Abstract

1. Introduction

An inclusive financial system is an essential precondition for economic growth that enables even the last-mile population to participate in the formal financial system, absorb financial shocks and entitle the users to meet the majority of their financial needs. This requires comprehending the customers' demand, fortifying the concepts and strategies together with evaluating the viability and technological necessities. The fixed costs incurred by the financial institutions such as cost per transaction, IT systems, branch network, etc. made the outreach of financial services to clients with small and few transactions very costly (Beck, 2020). As a result, a large number of bank accounts remained dormant thereby posing constraints to the sustainable use of bank accounts. The potential cost of financial inclusion both from the demand and supply side outweighs the benefits thereby requiring a more diversified financial system (Hannig & Jansen, 2010). Thus, there is a need for modified financial products and services that will lead to the upliftment of the poor and the development of the underprivileged sections (Mehrotra, Puhazhendhi, Nair & Sahoo, 2009). With respect to making deeper inroads into rural areas and providing tailor-made solutions to enhancing access, the collaboration between FinTech firms and incumbents would aid in diminishing the cost required to address the needs of the last-mile population. Thus, the conception of technology-based innovation is to incorporate the formerly excluded individuals into the formal financial system and to ameliorate sustainable and widespread usage of banking services.

2. Statement of the Problem

India accounts for a significant portion of the world's unbanked population due to its sheer size with 230 million unbanked adults, furthermore, 35 percent of the bank accounts in India are inactive which is the highest globally (Demirguc-Kunt et al. 2021). According to Global Findex Report, 2021, around 50 percent of adults having an inactive account in India cited financial institutions' distance, lack of trust, lacking of need as the major inhibitors in active use of bank accounts.

Furthermore, the inherent characteristics of the North Eastern region make it difficult to implement the inclusion models adopted elsewhere in the country. The region-wise functioning offices of commercial banks in North East India as at end of the quarter December 2021 is very less as compared to Northern, Eastern, Central, Western and Southern regions of the country (RBI, 2021). In addition, North-East secured CRISIL Inclusix score of 48.5 which is much below the national average of 58, however, South continues to lead with score of 79.8 (CRISIL Inclusix report, 2018). Also all the North-eastern states except Tripura and Sikkim feature in the bottom 10 of the CRISIL Inclusix score. The commercial bank branches and Automated Teller Machines (ATMs) per 100000 population in North East is 8.1 and 11.9 respectively, which is below the national average (Ministry of Electronics & Information Technology, Government of India & Better Than Cash Alliance Report, 2022). Assam, being the largest state of the region holds majority of the population and financial flow. As of September 2018, Assam accounted for 10.25 million internet users (TRAI, 2018) which has now increased to 16.11 million as of September, 2021 (TRAI, 2021). FinTech's swift response in providing innovative services, including the distribution of government payments, has made it well-positioned to address the population's financial demands and revolutionise financial service delivery aftermath the crisis. Furthermore, the implementation of financial inclusion measures has created numerous opportunities for evaluative study. A review of existing literature demonstrates that there is an anomaly in the overall strategy for increasing the regular use of formal financial services, particularly among the last-mile population. Thus, an in-depth investigation is indeed of relevance to provide a probable solution to increase financial inclusion in light of the above.

3. Objectives of the study

i. To study the issues and determinants of sustainability of financial inclusion with reference to India.
ii. To determine the factors affecting sustainability of financial inclusion in the area of the study.
iii. To study the growth of FinTech services in India with special focus on interface with financial inclusion.
iv. To examine the factors that impact the adoption or denial in using FinTech services.

v. To determine the factors that impact the supply of FinTech services for fostering financial inclusion.

vi. To bring out a suggestive framework in furtherance of sustainability in financial inclusion with reference to Assam.

