



ROLE OF BANKS CREDIT IN ECONOMIC GROWTH: A STUDY WITH SPECIAL REFERENCE TO NORTH EAST INDIA¹

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Abstract

The study is attempted to see the relationship between banks credit and economic growth in North East India. In case of economic development North East India is still in back compared with other states of India. Using the panel data for North East India from 1999- 2007 the study found that banks credit to different segments of North East India doesn't have much impact on economic growth. The main reason for this is mainly because of default in payment and lack of monitoring by the authorities.

Keywords: Economic growth, Panel data, Bank credit, North East India, Economic development

JEL classification: C33, F43, O12

1. Introduction

Credit market plays a significant role in a developing country like India. Banks play a critical role in the Indian market by mobilizing small savings and routing them for corporate investment, providing credit to agriculture development, credit to infrastructure development etc. Commercial banks are the most important provider of finance and the largest and fastest growing financial intermediaries in India. Indian banks need to balance between their own interests i.e., profit through sectoral allocation of credit as prescribed by central bank. Hence sectoral allocation of credit affects the sectoral development of the state.

A vast country like India can achieve growth by balanced regional development. In India at present there are 28 states. Keeping this in mind the government of India put inclusive growth as main

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objective in eleventh five year plan. For achieving these objective banks has a major role to play. Because the main function of bank is collect the small savings of the public as various deposits and give credit to the public who actually needs it. In other words banks collect money from one place and lend in other place.

This paper is mainly focussing on the role of banks in the economic growth of North East India. North East India consists of 7 states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura). North eastern states are basically depending on agriculture and small and village industries. If we see the economic development North East India is still in back ward compared with other sates of India in case of contribution to GDP, infrastructure, industrialization, level of education etc². Out of six regions in India, North East is the only region doesn't have any metropolitan city³. To overcome this scenario central government has special plans especially for North East India⁴. If we consider financial institutions side Reserve Bank of India also having special attention to the development of North East India⁵. In these aspects the paper focussing on the contribution of banks credit to per-capita NSDP (Net State Domestic Products) by the various kinds of credit provided by banks in three segments namely rural, semi urban and urban⁶. The below Table 1 is shows the total number of banking centres and offices of different banks in North East India.

Table 1- Region/state and population group-wise number of banked centres and number of offices of scheduled commercial banks - March 2009

State	Population group								Total offices	
	Rural		Semi-urban		Urban		Metropolitan			
	CNT	OFF	CNT	OFF	CNT	OFF	CNT	OFF	CNT	OFF
North eastern region	1073	1197	144	529	12	459	—	—	1229	2185
Arunachal Pradesh	47	50	10	27	—	—	—	—	57	77
Assam	692	786	67	329	6	305	—	—	765	1420
Manipur	33	35	12	20	2	26	—	—	47	81
Meghalaya	116	125	12	30	2	51	—	—	130	206
Mizoram	53	55	8	14	1	26	—	—	62	95
Nagaland	33	36	11	51	—	—	—	—	44	87
Tripura	99	110	24	58	1	51	—	—	124	219
All India	28440	31704	5898	19091	400	16611	31	15033	34769	82439

Note: CNT is centre, OFF is office

Source: Hand book of statistics published by Reserve Bank Of India

² Hand book of statics Reserve Bank of India, Index of industrial production statistics, and 2010 census data.

³ Six regions are North region, south region, central region, eastern region, north eastern region, western region.

⁴ Eleventh five year plan (2007-2012) Planning Commission, Government of India.

⁵ http://www.nabard.org/pdf/report_financial/chap_iv.pdf,

<http://www.rbi.org.in/upload/PublicationReport/Pdfs/55259.pdf>

⁶ Regional classification as per the Reserve Bank of India.



The above table is showing the sector wise bank branch allocation. Around 50 percent of the total bank branch is located in rural areas there is no metropolitan city in entire north eastern states. If we compare the total number of branches of NER (North Eastern Region) to country it less than 5 percents.

