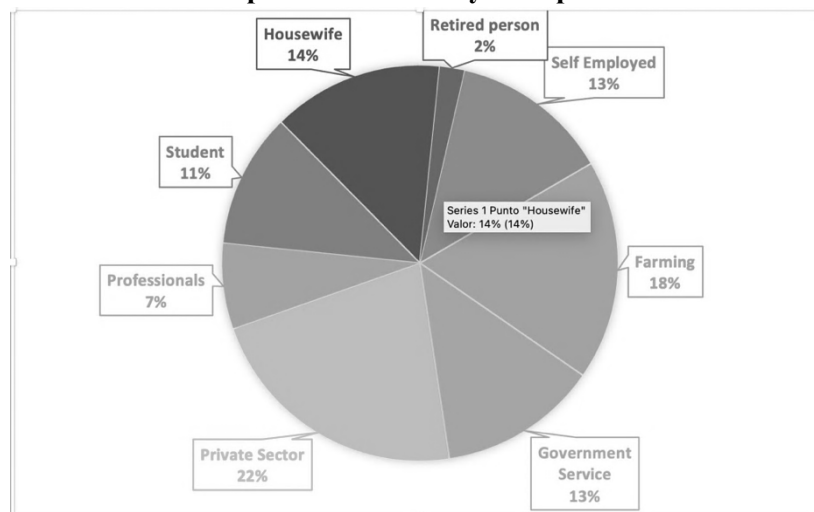
Source: Own elaboration.

According to Betts (1999), wage workers are more often identified with men, and women are usually seen as housewives. However, as a result of improvements in education and technology, there is a greater proportion of working women; these individuals deal with financial institutions and take an active role in the financial decision-making. Based on the age distribution, 47 per cent of participants were in the 15-25 age range, 33 per cent were in the 26-40 age range, and just 20 per cent were above 40. People in their 20s to 30s with middle-to upper-class incomes are driving increasing Fintech adoption rates. The groups in question have almost entirely digitised their payments and transfers. 21% of those surveyed

had completed schooling up to or including the tenth grade. 24% had a high school diploma, 61% had a graduate degree or higher, and only 4% were illiterate.

Graph 1 indicates that the respondents are divided into the following groups: self-employed individuals (13%) who work in the private sector, farmers (18%), housewives (14%), and students (11%). A more balanced view is thus obtained, as this shows a balanced participation of varied groups in the study.

Graph 1
Respondents' Primary Occupation



Source: Own elaboration.

Study Area

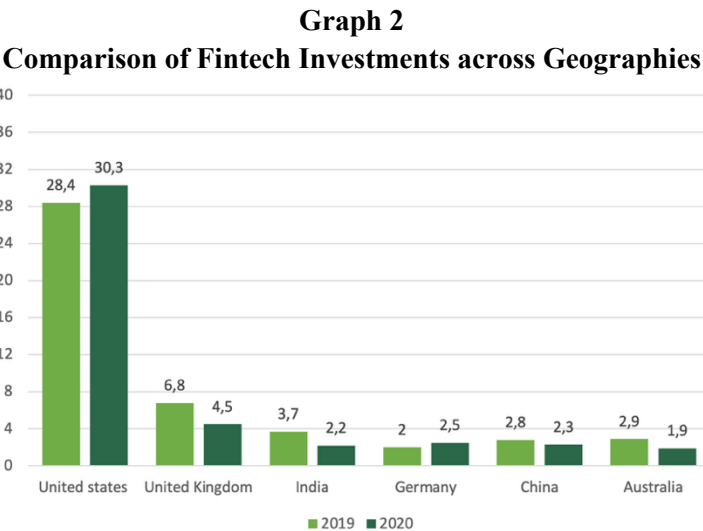
Indian Fintech valuations increased significantly between January 2022 and March 2025, primarily because of the rapid digital shift, favourable policy changes, and a dynamic investment scenario. More and more, fintech is becoming a pillar of Indian financial institutions, and consumers are taking advantage of these platforms to offer more services, including insurance, investment, and lending, beyond just payments. As of 2020, Fintech entities operate in India, and about 67% of these enterprises have joined the market within the last five years, pointing to the dynamic nature of this industry.

