

INTERSTATE VARIATIONS IN THE DEVELOPMENT OF BANKING SECTOR IN INDIA FROM 1972 to 2015

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Abstract

Economic growth is one of the most desired goals of any economic system. It is a multidimensional and difficult process for most developing countries. The paucity of monetary funds is a key problem faced by most of the developing countries. An extensively developed financial structure therefore is a pre-requisite for economic development. The objective of this paper is to study the banking sector in India over the 44 year period from 1972 to 2015 to bring out the pattern and extent of variations in the level of development of this sector across the 17 major states. The development of banking sector is reflected in the spread of banking services and the effectiveness of these services in any region. The number bank branches and the amount of credit per lakh persons have been therefore used as the proxies to measure the level of development of banking sector. The analysis of data from Basic Statistical Returns, RBI over this time has revealed that the interstate variations in the number branches per lakh persons are diminishing whereas the variations in the amount of credit per lakh persons clearly show an upward trend. Further, the adverse impact of economic reforms on the level of development of banking sector has also been observed. Since the liberalisation of Indian economy in nineties the credit creation opportunities increased manifold as a result richer states are doing much better than the others. In fact, in the post reform period the interstate variations in the development of banking sector have been consistently increasing. Therefore, policy makers taking a serious note of this increasing skewness should elucidate policies to halt the increasing regional disparities.

Keywords: Banking, Branches, Credit, Economic Reforms, Interstate, Variations.

Introduction

Economic growth is a multifaceted process posing serious challenges especially for developing countries. The shortage of monetary funds is the main problem faced by most of the developing countries making them dependent on the international lending institutions like IMF, World Bank or other developmental agencies. At lower levels of per capita income these developing economies suffer not only from shortage of financial resources but also from poverty marked with low levels of literacy, employment, basic infrastructure and standard of living. Indian economy too is furiously moving ahead on the path of economic growth. It would be impossible for a developing country like India to achieve and sustain high levels of economic development without

duly focusing on infrastructure development. Thus the foremost and most important task for development of any economy would be creating a stable and sound financial sector. An well-developed banking structure plays an important role in improving the socio-economic conditions of people. In a welfare oriented economy, the basic objective of banking sector should be provision of efficient and prompt banking services to all sections of the society in different parts of the country. So in this context the question that needs to be looked into is that how developed is banking sector in India. A more dispersed pattern of growth of an economy implies that the banking infrastructure should be evenly spread across the country. Today the services sector has emerged as the engine of growth of Indian economy with the banking and insurance sector as its fastest growing sub sector. Table 1 sketches the clear picture of the banking sector since the nationalisation of banks , it shows the growth of services and banking sector from early 70's to recent times below:

Table-1:Share of Service sector and Banking and Insurance Sector

Years	Share of Service Sector in total GDP	Share of Banking and Insurance in Service Sector
1972-73	35.7%	5.5%
1981-82	37.8%	6.3%
1991-92	44.0%	9.8%
2001-02	51.1%	10.9%
2011-12	57.4%	15.2%

Source: Central Statistical Organization, Govt. of India.

It can be observed that in early 70's services sector contributed about 35.7 percent in total GDP and banking and insurance sector was contributing 5.5 percent to service sector. The share of services sector has increased about 1.6 times from the 1972-73 to 2011-12 but that of the banking and insurance sector increased 2.8 times in this time period. So the banking sector has grown almost 3 folds after nationalisation. The main motive of nationalization of the banks was the expansion of the banking facilities to unbanked areas to maintain regional balance. It happened in two phases in 1969 and 1980 . The spurt in the growth of banking sector came in mid 1980's, coinciding with the first major loan from the IMF . After this economic reforms were initiated in 1990s as a result of which the banking sector was opened to private banks. These three developments have had a major impact on the development of banking sector in India. So it becomes important to study the development pattern of banking sector in India since the days of nationalization to the present times. A study of banking sector across the states would bring out the real picture because each state in India has different geographical, economic, political and cultural features. The development of banking sector is expected to vary drastically across the states. A study of development pattern of banking services at this disaggregated level would throw important insights for its overall development. Moreover after an extensive review of literature not many studies were found on the interstate variations in the development of banking sector for the entire 44 year period making it all the more imperative to study variations in the development of banking sector over the 1972-2015 period.

