Financial inclusion in north-eastern region: an investigation in the state of Assam

Sudarshan Maity

The Institute of Cost Accountants of India, Kolkata, India, and

Tarak Nath Sahu

Department of Commerce, Vidyasagar University, Midnapore, India

Abstract

Purpose – Access to finance, especially by the poor and marginalized section of the population, is a prerequisite for creating employment opportunities, economic growth, poverty reduction and social cohesion. Access to finance makes transactions quicker, cheaper and safer. Most people around the world having an account in a formal financial institution serve as an entry point into formal financial sector. This study aims to analyze the status of financial inclusion in Assam with respect to demographic penetration, geographic penetration and usage ratio, i.e. credit–deposit ratio.

Design/methodology/approach – The study covers a period of 12 years from 2007–08 to 2018–19. Both the parametric and non-parametric statistical tools have been used to analyze the various dimensions of financial inclusion.

Findings – The study clearly indicates that there is a significant difference between Assam and aggregate India in financial inclusion and the status of Assam is somewhat lower as compared to the aggregate financial inclusion status of India. To achieve a satisfactory level of financial inclusion, it is not enough to open a bank account for the excluded people, but banks must look at flexibility and timeliness in services to offer a complete package to this segment of the population.

Originality/value – The study is a significant attempt to meet the shortcomings and improve banking coverage for achieving financial inclusion.

Keywords Financial inclusion, Bank branch, Usage ratio

Paper type Research paper

Introduction

Socio-economic development has become an essential priority for any policymaker all over the world and in India. In the development process, social and economic exclusion of the majority of people of the society has resulted in poverty, low agricultural growth, income and social inequalities, unemployment, fewer employment opportunities, regional disparities, gender inequalities, etc. The term financial inclusion has been defined by various world-class institutions and its facets have been changing from time to time by inculcating a new approach to financial inclusion. Access to low-cost formal financial services and

products especially to the disadvantaged and unrepresented can facilitate financial inclusion. A large chunk of population is still either underbanked or unbanked and large numbers of people are unemployed and are financially insecure. A bank account or account in other financial institutions can encourage saving and open access to credit. A branch is a prime intermediation between the bank or other formal financial institutions and the public. Thus, it plays an important role in the expansion of banking services. Therefore, branch expansion is essential towards financial inclusion. The opening of a bank account is one of the key requirements towards financial inclusion. Access to and participation in the financial system can empower people, especially those belonging to lower strata of society, and contribute to their development, socially and economically. Financial inclusion in a true sense would require going beyond mere opening of bank accounts and also ensures functional access points, availability of multiple finance-related services ahead of savings accounts, availability of credit, insurance, etc.

A bank account is a primary requirement that enables access to any banking service or product (Mahadeva, 2008). A formal account can encourage saving for future and access to credit. Without having a deposit or saving account, people will keep their savings money in an informal financial institution which gave them return at a higher rate initially but uncertain to get back their initial investment amount (Maity and Sahu, 2018). Further, access will be easier only when bank branches are available within their reach. In respect of financial inclusion perspective, more the supply more will be the demand. People will open a bank account if the access is easier within a short distance. Around the world, for most people, having an account at a financial institution serves as an entry point into the formal financial sector (Demirguc-Kunt and Klapper, 2013).

To impart the financial inclusion benefits, numerous financial institutions' like banks along with different digital banking services work together (Bansal, 2014; Gomathy, 2015). The present study is an endeavour to investigate the financial inclusion status in Assam which is a part of the north-eastern region (NER) and a large part of population of NER are living in this state compared to the other states in NER. In recent times, financial inclusion is the primary object of the Government as well as the Reserve Bank of India (RBI). Banking services are central to the challenge of financial inclusion. The data at the macro level shows that compared to aggregate India, financial inclusion status in NER is below the national level (Maity, 2019).

In this circumstance, to know more about the access to finance by the people of this region, researchers have selected Assam as the study region as around 68% of NER populations are live at Assam only (as per Census of India 2011). Access to accounts that carry low costs and presence of banks in the vicinity of the individuals enable greater financial inclusion (Chakrabarty, 2011; Allen *et al.*, 2012; Kumar, 2013). The inclusion of disadvantaged section of the community to the formal financial sector is the major objective for most of the countries.

Literature review and hypotheses development

Financial Inclusion is an area currently having great significance and relevance. Financial inclusion, in a broad sense, stands for entry to the formal financial sector for those who are marginalized and financially excluded. Banks have been acclaimed as a significant contributor in promoting inclusive growth and reducing the vulnerability of the poor and excluded (Chakrabarty, 2009). However, India (followed by China) accounts for the second largest unbanked population with around 190 million people still having no access to formal financial services (Demirguc-Kunt *et al.*, 2017). Lack of money, location of the financial institution or distance, document requirements (Demirguc-Kunt and Klapper, 2013) and no

trust in the financial system are the main reasons that the people do not opt for these financial services. The previous literature collected on recent studies is summarized below.

In a study, [Das and Guha \(2015\)](#) seek to understand district-level banking coverage in village areas of Assam. Ordinary least squares technique is used to determine the respective coefficient value. According to their analysis, the study concluded that compared to other regions in India, NER is much lag behind. In line with the same, [Maity \(2019\)](#) has also found that the status of financial inclusion in NER is comparatively lower than the national average. Further, [Kodan and Chhikara \(2011\)](#) have attempted to analyze the status of financial inclusion in Haryana and also to compare it with aggregate India. They find that there is no difference between Haryana and India significantly, but the status of Haryana is somewhat better than aggregate India. Following this, [Shafi and Medabesh \(2012\)](#) have investigated financial exclusion problem in Jammu and Kashmir and impact of initiatives taken by the regulator. The study finds that, although many banks in Jammu and Kashmir have failed to achieve their targets towards total financial inclusion, yet J&K Bank through its large branch network has helped the state to achieve financial inclusion to a satisfactory level. In another study with the primary data, [Chakraborty and Barman \(2013\)](#) have studied the challenges and opportunities of financial inclusion in Tripura. The challenges of financial inclusion in Tripura are posed by prophetic regulators, political involvement, limitations of information technology, particularly of internet, and inefficient project appraisal system.