Approximately USD 10 billion was invested in India Fintech startups in the last three years. In 2021, eight firms reached valuations surpassing USD 1 billion, and 44 additionally surpassed the USD 100 million barrier. Occasionally in 2025, with a guaranteed nominal value of USD 150 billion, India's bustling Fintech ecosystem is ready to make India a major global Fintech powerhouse.

The explosion of the COVID-19 pandemic had digital payments, especially the ones through UPI, three times higher in volume than in March 2020 to January 2021. The current 43% to

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57% of active participation of the clients from Zerodha, Upstox, and 5Paisa, for example, means that Fintech. Besides, other unicorns have emerged through companies such as Pine Labs, Razorpay and Digit Insurance. In contrast, other has soonicorn status in the making.



Source: Own elaboration (Pitchbook, Venture Intelligence, MEDICI, BCG analysis).

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The competitiveness of the landscape is demonstrated by the diversity of India's Fintech base. Although over 90% of India's investment flows in 2015 came from the Payment and Alternate solution finance business, since then, there has been a shift in the allocation of investment across sectors towards greater equity.

Ranking challenging in the adaptation of fintech services

This section outlines the main obstacles to the adoption of Fintech services in India from the viewpoint of the users, as well as how various age groups rank these obstacles. On a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree), respondents were asked to rank the 12 problems found in the literature. A mean score of more than 3.5 indicated that the element is a significant challenge.

Table 2 displays the mean values for the 12 components, which range from 3.95 to 2.84. Only one factor had a mean value less than 2.00, while five had mean values more than 3.50 and six between 3.00 and 3.50. five main obstacles to Fintech adoption in India are: "lack of technical know-how" (mean value 3.95); "low security (fraud messages, calls, etc.)" (mean value 3.92); "regulatory and compliances law mean" (mean value 3.87); "documentation and formalities" (mean value 3.74); and "emotional attachment to cash" (mean value 3.92). Fintech businesses have become increasingly prominent in the payment space. Since many Fintechs are founded on cutting-edge technology, integrating Fintech apps with outdated systems might be challenging.

Table 2
Challenging in the Adaptation of Fintech Services

NO	CHALLENGES	MEAN	STD. DEVIATION	RANK
1	Lack of technical knowhow	3.95	1.03	1
2	Low security (fraud messages, calls, etc.)	3.92	0.83	2
3	Regulatory and Compliance Laws	3.85	0.84	3
4	Documentation and formalities	3.76	0.89	4
5	Emotional attachment for cash	3.64	1.01	5
6	Lack of awareness	3.36	1.77	6
7	Transaction failure	3.18	1.12	7
8	Poor speed of internet	3.16	0.89	8
9	Problem of hacking	3.12	1.13	9
10	High service charges	3.1	1.14	10
11	Problem in the server	3.05	1.26	11
12	Do not have a bank account	2.84	1.08	12

Source: Own elaboration.

Table 2 illustrates that the mean scores of twelve challenging variables derived from the literature range from 3.95 to 2.84. This suggests that the respondents as a whole assign varying degrees of priority to each challenge element in the effective implementation of Fintech services in India.

Table 3
Perceptions of Generation Z, Millennials, And Generation X Regarding the Challenges of Accepting Fintech

No	Challenges	15-25 Years	25-40 Years	Above 40 Years	Total	F-value	Sig. level
1	High service charges	3.22	2.88	3.22	3.11	0.699	0.555
2	Lack of awareness	2.88	2.9	4.3	3.36	4.965	0.003*
3	Low security (fraud messages, calls, etc.)	3.85	4.2	3.72	3.92	1.256	0.294
4	Emotional attachment for cash	3.62	3.6	3.7	3.64	0.229	0.704
5	Do not have a bank account	2.95	3.02	2.88	2.95	0.125	0.645
6	Transaction failure	2.94	3.16	3.44	3.18	0.877	0.456
7	Documentation and formalities	2.91	3.5	4.9	3.77	3.027	0.002*
8	Problem of hacking	2.95	3.64	2.78	3.12	0.304	0.822
9	Regulatory and Compliance Laws	3.74	4.12	3.7	3.85	1.05	0.365
10	Lack of technical knowhow	3.5	4	4.35	3.95	2.993	0.035**
11	Poor speed of internet	3	3.6	2.9	3.17	1.712	0.17
12	Problem in the server	2.87	3.4	2.89	3.05	0.434	0.729

Source: Own elaboration.