Data and Methodology

The pattern and extent of the level of development of banking sector in any region can be gauged by the spread and effectiveness of the banking services available to the people. The spread of banking services is reflected in number of branches per lakh persons and the effectiveness of these services gets highlighted in the amount of credit per lakh persons. The number of branches and the amount of credit per lakh persons serve as good indicators to measure the level of development of banking sector across states. This study has primarily focused on the 17 major states for the time period from 1972 to 2015. The data for bank branches and credit per lakh persons was collected from the various issues of Basic Statistical Returns, Reserve Bank of India for scheduled commercial banks. The three yearly averages and coefficients of variation (C.V.) were used to bring out the pattern and extent of variation in the development of banking sector. Further, the compound annual growth rates were also calculated for both the indicators as well as for the coefficients of variation. The break in trend of variations was tested by using dummy variable technique by introducing a post reform dummy. The growth rates were calculated in both the time periods using the following model :

$$\text{Log } Y = \alpha + \beta t + \gamma D + \delta Dt + \varepsilon$$

Y= Coefficient of variation for each time period

$$D = 0, \text{ for } 1972 \text{ to } 1995 \text{ and } D=1 \text{ } 1996 \text{ to } 2015$$

$$\text{Growth rate of CV for } 1972\text{-}1995 = \beta t * 100$$

$$\text{Growth rate of CV for } 1996 \text{ -}2015 = (\beta + \delta) t * 100$$

Results and Discussion

I. Pattern and extent of interstate variations in the development of banking sector

In this study the number of branches and the amount of credit per lakh persons have been used as the two proxy variables to bring out development of banking sector. The number of branches per lakh persons would indicate the spread of the banking services and amount of credit will bring out the effectiveness of this spread. Together these two indicators would be able to sketch a fairly true picture of the development of banking across states. Higher is the value of these indicators more developed is the banking sector in that state. In this section these two indicators were taken up one by one to investigate the pattern and extent of variations in the development of banking sector across the 17 states from 1972-2015. The results are presented in table 2 and 3. In table 2 the ranking of states in order of the number of branches per lakh persons for early 70's and 2010s are given. The three yearly average of the number of branches for the initial years of each decade have been calculated. The ranks are displayed in each cell along with the average number of branches per lakh persons in the parenthesis. Also the growth rate of the number of branches per lakh persons over the 44 years for each state is displayed in the last column. A careful perusal of the table 2 reveals that in early 1970s Punjab with 6 branches per lakh persons was on the first rank, followed by Gujarat along with Karnataka and Kerala at 5 branches per lakh persons. Assam, Bihar and Orissa held the lower ranks and had the lowest level of banking development with only one branch per lakh persons. The coefficient of variation was 48.8 percent for early 70's indicating considerable interstates variations in the number of bank branches. In early 2010s, it was seen that the scenario had not changed to a very great extent. Himachal Pradesh now held the first rank with 17 branches per lakh persons recording a highest growth of

3% per annum. It was followed by Punjab at 16 branches per lakh persons. In Kerala the branches per lakh persons had increased to 15 followed by Haryana along with Karnataka at 12 branches per lakh persons. On the hand , Uttar Pradesh was at the 15th rank followed by Assam along with Bihar . Again in early 2010s Assam and Bihar were still on the lowest ranks same as in early 70's with only 5 branches per lakh persons . Almost 44 years after nationalisation with the government policies having a major thrust on the spread of bank branches to all the unbanked areas ,still the development of banking services eluded these states . The coefficient of variation for number of branches was at 37.7 percent in early 2010s .It had only meagerly decreased compared to early 70s. The variations across the states had declined by only 10 percentage points . These results became clearer when the growth of branches was studied for each state.