Table 2- State/union territory-wise number of offices of commercial banks and average population per bank office - March 2009

State/union territory	Total offices	Average population per bank office (in thousands)
Arunachal Pradesh	77	16
Assam	1420	21
Manipur	81	33
Meghalaya	206	12
Mizoram	95	10
Nagaland	87	25
Tripura	219	16
ALL-INDIA	82485	14

Source: Hand book of statistics published by Reserve Bank Of India

If we compare with the country average population per bank office expect Meghalaya and Mizoram all are above average population.

Table 3- Bank-group, bank and population group-wise number of branches of commercial banks functioning in each region/state - March 2009

Region/state/bank group/bank	Population group				Total branches
	Rural	Semi-urban	Urban	Metropolitan	
North eastern region	1197	516	413	—	2126
Arunachal pradesh	50	26	—	—	76
SBI & its associates	33	10	—	—	43
Nationalised banks	3	11	—	—	14
Regional rural banks	14	3	—	—	17
Other scheduled commercial banks	—	2	—	—	2
Assam	786	321	270	—	1377
SBI & its associates	127	70	51	—	248
Nationalised banks	340	169	168	—	677
Regional rural banks	317	62	14	—	393
Other scheduled commercial banks	2	20	36	—	58
Foreign banks	—	—	1	—	1
Manipur	35	20	25	—	80



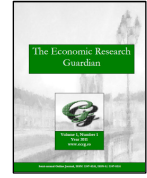
SBI & its associates	12	5	3	—	20
Nationalised banks	5	9	17	—	31
Regional rural banks	18	6	3	—	27
Other scheduled commercial banks	—	—	2	—	2
Meghalaya	125	29	47	—	201
SBI & its associates	62	13	12	—	87
Nationalised banks	19	6	28	—	53
Regional rural banks	44	7	3	—	54
Other scheduled commercial banks	—	3	4	—	7
Mizoram	55	14	24	—	93
SBI & its associates	10	7	5	—	22
Nationalised banks	—	—	9	—	9
Regional rural banks	45	7	7	—	59
Other scheduled commercial banks	—	—	3	—	3
Nagaland	36	50	—	—	86
SBI & its associates	29	20	—	—	49
Nationalised banks	3	19	—	—	22
Regional rural banks	4	6	—	—	10
Other scheduled commercial banks	—	5	—	—	5
Tripura	110	56	47	—	213
SBI & its associates	14	14	10	—	38
Nationalised banks	27	18	26	—	71
Regional rural banks	69	22	7	—	98
Other scheduled commercial banks	—	2	4	—	6

Source: Hand book of statistics published by Reserve Bank Of India

The Table 3 clearly indicating that SBI and its seven associates is largest player in this field covering more than 50 percent of the total bank branches.

Table 4 - The total cumulative bank credit to various sectors from 1999- 2007 and various states of North East

State	Rural	Semiurban	Urban
AP	377368	282433	NA
Assam	4174425	2056676	3976933
Manipur	146325	133041	322111
Meghalaya	748451	206558	794427
Mizoram	166234	271655	150594
Nagaland	174679	455627	NA



Tripura	413940	281319	496828
Total credit	6201422	3687309	5740893

Source: Hand book of statistics published by Reserve Bank Of India

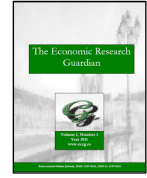
Arunachal Pradesh and Nagaland don't have any urban areas. And all other five states are having rural, semi-urban and urban areas. In total among the rural semi-urban and urban area the credit given to rural and urban area is all most same and the states like Tripura and Meghalaya the banks given more credit to urban area than rural. In Nagaland and Mizoram banks are concentrating more on semi-urban area for giving credit than rural and urban. Overall from the above table: 4 it is evident that the banks are giving credit keeping view that the balanced regional development.

The study has found out over all the bank credit to the North East India has not much impact on the economic growth but it has showing the potential for growth in future. Comparing with other segments banks credit to rural is having a better positive impact followed by semi-urban and urban for the economic development.