Three of the twelve issues are scored substantially by the respondent groups of Generation Z, Millennials, and Generation X, according to the One-Way ANOVA results in Table 3. "Awareness gaps," "formalities and documentation issues," and "technical know-how gaps" are these obstacles. Millennials and Generation Z have far more invested in, knowledge of,

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and reliance on technology than does Generation X. Our results are consistent with those of Carlin et al. (2017), who found that Millennials and Gen Z have adopted Fintech at a higher rate due to two main factors: their longer life expectancy and higher level of financial technology understanding than previous generations.

Furthermore, there was no discernible difference in how Generation Z, Millennials, and Generation X perceived the various obstacles to using Fintech services. Most respondents in all categories said that fintech is the most affordable option for both consumers and businesses. Because there are no hidden expenses or costs, unlike in conventional corporate operations, this helps save money. Demographic variables influence the overall adoption of fintech services. This study's objective is to ascertain the connection between the demographic traits of the sample respondents and their acceptance of Fintech services. The theories above have been put out and investigated in response.

H₀₂: There is no relationship between gender and acceptance of Fintech services.

Table 4

Gender	Relationship between Acceptance of Fintech Services and Gender					Chi-Square	P-Value
	Never %	Rarely %	Sometimes %	Often %	Frequently %		
Male	17	13.6	12	37.4	20	19.6	0.000
Female	43.1	14.7	5.9	27.5	8.8		

96 Source: Own elaboration.

Table 4 above makes clear that, in comparison to female respondents, 58% of male respondents regularly use Fintech-based services. According to the findings, men are more likely than women to use Fintech-based services. The chi-square test supports this, showing a substantial correlation between gender and Fintech service approval ($P < 0.05$). We accepted the alternative hypothesis—that there is a significant correlation between age and the use of Fintech services—and rejected the null hypothesis based on the P-value (< 0.05).

Table 5 indicates that just 27% of the sample over 40 years old are Fintech users, compared to 66% of respondents aged 15-25 and 62% of respondents aged 29-39 who regularly use Fintech services. As a result, younger people are the target market for the majority of innovative financial products and services.

H₀₃: There is no association between Generation Z, Millennials and Generation X in acceptance of Fintech services

Table 5
Age and Acceptance of Fintech Services between Generation Z, Millennials and Generation X

Age	Never %	Rarely %	Sometimes %	Often %	Frequently %	Chi-Square	P-Value
15-25 Years	15	12	7	42	24	47.29	0
26-40 Years	20	7	11	40	22		
Above 40 Years	44	16	14	12	15		

Source: Own elaboration.

The Chi-square association test is used to investigate the relationship between acceptance of Fintech services and various age groups. It may be inferred that age has a substantial impact on Fintech service acceptance, since the null hypothesis is rejected at the 0.05 level of significance based on the chi-value of 47.29 and the P-value of less than 0.05, indicating a significant relationship between age and the adoption of Fintech services.

The necessity of banks entering the Fintech space initially is underscored by the existence of Millennials and Generation Z and their strong pressure to accept these services early on. These two generations are the main forces behind fintech and banks, pushing them to develop and adapt financial services to make them accessible through the most popular digital devices, especially smartphones. Meola (2017) said.

H₀₄: There is no relationship between income and embracing Fintech services

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Fintechs and other ICT-driven projects hold great potential to contribute significantly to the reduction of economic inequality, especially in developing nations. They could give the underprivileged access to fresh income and jobs. Additionally, they are acting as catalysts for the advancement of tax collection, government services, good governance, and the reduction of corruption. (Aker and others, 2010)

It was discovered that using Fintech services and income were positively correlated. Research reveals that 47% of respondents with monthly incomes over 90,000 are regular users of Fintech services, whereas only 8% of respondents with monthly incomes under 30,000 regularly use digital financial products.