TABLE-2: Numberof Bank Branches per lakh persons across Major States

States/Years	Ranks (no.of branches)		CAGR (%)
	Early 1970s	Early 2010s	
Punjab	1 (06)	2 (16)	2
Gujarat	3 (05)	5 (09)	1
Karnataka	3 (05)	4.5 (12)	2
Kerala	3 (05)	3 (15)	2
Himachal Pradesh	5 (04)	1 (17)	3
Maharashtra	5 (04)	5 (09)	1
Tamil Nadu	5 (04)	6 (11)	2
Andhra Pradesh	9.5 (03)	7.5 (10)	2
Rajasthan	9.5 (03)	13 (07)	2
Jammu and Kashmir	9.5 (03)	7.5 (10)	2
Haryana	9.5 (03)	4.5 (12)	2
West Bengal	13 (02)	13 (07)	2
Madhya Pradesh	13 (02)	13 (07)	2
Uttar Pradesh	13 (02)	15 (06)	2

Assam	15 (01)	16.5 (05)	3
Bihar	15 (01)	16.5 (05)	3
Orissa	15 (01)	11 (08)	4
Mean	3.2	9.7	2.2
CV (%)	48.8	37.7	33.43

Source: Basic Statistical returns, Reserve Bank of India, Mumbai.

Note : The values in the brackets are giving the three yearly average of the the number of branches per lakh persons .

The growth rates of the number of bank branches per lakh persons over 44 years were also calculated and are displayed in table 2. The growth rate of the number of branches per lakh persons was the highest for the state of Orissa at 4 percent per year. It was followed by Himachal Pradesh along with Assam and Bihar where bank branches grew at a rate of 3 percent per year. Rest of the states grew at the rate of 2 percent per year. Gujarat and Maharashtra have been growing at the lowest rate of 1 percent. The extent variations in the growth rates of branches was at 33.43 percent as indicated by the coefficient of variation .The states of Orrisa, Uttar Pradesh , Assam and Bihar which had the least number of branches in early 70’s grew at the fastest rate over the 44 years. But still Assam and Bihar could not improve their ranks as they started from initial very low level of one bank per lakh persons in 70s. On the other hand states with the highest number of branches in 70s grew at much slower rate with the only exception of Himachal Pradesh .Himachal Pradesh today has the highest number of branches with the highest growth rate of 3% .These results imply two things one that the saturation level in number of branches has still not been achieved even by the developed states and two that the overall growth pattern of bank branches does hint towards convergence among the states as far as the number of branches per lakh persons is concerned even though considerable interstate variations exist.

The effectiveness of the spread in banking services is reflected in the amount of credit available per lakh persons. The pattern and extent of interstate variations in the amount of credit per lakh persons is displayed in table 3 below. This table shows the ranking of states according to the credit per lakh persons along with the three yearly average amount of credit per lakh persons given in the parenthesis. It can be seen that in early 1970s Maharashtra held the first rank with 329 lakhs credit per lakh persons . It was followed by West Bengal at 193 lakhs and Gujarat at 183 lakhs . Jammu and Kashmir, Madhya Pradesh, Orissa and Himachal Pradesh were at lower ranks .Himachal Pradesh was at the lowest rank with only 19 lakhs credit per lakh persons. In early 1970s the mean credit across the 17 states was the 105 lakhs per lakh persons. The amount of credit in highest ranked state was around 17 times the lowest ranked state clearly spelling out disparity in banking development. The extent of variations further revealed by examining the coefficient of variation which was very high at the 80 percent indicating large variations in the amount of credit across the states .