The paper is organized as follows. The next section discusses about some empirical evidences regarding the relationship between bank credit and economic development. The third section briefly deals with the estimation methodology and data source. The fourth section presents the results; discussions on results. The last section concludes the paper with some policy implication.

2. Literature review

Smith (1991) constructed a model in which the equilibrium behaviour of banks affects resources allocation in ways that have implications for real rates of growth, and the author provided a partial characterization of when economies with competitive intermediaries will grow faster than economies lacking such institutions. Levine (1998) examines the relationship between the legal system and banking development and traces this connection through to long-run rates of per capita GDP growth, capital stock growth and productivity growth. And they have found that the exogenous component of banking development the component defined by the legal environment is positively and robustly associated with per capita growth, physical capital accumulation, and productivity growth. Beck, Levine and Loayza (2000) evaluates the empirical relationship between the level of financial intermediary development and economic growth, total factor productivity growth, physical capital accumulation and private savings rate. The study found that financial intermediaries exert a large, positive impact on total factor productivity growth, which feeds through to overall GDP growth and the long-run links between financial intermediary development and both physical capital growth and private savings rates are tenuous. Bailliu (2000) tries to fill the gap in the literature by investigating the role of private capital flows in the determination of economic growth using panel data for 40 developing countries from 1975–95. Unlike existing empirical work, this paper focuses on the effects of a broad measure of capital flows on economic growth, rather than on a more specific category, such as FDI, and it emphasizes the role played by the domestic financial sector in the process linking capital flows and growth.



Lucchetti, Papi and Zazzaro (2001) offers a methodological contribution to the empirical analysis of the relationships between banking and economic growth by suggesting a new indicator for the state of development of the banking system based on a measure of bank microeconomic efficiency. This choice helps to overcome the problem of causality and to capture the effects of the banks' allocation activity. This new approach is then applied to analyse the relationship between the banking system and economic growth in the Italian regions, through a dynamic panel technique. The empirical results show the existence of an independent effect exerted by the efficiency of banks on regional growth.

3. Methodology

A balanced panel data has been used for the analysis. The data set that contains observations on different objects studied over a period of time is called panel data. It is the combination of cross-sectional data and time series data. The same time period is available for all cross-sections in balanced panel data. Reserve Bank of India bulletin has been used for collecting the data regarding the state wise banks credit in the subdivision of rural, semi-urban and urban details and the per capita NSDP from 1999 to 2007.

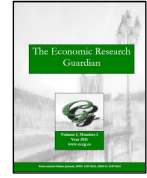
The study assumes that banks credit will leads to increase in purchasing power and that will leads to increase in consumption and it will leads to economic development. If disbursement of bank credit is increased to North Eastern States, it will automatically lead to increase in the purchasing power of people. If purchasing power is increased it will leads to more consumption and hence it is leading to the money circulation in the economy so the particular region can achieve economic development. In other words if disbursement of bank credit is increased to North Eastern States, the store value of money will increase and that leads to more investment in various sectors of the economy. And it will lead to increase in employment. If more people are employed it will automatically leads to economic development.

The most commonly used ways of assessing the relationship between any variables using panel data is static panel data models. There are three types of panel data models: a pooled Ordinary Least Square (OLS) regression, panel model with random effects and the panel model with fixed effects. The evaluation of a pooled OLS regression can be presented in the following way:

$$PER\ NSDP_{it} = b_1 Agriculture_{it} + b_2 Industry_{it} + b_3 Transport\ operators_{it} + b_4 Profesional\ and\ other\ services_{it} + b_5 Personal\ loans_{it} + b_6 Trade_{it} + b_7 Finance_{it} + b_8 All\ other_{it} + b_9 Artisans\ and\ village\ industries_{it} + b_{10} Other\ SSI_{it} + U_{it}, \quad (1)$$

where:

- i is representing the state and t is the time;
- $b_1, b_2, b_3, b_4, \dots, b_{11}$ are the coefficients of independent variables respectively;
- U_{it} indicate the error term for the observations of stat i in the year t ;
- $PER\ NSDP$ is the per capita net state domestic product;



- *Agriculture* is the credit given by various banks to agriculture and allied activities in North East;
- *Industry* is the credit provided by the banks to various industrial sectors as mining, textile, beverage, rubber and rubber products, chemicals, manufacturing, metal etc;
- *Transport operators* are the credit given by the banks to various transport operators at North East;
- *Professional and other services* is the loan provided by the banks to various professional and other services;
- *Personal loans* are the loan given to individuals for purchasing consumer durables, housing and other personal purpose;
- *Trade* is the loan given by the banks for various wholesale and retail trades;
- *Finance* is the credit given to the finance service institutions;
- *All other* are the credit given by the banks to all other purpose other than the other variables in the study;
- *Artisans and village industries* are the credit provided by the banks to various artisans and village industries;
- *Other SSI* is the credit given by the banks to SSI (Small Scale Industries) other than the *Artisans and village industries*.

However, by using an pooled OLS regression, firms' unobservable individual effects are not controlled, and so, as Bevan and Danbolt (2004) conclude, heterogeneity, a consequence of not considering those effects, can influence measurements of the estimated parameters. While by using panel models of random or fixed effects, it is possible to control the implications of firms' non-observable individual effects on the estimated parameters. Therefore, by considering the existence of non-observable individual effects, we have:

$$PERNSDP_{it} = F_i + C_t + b_1 Agriculture_{it} + b_2 Industry_{it} + b_3 Transport\ operators_{it} + b_4 Professional\ and\ other\ services_{it} + b_5 Personal\ loans_{it} + b_6 Trade_{it} + b_7 Finance_{it} + b_8 All\ other_{it} + b_9 Artisans\ and\ village\ industries_{it} + b_{10} Other\ SSI_{it} + U_{it} \quad (2)$$

Where F_i is the state specific fixed effect for state i and C_t is the year specific fixed effect for the year t .

4. Results

4.1. Rural: panel data regression (least square)

Using the panel least square method, the overall model has found to be statistically significant. The study is unable to test the random effect because random effect estimation requires number of cross section should be greater than number of coefficients for between estimators for estimate random effect. High R square in all the models shows that model have enough explanatory power and which is evident from The F- test of model fitness. Fixed effect F-test shows that cross-sections as well as period specific fixed effect are significant. The detailed result is shown in Table. 5



Table 5 - Panel least square with fixed effects for rural

Panel data models : dependent variable: Per capita NSDP			
Independent variable	Model 1	Model 2	Model 3
	CS FE	P FE	Two way FE
Agriculture	0.249568** (0.124336)	0.000955 (0.130127)	0.044377 (0.091304)
Industry	0.102216** (0.047138)	0.055793*** (0.048945)	0.034844 (0.034781)
Transport operators	0.977370*** (0.320325)	0.691566** (0.316993)	0.529800** (0.219810)
Professional and other services	0.684072*** (0.229621)	0.491078** (0.234627)	0.127959 (0.164069)
Personal loans	-0.160742** (0.068746)	-0.089167 (0.068806)	-0.053860 (0.051196)
Trade	0.102274 (0.165290)	0.274026* (0.158733)	-0.042498 (0.114152)
Finance	-0.434759** (0.192671)	-0.296863 (0.183762)	-0.126223 (0.142044)
All others	-0.204435*** (0.060299)	-0.150789** (0.059868)	-0.059940 (0.046179)
Artisans & village industries	1.540521*** (0.446150)	0.555450 (0.573839)	0.397870 (0.339285)
Other SSI	-1.198438*** (0.434853)	-0.951286*** (0.324839)	-0.119118 (0.320001)
constant	14844.83*** (504.9404)	16272.53*** (407.7892)	15954.06*** (381.7427)
Model Summary			
R2	0.756238	0.653682	0.920380
F-test	8.531478***	4.404213***	17.33957***
FE- test	7.961182***	2.456998**	113.093832***
States included	7	7	
Total panel observations	61	61	
Notes: 1. The F test has normal distribution N(0,1) and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters. 2. ***, **, and *denote significance at 1, 5 and 10 % level of significance respectively 3. FE, CS, P denotes Random effects, Fixed effects, Cross section, Period respectively			