The banking sector, earlier, was majorly confined to the metropolitan cities. The nationalization of the banks, in 1969 and 1980, extended the banking services to the neglected areas of the country ([Dhameja and Arora, 2020](#)). The participation of the vulnerable and disadvantaged in the formal financial system can boost financial and social inclusion ([Iqbal and Sami, 2017](#)). As per the RBI bulletin (2018), the financial inclusion in India has been following three different stages in which the first stage is of 30 years from 1960 to 1990 in which priority was given to pass on credit to the underprivileged section of society. The second stage, which ranges from 1990 to 2005, focused on financial institution reform and current phase from 2005 onwards which is focusing on financial inclusion and financial deepening. According to [Mahadeva \(2008\)](#), financial institutions play their own role in increasing access to households, especially in rural locations. The study considers several alternative initiatives to increase access for under-served populations. Further, according to [Ramji \(2009\)](#), the general impression about banks is that they are meant for “richer” people. [Singh et al. \(2017\)](#) have attempted to establish the preferred new market entry strategies of public and private sector Indian banks. Further, [Kumar \(2012\)](#) has analyzed how the relationship between the operating branches varies according to population categories, bank groups and income. In another study, [Burgess and Pande \(2005\)](#) have evaluated opening of new branches in poorer areas and how the bank branch expansion program in India affected rural poverty. [Kaur and Kapuria \(2020\)](#) have examined the determinants of accessing institutional and non-institutional finance across male- and female-headed households in rural India. The study finds that female-headed households have a lower probability of accessing institutional finance and a higher probability of accessing non-institutional finance. In a study, [Maity and Sahu \(2020\)](#) investigate how the banks expand the banking services through the implementation of the Government’s Jan Dhan Yojana and increase their performance. This scheme produces the outcomes as expected at the time of implementation because of its larger growth and expansion among underprivileged people.

The nature of distribution of bank branches is such that rural areas may lack easy access to banks. The disparity of financial inclusion exists everywhere, including developed countries. [Ansong et al. \(2015\)](#) suggest that not everyone in Ghana, especially in rural, has

physical access to a bank. The fact that 15 of the predominantly illiterate districts in rural occupied by nearly 1.4 million Ghanaians, do not have any bank means that people in such districts may have to commute long distances to an urban area to access formal financial services. Further, according to [Evanoff \(1988\)](#), in the USA, when comparing rural areas in which branching allowed with those having only unit banks, accessibility improved by 53%. Further, [Alama and Ausina \(2012\)](#) in their analysis explored the determinants of a bank branch location in Spain, with a special focus on their implications for financial exclusion. The world bank data shows that rural regions in underdeveloped and developing countries are mostly excluded from formal financial services. In a study, [Burgstaller \(2013\)](#) has studied market structure, bank penetration and banking conduct across Austrian districts. The study focuses on regional banking markets. The study concludes that mainly credit cooperatives serve the poorer and less developed rural banking markets. In line with that, [Simkhada \(2013\)](#) has investigated the role of co-operatives in Nepal. He argues that the cooperative model should receive increased attention in Nepal, allowing existing cooperatives to be strengthened and more cooperatives to be established, reaching more remote rural communities. In another study, [Kim \(2016\)](#) has examined whether financial inclusion reduces income inequality. To accomplish this, he uses cross-sectional data for 40 countries in the OECD, the European Union and Eurozone for the years 2004–2011. The study concludes that financial inclusion is a tool for reducing income inequality, and income inequality has a very negative effect on gross domestic product (GDP) growth. The Indian financial system, constituting majorly of the banking sector, has dual responsibilities to perform – financial services as well as services for achieving the social missions of the Government ([Nataraj and Ashwani, 2018](#)).

In a study, [Beck *et al.* \(2007\)](#) have opined that higher geographic and demographic penetration indicates easier access to financial services. Further, higher penetration indicates a smaller distance between the bank branch and customer. [Kodan *et al.* \(2011\)](#) in their study considers parameters such as GDP, population, deposit and credit to measure financial inclusion status of NER. Additionally, a high credit–deposit (C–D) ratio is usually associated with higher investment and growth ([Kodan and Chhikara, 2011](#)). In a study, [Maity and Sahu \(2018\)](#) have investigated the factors' effects on deposit penetration and credit penetration that indicate the position of financial inclusion. According to [Bihari \(2011\)](#), major barriers include limited geographical access to a bank. The geographical access is measured by knowing how far people are located from the nearest bank branch or an automated teller machine, i.e. branch per 10,000 km² or branch per 100,000 people. [Arora \(2010\)](#) and [Gupte *et al.* \(2012\)](#) capture not just demographic penetration but also geographic penetration in measuring financial inclusion. Some previous studies found that reduced legal restrictions on banks' geographic expansion led to the enhanced accessibility of banking services in rural areas, where bank branches are relatively sparse ([Gunther, 1997](#)). In line with the above, other studies by [Beck *et al.* \(2007\)](#), [Ghosh \(2011\)](#), [Kodan *et al.* \(2011\)](#), [Cnaan *et al.* \(2012\)](#), [Kumar \(2013\)](#), [Pathania *et al.* \(2016\)](#) and [Maity and Sahu \(2019\)](#) also highlighted the proliferation of banking facilities and the importance of financial inclusion in development of an economy. However, the studies on the present subject are very limited. So, this study has tried to fill the gaps and provide a more generalized opinion.