Table 3:Amount of Credit per lakh persons across Major States

States/Years	Ranks (Credit in Lakhs)		CAGR(%)
	Early 1970s	Early 2010s	

Maharashtra	1 (329)	1 (112412)	16
West Bengal	2 (193)	9 (26426)	13
Gujarat	3 (183)	8 (39840)	15
Tamil Nadu	4 (169)	2 (66040)	16
Punjab	5 (158)	3 (53281)	14
Haryana	6 (147)	4 (51843)	15
Karnataka	7 (146)	5 (50495)	16
Kerala	8 (102)	7 (45222)	16
Andhra Pradesh	9 (75)	6 (47387)	17
Assam	10 (48)	16 (8347)	14
Uttar Pradesh	11 (47)	15 (11433)	14
Rajasthan	12 (41)	11 (21823)	16
Bihar	13 (37)	17 (4860)	13
Jammu and Kashmir	14 (36)	14 (14220)	16
Madhya Pradesh	15 (34)	13 (14230)	16
Orissa	16 (25)	12 (15310)	17
Himachal Pradesh	17 (19)	10 (25040)	18
COEFFICIENT OF VARIATION (%)	80	76	9.2

Source: Basic Statistical Returns, Reserve Bank of India (various issues), Mumbai.

Note : The values in the brackets are giving the three yearly average of the number of branches per lakh persons .

In early 2010s even after almost 44 years the picture was not much different. It is observed that again in 2010s Maharashtra was on the top with the credit of 112412 lakhs followed by Tamil Nadu , Punjab, Haryana, Andhra Pradesh , Kerala ,Gujarat, West Bengal, Himachal Pradesh, Rajasthan, Orissa, Madhya Pradesh and Jammu and Kashmir . Uttar Pradesh, Assam and Bihar continued to hold lower ranks. Bihar was at the lowest rank with the credit of 4860 lakhs per lakh persons. The difference between highest and lowest states had increased to around 23 times in 2010s and coefficient of variations was 76 percent. Himachal Pradesh is the only state which gained 7 ranks. This is further revealed in the growth of credit per lakh persons from 1972 to 2015 was studied .It was maximum in Himachal Pradesh at 18 percent per year, followed by

Andhra Pradesh and Orissa at 17 percent. Jammu and Kashmir, Rajasthan, Madhya Pradesh, Karnataka, Kerala, Tamil Nadu and Maharashtra grew at 16 percent followed by Haryana , Gujarat , Assam, Uttar Pradesh and Punjab. The credit per lakh persons growth was least in West Bengal and Bihar at 13 percent per year . Mean growth rate of credit across the 17 states was the 15.41 percent per year with very low interstate variations as indicated by the low coefficient of variation (9.19 percent). Since the growth rates have not differed much across states therefore not much parity is seen across the states in amount of credit per lakh persons . The amount of credit per lakh persons has continued to be higher for some states like Punjab, Maharashtra and Tami Nadu compared to others states since early 1970s. Most of the BIMARU states continued to hold lower ranks. Thus from this preliminary investigation it can be concluded development of banking sector across the states seems to converging in terms of the spread of banking services but the effectiveness of these services is still as skewed as in early 70s. But these results need to be further explored and tested rigorously.

II. Trends in variations in the development of banking sector across states.

The above discussion results hint towards a converging pattern for the number of bank branches and a diverging pattern for the amount of credit per lakh persons across the states. These preliminary findings were explored more deeply. For this purpose the coefficient of variation for the number of branches and credit per lakh persons was calculated for each year separately for the time period 1972 to 2015 and then its change was studied over the years. The results for these 44 coefficients of variations for each indicator are given in Table 4 .