In Table 5 the result of constant is positively significant irrespective of the models. Bank credit to transport operators is showing positive significance irrespective of the model as 1 percent, 5 percent and 5 percent respectively. Agriculture is positively significant at one percent only in the case of model 1 rest of the model is not significant. Credit to industry is positively significant in model1 and model to 5 percent and one percent respectively and model 3 is not showing significance. Credit to Provisional and other services are positively significant at 1 percent and 5 percent in model1 and



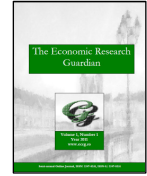
model 2 respectively. Model 3 is not showing significance. Personal loans and finance are showing negatively significant at 5 percents in case of model1 and rest of the model is not significant. Bank credit to trade is positively significant at 10 percents only in model 2 and other models are not significant. Loan to all other case is showing a negative significance at one percent and 5 percent in model 1 and model 2 respectively and model 3 is not significant. Bank credit to artisans and village industries is showing a positive significant at 1 percent in case of model 1 and rest of them is not showing significance. Credit to other SSI is showing a negative significance at 1 percent in both model 1 and 2. And model 3 is not showing significance.

4.2. Semi-urban: panel data regression (least square)

In this section the study will discuss the result of semi-urban. The below table 6 shows, using the panel least square method, the overall model has found to be statistically significant. High R square in all the models shows that model have enough explanatory power and which is evident from The F- test of model fitness. Fixed effect F-test shows that cross-sections as well as period specific fixed effect are significant

Table 6 - Panel least square with fixed effects semi urban

Panel data models : dependent variable: Per capita NSDP			
Independent variable	Model 1	Model 2	Model 3
	CS FE	P FE	Two way FE
Agriculture	0.599059* (0.335044)	0.534412 (0.335771)	-0.185664 (0.197658)
Industry	-0.186015 (0.147168)	-0.256929 (0.179294)	-0.270297*** (0.077645)
Transport operators	0.620870 (0.947840)	-0.029790 (0.932738)	1.374995*** (0.494575)
Professional and other services	1.126005*** (0.336871)	0.631573* (0.327115)	-0.384602* (0.215723)
Personal loans	-0.069306 (0.062837)	-0.102946* (0.061026)	-0.104251*** (0.031872)
Trade	-0.228204 (0.291280)	0.272393 (0.336478)	0.565613*** (0.178214)
Finance	3.379192** (1.274667)	3.373609** (1.673272)	1.484174** (0.722220)
All others	-0.386490 (0.231956)	-0.433853** (0.196126)	0.440355*** (0.141839)
Artisans & village industries	1.242456** (0.496064)	0.378948 (0.378948)	0.200081 (0.282341)
Other SSI	-0.080358	0.155739	1.519272***



	(0.604136)	(0.607022)	(0.332168)
Constant	15923.13*** (1327.268)	16406.05*** (423.7175)	12778.26*** (717.1706)
Model Summary			
R2	0.760097	0.694915	0.956086
F-test	8.910965***	5.441356***	33.56493***
FE- test	6.551790***	2.543898**	24.407864***
States included	7	7	7
Total panel observations	62	62	62
Notes: 1. The F test has normal distribution N(0,1) and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters. 2. ***, **, and *denote significance at 1, 5 and 10 % level of significance respectively 3. FE, CS, P denotes Random effects , Fixed effects, Cross section, Period respectively			

Constant and finance is positively significant in the entire model with 1 percent and 5 percent respectively. And in case of model 1 the rest of the variables (Industry, Transport operators Personal loans, Trade, All others and Other SSI) are not showing significance. Agriculture, professional and other services and artisans and village industries are positively significant at 10, 1, and 5 percent respectively.