Based on the above literary documentations, the study endeavours to investigate the financial inclusion status in the state of Assam. Further, based on the three dimensions of population per bank branch, bank branch per 1,000 km² and C–D ratio, researchers have compared the financial inclusion status of Assam with the aggregate India. Based on the theoretical backdrop discussed and the above research objectives, the first hypothesis (H_{01}) is that there is no significant difference in population per bank branch, bank branch per

1,000 km² and C–D ratio between Assam and aggregate India and the second hypothesis (*H*₀₂) is that there are no significant differences among the share in population, share in bank branch, share in deposits and share in credit of Assam as per cent to aggregate India.

Data and research methodology

The previous literature supports the fact that NER is much lag behind than aggregate India in achieving financial inclusion. NER consists of eight states including Assam. Most of the population of NER lives at Assam (with 68.38% of total NER population) and it is covered with 29.92% of total NER areas. Being the most populated state in NER, researchers have considered Assam as an area of study to perceive financial inclusion status compared to aggregate India. The present study is based on secondary data which are collected from Census of India, the Database on Indian Economy of RBI, etc. The study covers a period of 12 years starting from 2007–08 to 2018–19.

The collected data has been analyzed with the help of parametric and non-parametric statistical techniques. The *t*-test is used to assess the statistical significance of the difference between means of two samples for a single dependent variable. The term *t*-test is introduced by William Sealy Gosset in 1908. The *t*-test is a special case of ANOVA for two groups or levels of treatment variables. Following this, Kruskal–Wallis test is used. The Kruskal–Wallis test is a non-parametric test, which sets its goal to determine whether all or *k* populations are identical or at least one tends to give observations that are different from those of other populations. If there are no mean ranks, then the statistical test is defined as follows (Kodan and Chhikara, 2011):

$$H = \left[\frac{12}{N(N+1)} \right] \left[\sum_{i=1}^k \frac{R_i^2}{n_i} + \frac{R_2^2}{n_2} + \frac{R_3^2}{n_3} + \dots + \frac{R_k^2}{n_k} \right] - 3(N+1)$$

where *N* is the total number of observations, *n* is the number of observation in one population, *R_i* is the sum of ranks, *k* is the number of populations and *H* is the Kruskal–Wallis test.

Analysis and findings

The availability of banking services is the major component of financial inclusion from the supply side. The number of bank branches and other modes of banking expresses the availability of banking services (Dangi, 2012). Higher geographic and demographic penetration indicates easier geographic access and smaller distance between bank branches and customers (Beck *et al.*, 2007). The branch network has an unambiguous beneficial impact on financial inclusion (Kumar, 2013). Table 1 expresses the availability of banking services in terms of population per bank branch and bank branch per 1,000 km². It is evident from Table 1 that the number of bank offices has continuously been increased in Assam as well as in India from 1,323 and 75,388 in 2007–08 to 2,924 and 145,555 respectively in 2018–19. Because of the increased number of bank branches, the population per bank branch has been significantly declined from 22,130 to 11,893 in Assam and 15,289 to 9,468 in aggregate India (see Table 1 and Figure 1). Further, the bank branch per 1,000 km² has been significantly increased from 16.9 to 37.3 in Assam and 22.9 to 44.3 in aggregate India (see Table 1 and Figure 2).

The compound annual growth rate (CAGR) of bank branches in Assam and in India is 7.48% and 6.16%, respectively, during the period under consideration. It is a good sign of

Table 1.
Availability of
banking service in
Assam and India
(population per bank
branch and bank
branch per
1,000 km²)

Year	No. of bank branch	Assam Population per bank branch	Bank branch per 1,000 km ²	No. of bank branch	India Population per bank branch	Bank branch per 1,000 km ²
2008	1,323	22,130	16.9	75,388	15,289	22.9
2009	1,373	21,661	17.5	79,900	14,662	24.3
2010	1,448	20,863	18.5	85,277	13,963	25.9
2011	1,526	20,108	19.5	90,976	13,302	27.7
2012	1,619	19,252	20.6	98,711	12,461	30.0
2013	1,744	18,154	22.2	106,675	11,719	32.5
2014	1,963	16,383	25.0	118,110	10,758	35.9
2015	2,065	15,819	26.3	126,800	10,185	38.6
2016	2,490	13,326	31.7	135,738	9,670	41.3
2017	2,601	12,959	33.2	140,783	9,476	42.8
2018	2,680	12,775	34.2	142,917	9,488	43.5
2019	2,924	11,893	37.3	145,555	9,468	44.3
Average	1,980			112,236		
CAGR (%)	7.48			6.16		

Source: Calculated by researchers

Figure 1.
Trend of population
per bank branch in
Assam and India
(2008–2019)

Source: Prepared by researchers

Figure 2.
Trend of bank branch
per 1,000 km² in
Assam and India
(2008–2019)

Source: Prepared by Researchers

improvement of financial inclusion status for both, i.e. in Assam as well as in India. The average bank branch in Assam and India is 1,980 and 112,236, respectively, during the period under study. The *t*-test is used to check the significant difference between the availability of banking services in Assam and India from 2007–08 to 2018–19. The results of *t*-test in Table 2 corroborate the fact that there is a significant difference in the two supply-side financial inclusion dimensions between Assam and aggregate India. Moreover, the status of financial inclusion in Assam is comparatively lower than in aggregate India.