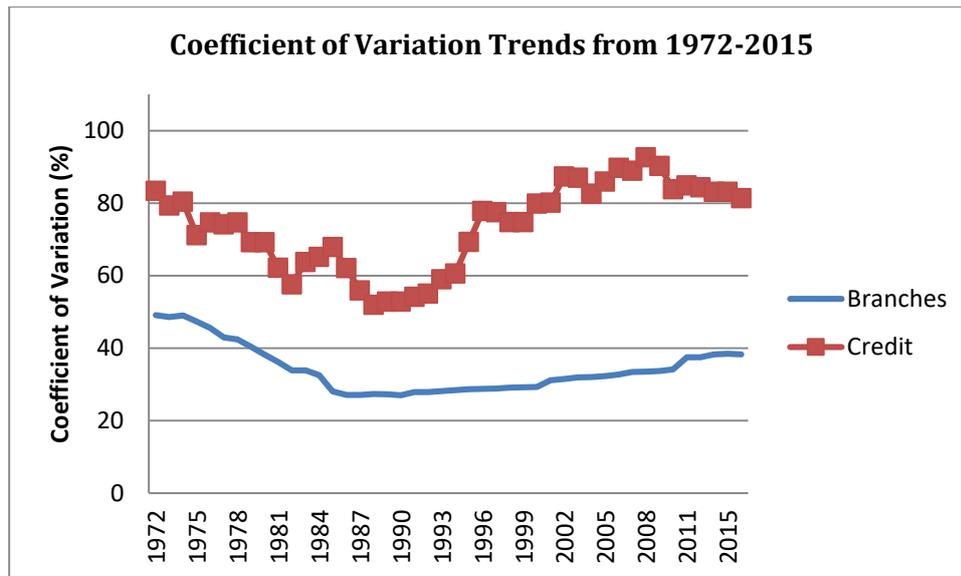
Table 4: Coefficient of Variation for Branches and Credit per Lakh Persons

Years	COEFFICIENT OF VARIATION (%)	Years	COEFFICIENT OF VARIATION (%)
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	Branches	Credit(lakhs)		Branches	Credit (lakhs)
1972	49.10	83.43	1994	28.38	60.61
1973	48.58	80.37	1995	28.66	69.33
1974	49.01	79.33	1996	28.71	76.70
1975	47.36	71.19	1997	28.81	71.50
1976	45.61	74.64	1998	29.12	68.14
1977	42.91	74.16	1999	29.20	68.65
1978	42.36	74.70	2000	29.32	73.86
1979	40.35	69.18	2001	31.17	74.53
1980	38.21	69.19	2002	31.51	68.44
1981	36.11	62.16	2003	31.95	67.76
1982	33.85	57.60	2004	32.01	66.16
1983	33.84	63.79	2005	32.26	67.29
1984	32.56	65.14	2006	32.68	70.26
1985	28.09	67.94	2007	33.43	71.07
1986	27.04	62.06	2008	33.48	72.13
1987	27.06	55.89	2009	33.64	77.66
1988	27.38	51.92	2010	34.12	74.96
1989	27.25	52.82	2011	37.51	76.87
1990	27.00	52.81	2012	37.48	76.34
1991	27.91	54.13	2013	38.27	75.54
1992	27.90	55.00	2014	38.48	76.13
1993	28.17	59.00	2015	38.27	74.32

From the table 4 it can be seen that in 1972 coefficient of variation in branches per lakh persons was at 49.10 percent and it decreased to 27.00 percent in 1990. From 1991 onwards it started to increase and reached to 38.27 percent per year in 2015. Similarly in the case of credit per lakh persons also the coefficient of variation in 1972 was 83.43 percent which decreased till late 1980s. It was as low as 51.92 in the year of 1988. Thereafter, it started increasing and increased from 51.92 to 74.32 percent in the year 2015. The trend in the coefficient of variation of number of bank branches and amount of credit per lakh persons over the last 44 years is more clearly visible in Graph 1 below.