Most of these respondents were retailers and students. Furthermore, the null hypothesis was rejected, and it was discovered that there is a correlation between income and the use of technologically oriented financial services when a P value of 0.05 was used to evaluate the relationship between age and embracing Fintech. Improving the digital infrastructure is a feasible policy endeavour to reduce income inequality; hence, the government needs to prioritise creating a conducive environment for Fintech and financial aid to assist the poor.

Generational Perspectives on Fintech Adoption: Challenges, Demographics, and Digital Inclusion

Table 6
Monthly Income and Acceptance of Fintech Services

Monthly income	Never %	Rarely %	Sometimes %	Often %	Frequently %	Chi-Square	P-Value
Less than ₹ 30000	21	36	18	17	8	131.9	0
₹ 30001 - ₹ 60000	20	9	18	44	9		
₹ 60001 to ₹ 90000	9	7	15	48	21		
Above ₹ 90000	1	3	21	28	47		

Source: Own elaboration.

FINDINGS

It is anticipated that fintechs will upend the financial services industry in a similar way to how smartphones upended Kodak and Nokia. Opportunities in this field would arise from India's sizable underbanked and unbanked population. India is going in the right direction and is off to a good start. Fintech improves operational efficiency by successfully cutting operating costs, enabling strategic disintermediation, creating new entrepreneurial possibilities, and democratising access to financial services (Agarwal & Zhang 2020). India is still in the early stages of Fintech adoption, despite evidence that it is widely available and accepted in sophisticated economies like the US, China, and Japan (Chua et al., 2019). Moreover, the purpose of utilising Fintech is still widely unknown in India.

Fintech companies have become increasingly well-known in the payment industry. Still, there are five main obstacles to Fintech adoption in India: "low security (fraud messages, calls, etc.)" (mean value 3.92), "lack of technical know-how" (mean value 3.95), "regulatory and compliance laws" (mean value 3.87), "documentation and formalities" (mean value 3.74), and "emotional attachment to cash" (mean value 3.92).

Respondents from Generation Z, Millennials, and Generation X significantly emphasised three out of the twelve challenges identified. "Lack of awareness", "documentation and formalities", and "lack of technical know-how" are these problems. Millennials and Generation Z have invested extensively in technology, are aware of it, grew up as it developed, and have incorporated it into their daily lives, in contrast to Generation X. The bulk of Indians who live in cities employ these digital payment methods, yet over 70% of the country's population still calls rural areas home. India's rural areas are growing increasingly accustomed to using digital payment methods due to the widespread availability of cellphones and the internet. To promote comprehensive economic growth in rural India, the Fintech industry has to raise awareness.

According to research, men predominate in the tech sector and are more likely than women to accept financial services. In particular, in Fintech, where a strong technological background is necessary due to the nature of financial settlement, men possess a larger degree of technological experience. Males are also more driven than females to foster faith in the financial system, while the latter develop fear, disinterest, and unfavourable views towards money matters. Findings showed that, although just 27% of respondents aged 40 and over utilise Fintech, 62% of respondents aged 29 to 39 regularly use these services. The chi-square value of 47.29 and the P value of 0.05 indicate a substantial correlation between age and the adoption of Fintech services, which leads to the rejection of the null hypothesis at the significance level of 0.05. cc

Therefore, it can be concluded that the acceptance of Fintech services is significantly influenced by age. Innovative financial services are more likely to be used by the younger generation. The findings support the hypothesis put forth by Alalwan et al. (2015), which states that younger individuals are more likely to use new technologies because they are practical and efficient for conducting transactions. Moreover, younger customers are more tech-savvy, which leads to a respectable level of proficiency and understanding when it comes to using it.

The necessity for banks to expedite the adoption of Fintech services is underscored by the widespread and powerful influence that Generation Z and millennials exercise in adopting these services. These two generations are the main forces behind fintech and banks, pushing them to develop and adapt financial services to make them accessible through the most popular digital devices, especially smartphones. The results demonstrate that Millennials and Generation Z possess extensive knowledge of Fintech and are more motivated and willing to employ Fintech services.