According to Reynolds (2003), one of the measurements of financial exclusion is not having a bank account. For Thorat (2007), one common measure of financial inclusion is adults with bank accounts (deposit and credit). Leeladhar (2005) revealed that population of the country is one of the benchmarks used to assess the degree to reach of financial services, which is the ratio of deposit accounts (current and savings) to the adult population. Hogarth *et al.* (2003), Sarma and Pais (2008), Bihari (2011), Shafi and Medabesh (2012), Kumar (2013), Kodan and Chhikara (2011), Ghosh (2012), Sharma (2016), Maity and Sahu (2018) and Maity (2019) have proposed number of bank accounts to population ratio as an indicator of penetration of banking system. The present study considers usage ratio as one of the dimensions of financial inclusion, i.e. C–D ratio.

Table 3 reveals that during 2007–08 to 2018–19, deposits and credit in Assam grew at 15.18% and 30.78%, respectively, whereas in aggregate India, deposits and credit grew at 13.08% and 13.59%, respectively. The rate of deposits and credit growth in Assam were found significantly much higher than aggregate India. A massive shift in financial inclusion was observed by the initiative of the government to include financially excluded into the formal financial system by launching PMJDY in 2014 (Maity and Sahu, 2020). This was a major initiative as this scheme contains a holistic approach to financial inclusion by inculcating no-frill account, interest on deposits, accidental insurance, life cover, direct benefit transfer facility of government scheme, overdraft facility, access to insurance and pension products and facility of Rupay debit card. The C–D ratio is a fundamental indicator of how efficiently the deposits are mobilized and is used to carry out investment and capital formation activities (Kodan and Chhikara, 2011). A high C–D ratio is usually associated with higher investment and growth. Limited credit access may cause economic loss (Chen and Jin, 2017). C–D ratio is considered separately as a measure of usage dimension to nullify the effect of higher per capita deposit in comparison of per capita credit. Table 3 presents the usage ratio of Assam and aggregate India for the period from 2007–08 to 2018–19. During the period, C–D ratio is significantly increased from 0.11 to 0.44 in Assam and 0.74 to 0.78 in aggregate India. C–D ratio in Assam increased to four times because of higher growth of

Table 2.
Results summary of
t-test for unequal
variance (availability
of banking service)

Variable	<i>t</i> -test		Null hypothesis (H_0)	Decision
Population per bank branch	<i>t</i> -value	1.7	There is no significant difference in population per bank branch between Assam and aggregate India	Null hypothesis is rejected at 1% level of significance
	<i>p</i> -value	0.000		
Bank branch per 1,000 km ²	<i>t</i> -value	1.7	There is no significant difference in bank branch per 1,000 km ² between Assam and aggregate India	Null hypothesis is rejected at 1% level of significance
	<i>p</i> -value	0.004		

Source: Calculated by researchers

Table 3.Usage ratio of
banking service in
Assam and India
(credit–deposit ratio)

Year	Assam			India		
	Deposit (in billion)	Credit (in billion)	C–D ratio	Deposit (in billion)	Credit (in billion)	C–D ratio
2008	311.0	34.0	0.11	32,500.0	24,180.0	0.74
2009	393.0	33.0	0.08	39,219.0	28,473.0	0.73
2010	486.0	35.0	0.07	45,610.0	33,432.1	0.73
2011	585.0	41.0	0.07	53,896.0	40,745.4	0.76
2012	666.0	53.0	0.08	60,783.0	48,018.6	0.79
2013	767.0	61.0	0.08	70,126.0	55,259.3	0.79
2014	838.0	62.0	0.07	79,558.0	62,850.8	0.79
2015	974.0	297.0	0.30	89,222.0	68,790.2	0.77
2016	1,038.0	426.7	0.41	96,599.7	75,209.3	0.78
2017	1,209.8	487.5	0.40	1,07,300.3	79,178.7	0.74
2018	1,346.4	573.1	0.43	1,14,344.5	87,669.7	0.77
2019	1,472.0	650.7	0.44	1,25,586.7	98,183.7	0.78
Average	840.5	229.5	0.27	76,228.8	58,499.2	0.77
CAGR (%)	15.18	30.78		13.08	13.59	

Source: Calculated by researchers

credit at 30.78%. The result of *t*-test in Table 4 indicates that there is a significant difference in mean value of C–D ratio between Assam and aggregate India. Figure 3 also depicts the trend of C–D ratio of Assam and aggregate India.

Table 5 and Figure 4 present the contribution of Assam in respect of the four components of the share of population, bank branch, deposits and credits with respect to aggregate India. It indicates that bank branch has increased from 1.755% to 2.009%, deposit has increased from 0.957% to 1.172% and credit has increased from 0.141 to 0.663%, and share of population is almost at stable position during the period of study. The average contribution

Variable	<i>t</i> -test		Null hypothesis (H_0)	Decision
Credit–deposit ratio	<i>t</i> -Value	1.8	There is no significant difference in C–D ratio between Assam and aggregate India	Null hypothesis is rejected at 1% level of significance
	<i>p</i> -Value	0.000		

Table 4.Results summary of
t-test for unequal
variance (usage ratio) **Figure 3.**
Trend of C–D ratio in
Assam and India
(2008–2019)**Source:** Prepared by researchers