4. Scope and Limitations

The study's academic scope is confined to determining the pattern of savings, deposits, access, insurance, borrowing, and the factors affecting sustainable financial inclusion. On the basis of secondary data, a conceptual understanding of the access, quality, and usage factors that influence the sustainability of financial inclusion and the utilisation of FinTech services with an emphasis on their interface with financial inclusion has been provided. In addition, empirical data provides insight into the factors influencing FinTech adoption. Moreover, case studies revealing the factors that influence the supply of FinTech services to promote financial inclusion are provided. Since the study is about FinTech's potential to promote financial inclusion, it is undertaken in both rural and urban settings, and its geographic coverage comprises four districts of Assam: Kamrup, Tinsukia, Darrang, and Dhubri.

Limitations: 1. The study does not account for the influence of lendingtechs and insurtechs on the provision of FinTech services to promote financial inclusion. Data for the supply side was collected from public sector, private sector banks and payment banks. 2. The geographical coverage of the study is confined to four districts of Assam based on CRISIL score, literacy rate and multidimensional poverty index. 3. Since FinTech is a continuously evolving sector. Hence, the findings of this work will be more relevant during the contemporary time.

5. Research Methodology

i. Research Type: The research is empirical and descriptive in nature.

Both quantitative and qualitative methods were used for the study. Primary data have been collected to fulfil objectives 2, 4 and 5 whereas secondary data have been collected to fulfil objectives 1 and 3.

ii. Sampling method: The sampling method for objectives 2 and 4 is multi-stage sampling (Stage 1: District sampling, Stage 2: Ward and community development block sampling, Stage 3- Village and household sampling). The CRISIL Inclusix Report ranks the districts based on financial inclusion scores in four different slabs, i.e. high, above average, below average and low. One district from each slab having the lowest literacy rate and highest multi-dimensional poverty is selected for the study. Thus, the districts selected from each slab include Kamrup (high slab), Tinsukia (above-average slab), Darrang (below-average slab) and Dhubri (low slab). Data for literacy rate is taken from Census 2011 and the multidimensional poverty index is obtained from Assam Human Development Report, 2014. After random selection of the wards, blocks and villages, responses from 1066 prime earner of the households having a bank account are collected using the Judgment sampling method.

For the purpose of objective 5, Judgement Sampling has been used and only those FinTech service providers that are promoting financial inclusion and are providing their services in Assam are selected. The service providers are selected based on the Ministry of Electronics and Information Technology (MeitY) ranking on numerous parameters of digital transactions (Fino Payments Bank, HDFC Bank, Bank of Baroda and IndusInd bank). Bank of Baroda being one of the largest public sector banks in India, India Post payment bank considering its significant role in rural areas. UCO bank being the lead bank in three out of four districts surveyed.

iii. Data analysis:

The study examined factors influencing FinTech service adoption and denial using TAM 1, TAM 2, and other constructs of technology acceptance based on a literature review. Frequencies, percentages, crosstab, Chi-square test, Independent samples t-test, One-Way ANOVA, Factor analysis, and Regression were used to analyse data.

6. Findings of the study: The major findings of the study with regard to the demand and supply side.

i. Major findings (Financial Inclusion):

The majority of the respondents cited the distance of bank branches as a barrier to their frequent use of formal financial services. In terms of savings kept by the respondents, majority of respondents keep their surplus in formal sources. Conversely, a little less than 1/4th of respondents save their surplus in informal sources such as ROSCA, friends and relatives. The rationale behind the respondents who save in informal sources includes receipt of finance during uncertainty, suggestion received from people in their locality, saving relatively less amount of money i.e., a set amount to be paid on weekly or monthly basis and no requirement to stand in a queue.

