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Linkage between Financial Development and Economic Development: Evidences from Six Geographical Regions of India

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Abstract
The policy makers have recognized that access of credit is very important for sectoral, regional and overall development of the country. A huge literature is available which explain the association between financial development and development of economic activities (Felix Rioja and Neven Valev (2004), Thorsten Beck (2011). In India there is immense regional inequality in disbursement of credit and access of other financial services. Few states are enjoying major share of credit disbursed by the Indian Schedule Commercial Banks in comparison to their share in total population or geographical area, while the states of central and northern region where most of the population reside have very low share in total credit disbursement of Indian Schedule Commercial Banks (SCBs). Because most of the economic activities, including consumption activities are financed, access and availability of institutional credit plays very important role in economic development of the regions/states. States or regions those have better access of institutional credit may have better development prospects in comparison to states/regions those have less access of institutional credit.
The Present paper aims to explore the linkage between financial development and regional development, considering six geographical regions of India for analysis. Financial Inclusion Index has been considered as indicator of financial development. Five Indexes viz. Agriculture Development Index, Human Development Index, Index of Industrial Development and Infrastructure Development Indexes, have been used for measuring regional development. The results of the study show that there is very strong linkage between Financial Development and Regional Development. Regions, those have better access of financial system and their services, shows better performance in terms of development indexes and vice versa. This Paper concludes with recommending a balanced development of financial system for achieving the goal of balanced regional development.

Keywords: Financial Development, Regional Development, Geographical Regions, Credit Allocation

1. Introduction

In 1912 Schumpeter ideated that the financial sector has the potential to affect patterns of innovation and growth. The theoretical and empirical literature indicates that financial development play very important role in economic development of any region (Schumpeter 1939), Raymond, G. (1969) it has been established by many studies that development of financial system helps real economic activities by mobilizing savings, managing the entrepreneurial activities, mitigating the risk and allocating the credits towards those activities which are socially and economically more productive (Majid, M. S. A. 2008). Recent studies on the relationship between financial markets and growth

have generally concluded that the presence of strong and efficient financial mechanisms enhances growth (Kendall 2012). As per macroeconomic objectives it is very important to allocate and distribute all sort of financial services along with that removing regional inequality is one of the important aim of fiscal as well as monetary policy. Due to certain historical and political factors, some regions in India have better development prospectus comparatively. Considering above factors, India have adopted a federal political structure and made special provision of finance commission in constitution to remove regional inequality (Article 280 of Indian Constitution). Finance Commission provides special grants to those states which are under developed. However, in spite of more than 70 years of independence problem of inequality is not only existing but also increasing at very alarming rate. Perhaps it appears that federal finance is not sufficient to cope-up the problem of regional inequality in India.

In the present paper it has been assumed that increasing regional inequalities is the result of inequality in the distribution of banking resources. Resources provided by banking institutions are directly enhancing the production capacity of private sector. And because now most of the economic activities are also in the hand of private sector, development of financial sector is also enriching those regions where there is better access of financial services.

For empirical testing of above hypothesis, we have classified the region as per RBI classifications, India has been divided into six geographical regions. It has been presumed in this study that each region should get as much as banking resources as its share in population and geographical area.

The study is arranged into seven sections. The Section 1 above, includes introduction to the study, after that Section 2 elaborates literature review. The Methodological and Analytical framework is mentioned in Section 3. The fourth section includes trend analysis and descriptive analysis of financial development indicators, and fifth section includes trend and descriptive analysis of four sectors of economic development indicators. The econometric analysis of financial and economic development indicators has been included in the sixth section while final section concludes the study with its findings and suggestions.

2. Literature Review

Deaton and Dreze (2002), in their paper "Poverty and inequality in India: A re-examination" found that regional disparities increased in the 1990s, with the southern and western regions doing much better than the northern and eastern region.

Singh et.al. (2003), argued in their paper that concerns of increasing regional inequality after the economic reforms of 1991, are sensitive to what measures of attainment are used for measuring the regional inequality. Measures like human development indices, consumption and credit indicators may not be as bad as suggested by state domestic product data.

Sen et.al. (2004) in their paper "poverty and inequality in India" reexamined the 55^{th} round of NSS and its methodology of poverty estimates in the light of its comparability and consistency. They found that NSS 55^{th} is consistent with its findings i.e. poverty all over India reduced by 3 percentage points between 1993 to 2000, but only few regions can be identified definitely as having witnessed significant poverty decline.

Kar et. al. (2007) have analysed the impact of reforms on regional inequality in India. The results show that regional inequality in India remained largely unchanged during the 1980s but rose dramatically after the adoption of the reforms. This is mainly due to the fact that the per capita output from the industrial and services sectors showed convergence before the reforms and divergence afterward.

Dev and Ravi (2007) has analysed NSS data from 1985 to 2005 and compared the extent of poverty decline in post reform and pre reform period using mixed reference period data. At the same time, they also examined the relationship of income and Gini elasticities with the levels of head count ratio. They established that the extent of decline in poverty in post reform period is not higher

compared to pre reform period in spite of higher overall growth. Apart from other factors an increase in inequality seems to have slowed down the rate of reduction of poverty in post reform period.