In case of model 2 the variable are showing: agriculture, industry, transport operators, trade, artisans and village industries and other SSI are not showing significance. Professional and other services positively and personal loans are negatively significant at 10 percent. All other of credit are showing a negative significant at 5 percent.

Other SSI, all others, trade and transport operators are positively significant 1 percent in case of model 3. Personal loans and industry is negatively significant at 1 percent and professional and services are negatively significant at 10 percents in case of model 3.

4.3. Urban: panel data regression (least square)

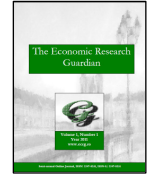
Fixed effect F-test shows that period specific fixed effect is not significant so we are not tested the model 3. But cross- section fixed effect is showing the significance. In case of model 1 the overall model has found to be significant and high R-square in the models shows that model have enough explanatory power and which is evident from The F-test of model fitness. Only constant positively and Other SSI is showing negatively significance at 1 and 10 percent respectively and rest of the variables are not significant.



Table 7- Panel least square with fixed effects urban

Panel data models : dependent variable: Per capita NSDP		
Independent variable	Model 1	Model 2
	CS FE	P FE
Agriculture	-0.074311 (0.105842)	-0.051431 (0.186217)
Industry	-0.019403 (0.025890)	-0.045582 (0.042588)
Transport operators	0.138819 (0.735954)	1.844252 (1.145714)
Professional and other services	-0.294113 (0.487762)	-1.597020** (0.740266)
Personal loans	0.102882 (0.061393)	0.289201*** (0.093376)
Trade	0.085311 (0.096133)	0.092633 (0.153330)
Finance	-0.521418 (0.912953)	-0.349308 (1.590300)
All others	0.110843 (0.075580)	0.197155 (0.122322)
Artisans & village industries	-1.045564 (1.504075)	-4.973225* (2.582225)
Other SSI	-0.424543* (0.242821)	-0.950801** (0.398337)
Constant	15754.00*** (570.3779)	15998.40*** (730.8197)
Model Summary		
R2	0.819607	0.673800
F-test	9.411459***	2.375448*
FE- test	10.064103***	0.737562
States included	5	5
Total panel observations	44	44
Notes: 1. The F test has normal distribution N(0,1) and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters. 2. ***, **, and *denote significance at 1, 5 and 10 % level of significance respectively 3. FE, CS, P denotes Random effects , Fixed effects, Cross section, Period respectively		

In the case of rural, model 1 and in the case of semi urban, model 3 is showing the more appropriate result. Banks credit to Professional and other services, personals, finance and other SSI is negatively significant. The reason for this may be default in payments. Credit to transport operators is positively significant in entire models that shows that potential and lack of transportation facilities in North East India. Credit to finance is showing positive significance in semi- urban areas. Credit to agriculture showing a positive significance for rural and semi- urban only in case of model 1. Fixed



effect is doesn't have any impact on urban credit. In over all the bank credit to the North East India has not much impact on the economic growth but it has showing the potential for growth in future.

5. Conclusion

This study is an attempt to verify the credit provided by the various banks in the North East India through their different branches in various sectors has any impact on increase in the lively hood of the people of those areas. The study has examined the issue in three different segments rural, semi-urban and urban for the comparison. The study has found out over all the bank credit to the North East India has not much impact on the economic growth but it has showing the potential for growth in future. Comparing with other segments banks credit to rural is having a better positive impact followed by semi- urban and urban for the economic development.

From the study we can conclude that the various banks in North East India has provided significant amount of money as credit to different sectors. However for achieving an economic development through bank credit require proper implementation monitoring from the authority side. Government should give more freedom to Reserve Bank of India to tighten the repayment of loan and monitoring the development activities. If it not the loan default we be high and the non performing assets of the banks will increase and it will leads to recession.

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