Table 5:
Contribution of
Assam in various
components (in %) and their rank

Year	Population	Rank	Bank branch	Rank	Deposit	Rank	Credit	Rank
2008	2.540	48	1.755	32	0.957	13	0.14061	7
2009	2.539	47	1.718	31	1.002	14	0.11590	6
2010	2.537	46	1.698	30	1.066	16	0.10469	3
2011	2.536	45	1.677	29	1.085	18	0.10062	2
2012	2.534	44	1.640	27	1.096	21	0.11037	4
2013	2.533	43	1.635	26	1.094	20	0.11039	5
2014	2.531	42	1.662	28	1.053	15	0.09865	1
2015	2.529	41	1.629	25	1.092	19	0.43175	8
2016	2.528	40	1.834	33	1.074	17	0.56736	9
2017	2.526	39	1.848	34	1.127	22	0.61574	10
2018	2.525	38	1.875	35	1.178	24	0.65367	11
2019	2.523	37	2.009	36	1.172	23	0.66274	12
Total rank		510		366		222		78

Source: Calculated by researchers

Figure 4.
Trend in contribution
of Assam in various
components (in %)

Source: Prepared by researchers

Figure 5.
Ratio of contribution
in Assam of various
components
(2007–08)

Source: Prepared by researchers

of Assam in population, bank branch, deposits and credits in total population, bank branch, deposits and credits were 2.532%, 1.748%, 1.083% and 0.309%, respectively, for the period from 2007–08 to 2018–19.

Figures 5 and 6 for the year 2007–08 and 2018–19, respectively, show that there is variation between the four dimensions of population, bank branch, deposit and credit in Assam, where the ratio of the four dimensions should be at 25% each. In 2007–08, the share of bank branch, deposit and credit is only 53%, rather than 75% (25% each for three dimensions). Further, in 2018–19, this share is 60%, rather than 75%. In this regard, researchers may conclude that status of financial inclusion in Assam is not improved significantly during the period of study compared to other states and regions. Compared to population ratio in this state, demand-side and supply-side dimensions are at a lower level.

In the present study, there is no mean rank. So, the Kruskal–Wallis test is applicable with $v = k - 1$ degree of freedom. The calculated value of Kruskal–Wallis test (H) is 40.26, which is less than Chi-square table value of 54.776 at 1% level of significance (see Table 6). Thus, the null hypothesis H_0 is accepted. Hence, it is concluded that there is no significant difference in the percentage share of Assam in population (as per cent to the total population of India), bank branch share (as per cent to total bank branch of commercial banks in India), deposits share (as per cent to total deposits of commercial banks in India) and credit share (as per cent to total credit distributed by commercial banks in India) during the period under study. Moreover, the share of Assam in total bank branch, total deposits and total credit of commercial banks in India are at a lower level compared to population in India during the period under consideration.

The initiatives of RBI, the Government of India and Banking institutions are praiseworthy but still large numbers of needy peoples are away from the preview of

Source: Prepared by Researchers

Figure 6.
Ratio of contribution
in Assam of various
components
(2018–19)

Value of Kruskal–Wallis test (H)	Degree of freedom	Chi-square table value @ 0.01	Decision
40.26	33	54.776	Null hypothesis is accepted

Source: Calculated by researchers

Table 6.
Result of Kruskal–Wallis test

financial inclusion because of geographical location, cultural diversity, income status, etc. Though financial institutions have reached the remotest part of the country physically, they still need time to house into the heart of the people. Many people in Assam do not see a purpose in having a bank account; financial inclusion is to give them the purpose and to build confidence among these people.

Results and discussion

The study on financial inclusion is extremely momentous for the society because outcomes of financial exclusion have quite a negative impact on the economic development of a country. People who are unable to obtain services from mainstream financial service providers are thus regarded as the financially excluded, not only because there are no branches of the bank or other financial institution in their community, but also they are excluded or unable to use services offered by different financial institutions (Maity and Sahu, 2020). The initiative of financial inclusion is important today because a large part of the population are excluded from formal financial services and waiting for formal credit for numerous reasons. To bring the financially excluded people under the present financial setup, the regulators have taken a large number of initiatives from the national level to the regional level since 1969 through the nationalization of banks. Following this, the regulators have taken numerous initiatives, including Jan Dhan Yojana in 2014. The global statistics show that a large part of the population is excluded from banking services all over the world, including developing countries. Ardic *et al.* (2011) indicate that 56% of adults in the world do not have access to formal financial services. The situation is even worse in the developing world with 64% of adults unbanked. As per the national-level data and based on previous literature, a large percentage of the population in NER are still excluded from banking services.

Considering the major populated state in NER, the present study measures the financial inclusion status in Assam. The study finds that the growth rate of bank branch in Assam is comparatively higher than aggregate India. In Assam, the bank branch grows at 7.48%, whereas in India it is growing at 6.16%. The results of the study show that there is a significant difference in population per bank branch between Assam and aggregate India. Further, there is a significant difference in bank branch per 1,000 km² between Assam and aggregate India. In view of these inequalities, the study also finds that there is a significant difference in the usage ratio between Assam and aggregate India. Moreover, there are no significant differences among the share in population, share in bank branch, share in deposits and share in credit of Assam as per cent to aggregate India of total population, total bank branch, total deposits and total credits. In contrast to that, the share of Assam in respect of bank branch, deposits and credits are comparatively lower than the share of population in Assam. This indicates that financial inclusion status in Assam is comparatively lower than aggregate India. The result is in line with the previous empirical studies by Goyal (2008), Mahadeva (2008), Swamy (2011), Chakravarty and Pal (2013), Das and Guha (2015); and Maity and Sahu (2019) in the Indian context who have found that there are regional disparities on financial inclusion. The disparity is also found even at the district level (Ramji, 2009). Goyal (2008), Mahadeva (2008), Kodan *et al.* (2011), Bhanot *et al.* (2012), Boro (2015), Das and Guha (2015), and Maity (2019) in their study found that, in north-eastern states of India, the position of financial inclusion was found to be poor in comparison to the all-India level.