Banks could gain a substantial portion of the unbanked population by using e-wallet services to open virtual accounts for this consumer base. To reach a larger target audience and offer essential services that meet their demands, the service must be easy to use and intuitive. Consequently, there may be a significant improvement in the banks' operational efficiency, competitiveness, sustainability, innovative quality, service creativity, and customer satisfaction levels.

To do this successfully, banks will need to make a significant effort to remove problems and barriers. Although fintech is still in its early phases in the banking sector, it is expected to change how financial goods and services are distributed soon. Fintech will make the financial services sector safer, more stable, and more diverse. Because fintech organisations are not as homogeneous as traditional banks, they provide excellent learning models for improving capabilities and culture.

CONCLUSIONS

Under the collective intelligence orchestration lenses. As pointed out by Kubus, López Domínguez, and De Santos (2025), orchestration of collective intelligence supports sustainable digital transformation because it aligns institutions, communities, and technology platforms. When talking about Fintech, such orchestration consists of government, financial organisations, instructors, and users cooperating to promote financial literacy. This dissonance prevents long-term financial stability and prosperity for all age brackets. The way ahead would require an integrated effort, a symphony in concert, between the government, financial institutions, educators, NGOs, and policymakers. We can develop a comprehensive financial literacy movement in India when we work together. This movement can empower individual people and families of any age to understand and manage money properly.

The implications of bridging this gap are far-reaching. From a policy standpoint, the government can establish a national financial literacy strategy, mandating financial education in schools and incentivising financial institutions to provide educational resources. Regulatory bodies can ensure financial products are transparent and consumer-friendly.

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Programmatically, age-appropriate financial literacy initiatives are essential. These programs, delivered through workshops, online modules, mobile apps, and community outreach, can cater to the specific needs of each generation. Technology can be a powerful tool, making financial literacy education accessible and user-friendly, particularly for younger generations.

Financial institutions can play a proactive role by integrating financial literacy modules into onboarding processes and offering financial counseling services. Educational institutions can incorporate financial literacy education into the curriculum at all levels.

The societal implications are profound. Increased financial literacy empowers individuals to manage their finances responsibly, plan for retirement, and build a secure future. This, in turn, fosters greater financial inclusion, contributing to a more stable and prosperous Indian economy. Closing the inter-generational gap in financial literacy is more than a pedagogical objective; it is a well-calculated move towards building a society able to make informed financial decisions as an extension of the metaphor of an orchestrated symphony of collective intelligence. Working together” and “working strategically” , we can engage all Indians to financial well-being and a brighter economic future.

Financial sector policies should prioritise the development of more accessible financial systems that provide direct assistance to the poor and unbanked by increasing access to appropriate financial services. Fintech can enable the underbanked demographic to become more economically integrated by resolving challenges with value storage and transfer.

The lack of understanding and utilisation of fintech services among bank clients of the older generation, housewives, and agriculturists is due to ignorance and misinterpretation. As a result, steps should be taken to raise customer knowledge and persuade them that such services are trustworthy because there is no other option, and technological integration is required. Fintech has the potential to improve financial literacy among younger generations.

Policies need to ensure that digital financial education is accessible to all and tailored to the needs of each generation. Policymakers need to be proactive in adapting to the changing landscape of Fintech to ensure that the benefits are maximised while the risks are mitigated. They need to tailor policies to the needs of each generation to ensure that Fintech benefits everyone, regardless of age or background. Fintech has opened up new avenues for accessing credit, particularly for younger generations who may not have a traditional credit history. Policies need to ensure that these platforms are well-regulated, transparent, and fair.

Fintech businesses must create and put into practice best practices in risk management, corporate governance, service quality, compliance culture, and employee engagement that have proven successful among the majority of Indian financial institutions' service providers. Indian Fintechs should differentiate themselves by focusing on their "core" offerings.

Successful Fintechs around the world have created their products in a specific area of focus. Policymakers should consider methods to broaden the regulatory landscape model so that it encompasses the RBI, IRDA, and SEBI, among others, and so enables a broader range of goods to be offered under one roof. In addition, India may look towards offering more handholding support to Fintechs and exploring ways to simplify the process for sandbox participants. Previously, policymakers aided Fintech growth by constructing world-class payment infrastructure.