GRAPH - 1



The Y- axis shows the coefficients of variation across the major states with time on X-axis . The coefficient of variation for branches shows a downward trend implying a decline in the variations in case of the number of branches across the states .The variation in amount of credit per lakh persons across the states shows a upward trend indicating increasing interstate variations . So a convergence seems to be happening in case of bank branches across the states but in the amount of credit per lakh persons the graph hints towards divergence . But a simple trend only shows the direction of change. The actual change in interstate variations would be confirmed by calculating the per year rate of change in these coefficients of variations. These rates would reveal whether the spread of bank branches and credit per lakh persons across the states is moving towards uniformity or not .Table 5 gives the rates of change in the coefficient of variation for branches and credit per lakh persons per year .

Table5 : Percent per year change in the coefficient of variation from 1972 to 2015

Dependent variable	Intercept Coefficient	Slope Coefficient	Growth Rate (%)
log(coefficient of variation branches per lakh persons)	3.62 (68.23) ^a	-0.005 (-2.303) ^b	-0.5
log(coefficient of variation of credit per lakh persons)	4.137 (89.47) ^a	0.007 (3.65) ^a	0.7

Notes: 1. Log $Y = \alpha + \beta t + \epsilon$

2. Numbers of equations are 44.

3. a ,b stand for 1% and 5% level of significance for a two tail t test .

From the above table it can be seen that the coefficient of variation for branches per lakh persons has declined at rate of 0.5 percent per year from 1972 to 2015. So the downward trend visible in the graph is confirmed implying thereby that the states were heading towards convergence or say uniform pattern in the number of branches per lakh persons. This can be explained by relooking at table 2, clearly states at the lowest levels of development (lesser number of branches) in early 70s grew the fastest and vice versa so uniformity in the spread of bank

branches seems to be emerging. But the coefficient of variation in the case of amount of credit per lakh persons shows a increase of 0.7 percent per year thus confirming the upward trend seen in the graph. So the disparities in the amount of credit across the states are increasing. This seems plausible as barring one or two states the credit in most states has grown at similar rates, so the states which were at higher level initially have gained much. Thus there is not much change seen in disparities in credit per lakh persons over the 44 years.

But it can be seen that for both indicators the variations across the states decreased till late 1980s and then increased. So the graph 1 hints at a break in the interstate variations for both the indicators somewhere around 1990s. This period also coincides with the liberalization of Indian economy. These results were quiet intriguing as 1990s ushered in the liberlisation and economic reforms in India. This prompted us to investigate the role of economic reforms in banking development across the states which has been taken up in the next section.

III. Impact of Economic Reforms on the development of Banking sector across states

The major spurt in the growth of banking sector came around in the mid 80’s or in early 90’s. This is likely to be reflected in post reforms period. To study the impact of economic reforms on the interstate variations in banking development the change in the coefficient of variation was measured for both in pre and post-reforms periods with the help of dummy variable technique. To test for the structural break in the direction of change of interstate variations around 1990s intercept and a slope dummies were used. After rigorous testing the break was located in year 1995-96 .So an intercept and a slope dummy was introduced at 1996. The opening up the economy started in late 80s and early 90s as a result the visible effects would present themselves five or six years later which also coincides with our structural break. The annual rate of change of the coefficient of variation for the number of branches and the amount of credit per lakh persons was calculated for the both pre reform and post reform periods that is 1972- 1995 and 1996 – 2015. The results for the same are given in table 6 below. A careful perusal of table 6 reveals an adverse impact of economic reforms on both the indicators of banking development. It can be seen from table 6 that from1972 to 1995, the slope coefficient was negative and significant at one percent level. So it can be concluded that interstate variations in spread of branches declined at the rate 3 percent per year in the pre reform period. However, in the post reforms period from 1996 to 2015, the intercept for variations in the number of bank branches shows a downward shift but rate of change shows a reversal from negative to positive. The differential slope coefficient was significant and positive at 0.047 .So the variations in number of branches increased at the rate of 1.7 percent per year in the post reform period. But when the entire 44-year period was taken the interstate variations in the spread of banking services were seen to be declining (table 5) and states seemed be heading towards a uniformity in spread.