Conclusion and recommendations

According to the Little Data Book on Financial Inclusion 2018, Global Findex database, India has done quite good in opening bank accounts. It is 79.9% for India,

which is much above the world average (68.5%), South Asia (69.6%) and lower middle-income countries (57.8%). The initiatives of financial inclusion are being taken at all the regions so that disparities not exist. However, because of various reasons such as geographical factors, financial factors, demographic factors and cultural factors, inequality in the availability of formal financial services is present. And because of the shortage from the supply side, the shortage is also found on the demand side. According to [Kodan *et al.* \(2011\)](#) and Maity (2019), the position of financial inclusion in NER was found poor in comparison to the all-India level. The present study investigates the financial inclusion status in Assam and the study covers from 2007–08 to 2018–19. In regard to the financial inclusion, the study further makes a comparative study with Assam and the aggregate India so that a conclusion can be drawn. The study finds that bank branches in Assam grow at a higher rate than aggregate India. However, there are significant differences in geographic penetration, demographic penetration and usage ratio between Assam and aggregate India. Further, the share of bank branch, deposits and credit in respect to aggregate India are comparatively lower than the share of population. This indicates the existence of inequality in financial inclusion between Assam and aggregate India. Bank branches are the primary channel for financial service delivery, but this may be changing because of technological innovations ([Pathania *et al.*, 2016](#)). So, the bank may think of technology-driven products and services to the excluded areas and population. RBI has also initiated the registry of business correspondents with certification so that confidence can be built up among the masses towards this new entity. Financial inclusion will help in creating a sound financial institution and create the multiple options of financial products which fit more to the requirement of the customers. It will help the developing nation to build a more socially inclusive society as financial inclusion will eradicate income inequality. There is a requirement of a holistic approach by involving all the concerned stakeholders because the challenges to financial inclusion are multifaceted, which may be difficult for a single entity to handle.

In a study, [Kaur and Kapuria \(2020\)](#) recommend increasing access to financial services as an effective tool for reducing poverty in rural India. The analysis by [Girard \(2020\)](#) suggests a positive relationship between a market-enabling state policy framework and increased bank account ownership among the total population. Achieving universal financial inclusion is the goal of the government. In this situation, the government and banks can concentrate on opening one account to each. To meet the targets of the scheme, the participation of banks plays a significant role. Banks should take steps that would restructure their existing strategies in a way such that the resources at their disposal would help attain the objectives of financial inclusion programmes. Access to basic financial services such as savings, payments and credit can make a substantial positive difference in improving the lives of marginalized sections of society (Caskey *et al.*, 2006; [Dupas and Robinson, 2009](#)). [Chakravarty and Pal \(2013\)](#), in their study, opine that improvements in geographic penetration of bank branches and credit availability should get the policy priority to enhance financial inclusion in India. According to [Goyal \(2008\)](#), it has been found that the banks in Assam have not only shown their disinterest in creating awareness of financial inclusion but also restricted the use of overdraft facilities. As held by [Leeladhar \(2005\)](#), the banks should start taking financial inclusion of low-income groups both as business and corporate social responsibility. A nation's development largely depends on the upliftment of the people at the lower strata of the pyramid.

This largely includes people from the rural regions who are generally meagre earning labourers or small business owners. Their long-term survival and sustenance depend on easy access to formal financial services and products. Easy access to formal financial services has the potential of reducing income inequalities (Barik and Sharma, 2019). Though the present study considers Assam as the study region because of a large share of population of total NER, further, a comparative study may be conducted between all the states in NER and aggregate India to draw a proper conclusion about financial inclusion status in NER. In addition, the studies may be conducted by considering other parameters in relation to financial inclusion. This will help the regulators to take appropriate decisions to expand the banking services as well as to improve the living status of these regions.

References

- Alama, L. and Ausina, E.T. (2012), "Bank branch geographic location patterns in Spain: some implications for financial exclusion", *Growth and Change*, Vol. 43 No. 3, pp. 505-543.
- Allen, F., Allen, F., Demircuc-Kunt, A., Klapper, L. and Peria, M.S. (2012), "The foundations of financial inclusion: understanding ownership and use of formal accounts", *Journal of Financial Intermediation*, Vol. 27, pp. 1-58, available at: <http://documents.worldbank.org/curated/en/348241468329061640/the-foundations-of-financial-inclusion-understanding-ownership-and-use-of-formal-accounts> (accessed 18 July 2020).
- Ansong, D., Chowa, G. and Adjabeng, B.K. (2015), "Spatial analysis of the distribution and determinants of bank branch presence in Ghana", *International Journal of Bank Marketing*, Vol. 33 No. 3, pp. 201-222.
- Ardic, O.P., Heimann, M. and Mylenko, N. (2011), *Access to Financial Services and the Financial Inclusion Agenda around the World: A Cross-Country Analysis with a New Data Set*, The World Bank.
- Arora, R. (2010), "Measuring financial access, Griffith University", Discussion Paper Economics 7, ISSN1837-7750.
- Bansal, S. (2014), "Perspective of technology in achieving financial inclusion in rural India", *Procedia Economics and Finance*, Vol. 11, pp. 472-480.
- Barik, R. and Sharma, P. (2019), "Analyzing the progress and prospects of financial inclusion in India", *Journal of Public Affairs*, Vol. 19 No. 4, pp. 1-6.
- Beck, T., Demircuc-Kunt, A. and Peria, M.S.M. (2007), "Reaching out: access to and use of banking services across countries", *Journal of Financial Economics*, Vol. 85 No. 1, pp. 234-266.
- Bhanot, D., Bapat, V. and Bera, S. (2012), "Studying financial inclusion in North-East India", *International Journal of Bank Marketing*, Vol. 30 No. 6, pp. 465-484.
- Bihari, S.C. (2011), "Growth through financial inclusion in India", *Journal of International Business Ethics*, Vol. 4 No. 1, pp. 28-41.
- Boro, K. (2015), "Prospects and challenges of technological innovation in banking industry of North East India", *Journal of Internet Banking and Commerce*, Vol. 20 No. 3, pp. 1-6.
- Burgess, R. and Pande, R. (2005), "Do rural banks matter? Evidence from the Indian social banking experiment", *American Economic Review*, Vol. 95 No. 3, pp. 780-795.
- Burgstaller, J. (2013), "Bank office outreach, structure and performance in regional banking markets", *Regional Studies*, Vol. 47 No. 7, pp. 1131-1155.
- Caskey, J., Duran, C.R. and Solo, T.M. (2006), "The urban unbanked in Mexico and the United States", Policy Research Working Paper 3835. World Bank, Washington, DC.
- Chakrabarty, K.C. (2009), "Banking: key driver for inclusive growth", *RBI Monthly Bulletin*, Vol. 9, pp. 1479-1486.