Some initiatives have also been launched to foster collaboration between Fintechs and financial institutions. It is now time to extend this innovation agenda to additional Fintech segments by developing conducive policy frameworks. A broader scope of partnerships between financial institutions and Fintechs is also required. Finally, as Fintechs expand their capabilities and scale, they should begin to plan for international expansion by prioritising geographies and developing capabilities in specific markets.

LIMITATION

Although the findings are insightful, there are some limitations that are to be considered. Although the sample size of 278 was adequate for statistical analysis, the study was limited to certain areas in northern India. This regional restriction implies the overall representative nature of the data. What is more, random sampling may have omitted significant groups such as older people living in rural areas and people unaccustomed to digital financial tools. Although the survey focused on Fintech adoption, it is recognised that respondents may mix up Fintech services with digital banking services provided by a traditional bank. Considering the ongoing integration of Fintech platforms with established financial institutions, especially in a hybrid collaboration, the total separation of mindsets in consumers' eyes may not be achieved.

The dependence on self-reported statistics presents an opportunity to have response bias, i.e., social desirability and recall problems. Moreover, the cross-sectional nature of the study cannot allow for the following changes in the Fintech usage behaviour's development. Longitudinal studies would be more suitable for understanding an evolving attitude, particularly with the fast-developing digital infrastructure in India.

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- 102 Longitudinal approaches, which could be used in future studies, may be used to trace the changes in the adoption of Fintech. Combining qualitative methods such as interviews or focus groups would also allow for a deeper exploration of behavioural insights. A wider geographic sampling that includes the rural areas and Tier 2/ Tier 3 cities would enhance generalizability.

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Annexure I: Survey Questionnaire (English Translation)

Section A: Demographic Information

Please select the appropriate option for each question:

Gender:

- ☐ Male ☐ Female ☐ Other

Age Group:

- ☐ 15–25 years ☐ 26–40 years ☐ Above 40 years

Monthly Income (INR):

- ☐ Less than ₹30,000 ☐ ₹30,001 – ₹60,000

- ☐ ₹60,001 – ₹90,000 ☐ Above ₹90,000

Education Level:

- ☐ Below 10th Standard ☐ 12th Standard

- ☐ Graduate ☐ Postgraduate ☐ Illiterate

Occupation:

- ☐ Student ☐ Private Sector Employee ☐ Government Employee

- ☐ Self-employed ☐ Farmer ☐ Homemaker

- ☐ Other (Please specify): _____

Section B: Perceived Barriers to Fintech Adoption

Please indicate your level of agreement with the following statements on a scale of 1 to 5:

(1 = Strongly Disagree, 5 = Strongly Agree)

S. No	Statement	Rating (1–5)
1	I lack the technical knowledge to use Fintech services.	
2	I am concerned about the security of digital transactions.	
3	Regulatory and compliance procedures are too complex.	
4	Documentation requirements make it hard to use Fintech.	
5	I am emotionally attached to using cash over digital payments.	
6	I am not aware of how Fintech services work.	
7	I have experienced failed transactions while using Fintech.	
8	Poor internet connectivity affects my ability to use Fintech.	
9	I worry about the possibility of hacking or online fraud.	
10	Fintech services charge high service fees.	
11	Server issues often disrupt my Fintech transactions.	
12	I do not have a bank account to use Fintech services.	

Generational Perspectives on Fintech Adoption: Challenges, Demographics, and Digital Inclusion

Annexure II: Participant Consent Form **Participant Consent Statement**

Dear Participant,

You are invited to participate in a research study titled: "Generational Perspectives on Fintech Adoption in India: Challenges, Demographics, and Digital Inclusion." The purpose of this study is to understand how individuals from different age groups perceive and use Fintech services in India.

Please note:

Participation is voluntary.

The survey will take approximately 10–15 minutes.

Your responses will be anonymous and kept confidential.

No personal identifiers will be collected.

You may skip any question or withdraw from the study at any time.

By proceeding with this questionnaire, you confirm that:

You have understood the nature and purpose of the study.

You agree to participate voluntarily.

You consent to the use of the anonymous data for academic research and publication.

Thank you for your participation.

Sincerely,

[Researcher's Name]

Doctoral Researcher

[University/Institution Name]

[Email Address]