Table 6: Impact of Economic Reforms on the interstate variations in the Banking Sector

Dependent variable: (a) log coefficient of variation for number of branches per lakh persons (b) log coefficient of variation for amount of credit per lakh per persons			
Time	Intercept Coefficient	Slope Coefficient	Growth Rate (%)

1972 to 1995	(a)	3.912 (142.77) ^a	-0.03 (15.73) ^a	-3
	(b)	4.368 (135.07) ^a	-0.016 (-7.07) ^a	-1.6
1996-2015	(a)	2.921 (10.732) ^a	0.017 (14.62) ^b	1.7
	(b)	4.368 (135.07) ^a	0.005 (5.70) ^a	0.5

Notes:

1. $\text{Log } Y = \alpha + \beta t + \gamma D + \delta Dt + \varepsilon$
2. D is dummy and D1 = 0, for up to 1995 and D1=1 for 1996 onwards
3. Numbers of observations = 44.
4. a stand for significant at 1percent level of significant.

This decline probably was offset by the rate of decline in the pre reform period which was greater than the rate of increase in post reform period. After liberalization the variations across the states have started growing. So in the coming years the interstate variations in the number of branches per lakh persons can be expected to increase further. Thus from the above discussion, it can be safely concluded that the RBI policy of uniform spread of branch banking to the unbanked areas worked very successfully in the pre reform period and the availability of branches per lakh persons across the major India states considerably improved but the interstate variations in the number of branches has started to increase in the post reform period. Economic reforms led to the entry of private banks increasing competition for public sector banks which could have led to change of focus. In simpler words economic reforms adversely impacted the interstate variations in the development of banking services. This conclusion was further confirmed when the rate of change of coefficient of variation for the amount of credit per lakh persons was examined in the pre and post reform period. In pre-reform period the interstate variations in the amount of credit declined at the rate of 1.6 percent per year suggesting there by that the states were converging towards uniform amount per lakh persons. But after liberalisation the pattern got reversed. The rate of change of coefficient of variation in pre-reform period and post reforms period shows a significant difference as seen in the differential slope coefficient for post reform period which was 0.021 (at 1 percent level). So the interstate variations in the amount of credit grew at the rate of 0.5 percent per year in the post reform period. The amount of credit per lakh persons over the entire period also shows divergence across the states. This seems plausible because with opening of the markets credit creation creating opportunities increased many fold. The states with higher level of per capita incomes could avail the benefits of liberalization much more than poorer states. After nationalisation of banks till onset of liberisation as a result of systematic thrust of banking policies of RBI interstate variations considerably declined but since early 1990s as result of opening up of the economy to market forces they have started increasing.

Conclusions and Policy Implications

Summarizing the results it can be said that definitely there has been considerable development of banking sector across the states in the period under study. The spread of banking services and the amount of credit per lakh persons has increased many fold in all states compared to early 70s. But the interstate disparities in the development of banking sector still remain. It was observed

that the number of bank branches per lakh persons grew faster for the states which have had initially smaller numbers of branches. Thus, decreasing the disparities in the number of branches across the states. But the interstate variations still exist at the same level as far as the second indicator of banking development is concerned. The amount of credit per lakh persons grew at almost the pace in all the states thus in last 44 years the interstates variations in the amount of credit per lakh persons have increased. Further , the above analysis has brought out that the economic reforms have adversely affected the interstate variations in the level of development of banking sector . In the post reform period interstate variations both in the number of branches and the amount of credit have increased and still would further increase in coming years as suggested by the results. So the economic reforms have increased the regional imbalance in the development of banking sector . The skewness in the regional pattern of growth always has serious political and social repercussions in the long run for any country. These findings hint at serious policy implications and therefore call for immediate attention . Just as to ward of the adverse impact of economic reforms on the rural poor government introduced schemes like MNERGA which have been quiet successful similarly the RBI needs to look into adverse impact of economic reforms on interstate variations in the number of bank branches and amount of credit per lakh persons and come up with policies to counter this .

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