-
- Chakrabarty, K.C. (2011), "Financial inclusion and banks: issues and perspectives", *RBI Monthly Bulletin*, pp. 183-1838.
- Chakraborty, A. and Barman, S.R. (2013), "Financial inclusion in Tripura: challenges and opportunities", *Journal of Commerce and Management Thought*, Vol. 4 No. 4, pp. 870-879.
- Chakravarty, S.R. and Pal, R. (2013), "Financial inclusion in India: an axiomatic approach", *Journal of Policy Modeling*, Vol. 35 No. 5, pp. 813-837.
- Chen, Z. and Jin, M. (2017), "Financial inclusion in China: use of credit", *Journal of Family and Economic Issues*, Vol. 38 No. 4, pp. 528-540.
- Cnaan, R.A., Moodithaya, M.S. and Handy, F. (2012), "Financial inclusion: lessons from rural South India", *Journal of Social Policy*, Vol. 41 No. 1, pp. 183-205.
- Dangi, V. (2012), "Financial inclusion: a Saga of Indian financial system", *Asia-Pacific Journal of Management Research and Innovation*, Vol. 8 No. 2, pp. 111-125.
- Das, T. and Guha, P. (2015), "A study on the differences in the banking parameters between pre- and post-financial inclusion periods: some evidence for India", *The IUP Journal of Bank Management*, Vol. 14 No. 1, pp. 39-56.
- Demirguc-Kunt, A. and Klapper, L. (2013), "Measuring financial inclusion: explaining variation in use of financial services across and within countries", *Brookings Papers on Economic Activity*, Vol. 2013 No. 1, pp. 279-340.
- Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S. and Hess, J. (2017), *The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution*, World Bank Group.
- Dhameja, N.L. and Arora, S. (2020), "Banking in India: evolution, performance, growth and future", *Indian Journal of Public Administration*, Vol. 66 No. 3, pp. 312-326.
- Dupas, P. and Robinson, J. (2009), "Savings constraints and microenterprise development: evidence from a field experiment in Kenya", NBER Working Paper 14693. National Bureau of Economic Research, Cambridge, MA.
- Evanoff, D.D. (1988), "Branch banking and service accessibility", *Journal of Money, Credit and Banking*, Vol. 20 No. 2, pp. 191-202.
- Ghosh, S. (2011), "Does financial outreach engender economic growth? Evidence from Indian states", *Journal of Indian Business Research*, Vol. 3 No. 2, pp. 74-99.
- Ghosh, S. (2012), "Determinants of banking outreach: an empirical assessment of Indian states", *The Journal of Developing Areas*, Vol. 46 No. 2, pp. 269-295.
- Girard, T. (2020), "Bank accounts for all: how do state policies matter?", *Journal of International Development*, Vol. 32 No. 5, doi: [10.1002/jid.3478](https://doi.org/10.1002/jid.3478).
- Gomathy, M. (2015), "An overview of financial inclusion and rural development in India", *IOSR Journal of Business and Management (IOSRJBM)*, Vol. 17 No. 8, pp. 06-11.
- Goyal, C. (2008), "Financial inclusion in the northeastern region of India with special reference to Assam", *The Icfai Journal of Applied Finance*, Vol. 14 No. 12, pp. 54-64.
- Gunther, J.W. (1997), "Geographic liberalization and the accessibility of banking services in rural areas", Technical report, Federal Reserve Bank of Dallas, Dallas, TX.
- Gupte, R., Venkataramani, B. and Gupta, D. (2012), "Computation of financial inclusion index for India", *Procedia - Social and Behavioral Sciences*, Vol. 37, pp. 133-149.
- Hogarth, J.M., Anguelov, C.E. and Lee, J. (2003), "Why households don't have checking accounts", *Economic Development Quarterly*, Vol. 17 No. 1, pp. 75-94.
- Iqbal, B.A. and Sami, S. (2017), "Role of banks in financial inclusion in India", *Contaduría y Administración*, Vol. 62 No. 2, pp. 644-656.
- Kaur, S. and Kapuria, C. (2020), "Determinants of financial inclusion in rural India: does gender matter?", *International Journal of Social Economics*, Vol. 47 No. 6.