While determining the sustainability in the use of bank accounts by the respondents it has been revealed that the majority of the respondents are making sustainable use of their bank account i.e., are saving /transacting using the bank account within a period of 1 year. Contrary to this, there are respondents with marginally unsustainable (inactive) and unsustainable accounts (dormant).The results of the Chi-square test revealed that demographic characteristics such as occupation, educational qualification and age have a very strong association with the sustainable use of bank accounts. Agriculturists and daily wage earners have the highest number of unsustainable (dormant) bank accounts. A little less than half of the illiterates and more than 1/4th of the respondents with primary-level education have dormant bank accounts. There exists a strong association between the area of residence and sustainability in the use of bank accounts. The ANOVA test also revealed that the motive to open bank account only to receive Direct Benefit Transfer and use of bank account for documentation purposes is highest among the unsustainable and marginally unsustainable groups. Significant difference exist between constraints faced in maintaining accounts in a formal financial institution and sustainable use of bank accounts. **ii.** FinTech:

Perceived Usefulness, Trust, Govt. support and Social Influence have a significant positive influence on the attitude toward FinTech services. Thus, the efficiency provided by technology-based financial services in performing banking transactions/business operations and the trust towards such services that the personal information is secured influences the respondents' attitude towards digital financial services. In addition, the support from the Govt. in terms of the development of payment infrastructure, the launch of the Unified Payment Interface, Aadhaar Enabled Payment System, Digital India Initiative and network externalities such as influence from friends, relatives, etc.,

positively affect the attitude towards FinTech services. Besides, Perceived risk such as proneness to cyber-attacks, loss of financial and personal information and technical glitches while performing a transaction, negatively affects the attitude towards FinTech services.

Perceived Ease of Use does not influence the Attitude but has a positive effect on Behavioural Intention to use FinTech services. Self-efficacy is an important predictor of Perceived Ease of Use but does not have any significant influence on the Attitude and Intention to use FinTech services.

Government support plays a salient role in fostering confidence and escalation in trust towards FinTech services, besides, Perceived risk negatively affects trust. Perceived Usefulness, Perceived Ease of Use, Social Influence and Attitude are important determinants of Behavioural Intention to use FinTech services and Attitude has the highest level of influence on Behavioural Intention.

Connectivity is posing constraints in the impeccable use of technology-based financial services. The majority of the respondents face the problem of poor speed of the internet and transaction failure. There is a significant difference between the issues of poor speed of the internet, unawareness, transaction failure, conception of cumbersome navigation and area of residence.

iii. The factors that have been identified as the deterrent factors affecting the supply of FinTech services for fostering financial inclusion in Assam include a.) low Aadhaar penetration, b.) lack of (Cash-in Cash-out) CICO infrastructure, c). lack of digital and financial literacy programmes, d.) low awareness regarding dispute resolution process, e.) connectivity and f.) risk.

7. Contribution to the Body of Knowledge

The study is a unique addition to the existing literature on FinTech-enabled sustainable financial inclusion. The study provides an in-depth understanding of the demand-side barriers to access to financial services leading to the in-operation of formal accounts. The practices of savings, deposits, insurance, proximity of financial institutions and practice of sending/receiving remittances were studied. The study brings out the major challenges

accountholders with dormant accounts (unsustainable groups) had in retaining accounts at formal financial institutions. This is supposed to assist in meeting the void left by the earlier initiatives to best meet the actual needs of society. Furthermore, the study also contributes to the existing body of knowledge to understand the demographic and social factors affecting the usage of technology-based financial services among bank customers in rural-urban areas. Contrary to previous studies (Hasan, 2007; Jumardi et al. 2019; Shiau et al. 2020) it is established in this study that self-efficacy does not affect the attitude and intention to use FinTech services. The study was done amidst the Covid-19 pandemic and revealed the pattern of respondents' adoption of digital financial services during crisis situations. Furthermore, the study provides insights into infrastructural, regulatory, operational and interoperability issues faced by the FinTech service providers (supply-side) in fostering financial inclusion in the state. This would aid to transfigure the financial inclusion efforts through FinTech to thrive in the long run.

8. Scope for Future Research: Studies can be conducted on the functioning of digital insurance and lending sectors (impacting the access to finance for SMEs) in Assam. Since the current study was carried out in the midst of the pandemic, studies can be done focusing on whether the potential efficiency brought by FinTech is shared equally by all sections of the population. Furthermore, future research is also possible on social and operational performance aspects of payment banks in the state of Assam.

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