- Kim, J.H. (2016), "A study on the effect of financial inclusion on the relationship between income inequality and economic growth", *Emerging Markets Finance and Trade*, Vol. 52 No. 2, pp. 498-512.
- Kodan, A.S. and Chhikara, K.S. (2011), "Status of financial inclusion in Haryana: an evidence of commercial banks", *Management and Labour Studies*, Vol. 36 No. 3, pp. 247-267.
- Kodan, A.S., Garg, N.K. and Kaidan, S. (2011), "Financial inclusion: status, issues, challenges and policy in northeastern region", *The IUP Journal of Financial Economics*, IX, No. 2, pp. 27-40.
- Kumar, N. (2012), "An empirical analysis of financial inclusion across population groups in India", *The IUP Journal of Bank Management*, Vol. 11 No. 1, pp. 97-111.
- Kumar, N. (2013), "Financial inclusion and its determinants: evidence from India", *Journal of Financial Economic Policy*, Vol. 5 No. 1, pp. 4-19.
- Leeladhar, V. (2005), "Taking banking services to the common man – financial inclusion, commemorative lecture at the fedbank hormis memorial foundation at ernakulam on December 2".
- Mahadeva, M. (2008), "Financial growth in India: whither financial inclusion?", *Margin: The Journal of Applied Economic Research*, Vol. 2 No. 2, pp. 177-197.
- Maity, S. (2019), "Financial inclusion status in North Eastern region: an evidence of commercial banks", *International Journal of Research in Applied Management, Science and Technology*, Vol. 4 No. 3, pp. 1-11.
- Maity, S. and Sahu, T.N. (2018), "Bank branch expansion and financial inclusion: evidence from selected commercial banks in India", *Al-Barkaat Journal of Finance and Management*, Vol. 10 No. 1, pp. 48-65.
- Maity, S. and Sahu, T.N. (2019), "A study on regional disparity of bank performance towards financial inclusion, management today", *International Journal of Business Studies*, Vol. 9 No. 1, pp. 24-31.
- Maity, S. and Sahu, T.N. (2020), "Role of public sector banks towards financial inclusion during pre and post introduction of PMJDY: a study on efficiency review", *Rajagiri Management Journal*, Vol. 14 No. 2, pp. 95-105.
- Nataraj, G. and Ashwani, (2018), "Banking sector regulation in India: overview, challenges and way forward", *Indian Journal of Public Administration*, Vol. 64 No. 3, pp. 473-486.
- Pathania, A., Ali, A. and Rasool, G. (2016), "Quality dimension imperative for innovative financial inclusion: a case study of select banks in J&K", *Amity Business Review*, Vol. 16 No. 2, pp. 115-125.
- Ramji, M. (2009), "Financial inclusion in gulbarga: finding usage in access", Institute for Financial Management and Research Centre for Micro Finance Working Paper Series No. 26, 1-37.
- Reynolds, F. (2003), "Promoting financial inclusion", *Poverty*, Vol. 114, pp. 1-7.
- Sarma, M. and Pais, J. (2008), "Financial inclusion and development: a cross country analysis", Paper presented at the Annual Conference of the Human Development and Capability Association, New Delhi, September, pp. 1-28, available at: www.icrier.org/pdf/6nov08/Mandira%20Sarma-Paper.pdf (accessed 20 July 2016).
- Shafi, M. and Medabesh, A.H. (2012), "Financial inclusion in developing countries: evidences from an Indian state", *International Business Research*, Vol. 5 No. 8, pp. 116-122.
- Sharma, D. (2016), "Nexus between financial inclusion and economic growth", *Journal of Financial Economic Policy*, Vol. 8 No. 1, pp. 13-36.
- Simkhada, N.R. (2013), "Problems and prospects of the cooperative sector in Nepal for promoting financial inclusion", *Enterprise Development and Microfinance*, Vol. 24 No. 2, pp. 146-159.
- Singh, D., Singh, H. and Sandhu, M. (2017), "New market entry strategies: public and private sector banks in India", *SCMS Journal of Indian Management*, Vol. 15 No. 2, pp. 79-86.
- Swamy, V. (2011), "Financial inclusion in India: an evaluation of the coverage, progress and trends", *The IUP Journal of Financial Economics*, Vol. 9 No. 2, pp. 7-26.

Thorat, U. (2007), "Financial inclusion – the Indian experience, speech at the HMT-DFID financial inclusion conference 2007", Whitehall Place, London, UK on June 19.

About the authors

CMA (Dr) Sudarshan Maity is presently the Deputy Director in the Directorate of Examination, The Institute of Cost Accountants of India, Kolkata, West Bengal, India. He has over 19 years of administrative experience in various industries. He is a postgraduate from Calcutta University and All India rank holder in the Final Examination of The Institute of Cost Accountants of India. His research area is in finance, social science, etc. and he has published more than 30 research articles in different journals published by different reputed publishers, including Taylor and Francis, Wiley-Blackwell, Palgrave Macmillan, Emerald, SAGE, Inderscience, etc. His research work has also been shared in more than 30 national and international conferences.

Dr Tarak Nath Sahu is an Associate Professor in the Department of Commerce, Vidyasagar University, Midnapore, West Bengal, India. He has over 14 years of postgraduate teaching and research experience. His specialization is in finance and financial markets and his research publications are in the area of stock market behaviour, corporate finance, corporate governance investor behaviour, etc. Dr Sahu, a gold medalist at both graduate and post-graduate level, has authored three books published by Palgrave Macmillan, New York and Emerald Publishing Limited, UK and has co-edited five books. He has already completed a research project sponsored by UGC. His research work has also been shared in a number of national and international journals and conferences. Dr Sahu has published more than 60 research articles in different refereed and indexed journals published by different reputed publishers, including Springer, Taylor and Francis, Wiley-Blackwell, Emerald, SAGE, MacMillan, Inderscience, etc. He also presented research papers in national and international conferences in more than 90 occasions. Tarak Nath Sahu is the corresponding author and can be contacted at: taraknathsahu1982@gmail.com