Nayyar (2008) has analysed the question - "Given the disparate level of income and development among the states in India, do they exhibit any tendency in the data to converge to common-steady state paths?" Using the panel data of 16 Indian States for the period from 1978-79 to 2002-03, it is found that states are not converging to identical level of per capita income in the steady-state. Rather there is increase in dispersion of per capita incomes across state over tome. It has been argued that it is mainly due to inter-state increasing disparity in the level of public and private investment and insignificant and insignificant equalizing impact of center-state Government transfers.

Mandira (2008) published a working paper on index of financial inclusion, that is, multidimensional index that captures information on various dimensions of financial inclusion in one single digit lying between 0 and 1. The proposed index is easy to compute and is comparable across countries. The approach is similar to that used in UNDP for computation of well-known indexes like HDI, HPI and GDI.

Aug (2010) published the paper "Finance and Inequality: the case of India" in which he examined how finance impacts income inequality in India using annual time series data for over half a century. The result indicate that financial development helps reduce income inequality financial liberalization seems to exacerbate it.

Sarkar et.al. (2010) in their paper 'Income Inequality in India: Pre and post reform period' analyses the issue by using different types of inequality measurements like general entropy indices, kernel density graphs, percentile of income graphs and field decomposition. This study explored the levels of wages and income, disparities and inequality in them. It finds two major features of a rising inequality in urban areas, first even with a doubling of per capita consumption growth in the post reform decade, the decline in poverty was less by a quarter compared to pre reform decade second, in the post reform period the growth of wage rate of regular workers was negative up to the 50^{th} percentile of wage earnings, and beyond that point, wage rate growth turned positive and rose sharply to reach 5 percent per annum in highest quintile of wage earnings.

Singh et.al. (2014), in their paper, "regional inequality in India in the 1990s: A district level view", using cross sectional growth regression of 210 districts from 10 states illuminate the role of physical infrastructure, financial development, and human capital in influencing regional patterns of growth.

Basole (2014) in his article analyses the evolution of income inequality in India in the period 1922-99 using world top income database. This study reveals that inequality at the end of the 1990s was far higher than it had been even in the colonial period.

As per SBI report (2019) the region wise trend of HDI scores suggest mostly southern and northern states outperformed as compared to other regions. The eastern states have a poor performance in HDI. The north-eastern states which have rapidly catches up in HDI value and were well performed among other regions have slowed down in recent period.

Siddiqui et.al. (2022) mentioned in an article that they examined socio economic inequality in longevity in India. Their findings suggested that regionally the south and west have overrepresented whereas central, eastern and north eastern have underrepresented in longevity.

3. Methodology and Analytical Framework

For empirical testing of above hypothesis, we have classified the region as per RBI classifications, India has been divided into six geographical regions; viz. northern region (NR), north eastern region (NER), eastern region (ER), central region (CR), western region (WR) and southern region (SR). The present study considered the time period of 1991-2018 which is further divided into two period considering year 2006 as landmark after which government has initiated sincere policy efforts in the direction of financial inclusion. In this study RBI is the main source of data.

It has been presumed in this study that each region should get as much as banking resources as its share in population and geographical area. For analyzing the linkage of financial development and economic development in the concerned region, suitable indicators have been identified. Financial indicators are share in total branches of scheduled commercial banks (SCBs), credit deposit ratio of SCBs, share of total credit distributions of SCBs, share in total agricultural credit and share in total industrial credit. For capturing the prospects of economic development in regions four sectors have been identified, i.e. development of agricultural sector, development of Industrial sector, human development and infrastructural development. Further each sector considers suitable development indicators. The indicators of agricultural development covers region wise cropping intensity, gross domestic production in agriculture, and gross irrigated area. The industrial development indicators are region wise number of employees, number of factories, fixed capital formation and fixed gross capital formation. The human development indicators include region wise life expectancy, literacy rate, and per capita state GDP and this sector considers the time period from 1993 t0 2018. The infrastructural development indicators consist of region wise per capita availability of power, railway route, length of state highways, length of national highways. It considers the time period from 2003 to 2018. Along with this, the study also considers regional credit distribution and population distribution.

This study is a panel data study, so we first analyzed all the variables through trend analysis, descriptive analysis, and Gini coefficients, then applied random effect model on the indices of financial development and other economic development in order to capture the difference between the regions. To apply the model, we estimated some variables i.e. literacy rate, agricultural credit and per capita state GDP through interpolation and extrapolation using STATA.

3.1 Calculation of Indices of financial development and economic development

This approach is similar to that used by UNDP for computation of some well-known development indexes such as the HDI, the HPI, the GDI and so on. As in the case of these indexes, the financial development index and economic development index of each sector is computed by first calculating a dimension index for each dimension of financial development and economic development. The dimension index for the ith dimension, di, is computed by the following formula:

$$di = Ai\text{-}mi/Mi\text{-}mi \quad (1)$$

where, Ai = Actual value of dimension i, mi = minimum value of dimension i, Mi = maximum value of dimension i

Formula (1) ensures that $0 \leq di \leq 1$. Higher the value of di, higher the region's achievement in dimension i. If n dimensions of financial development and economic development are considered, then, a region i will be represented by a point Di = (d1, d2, d3, ... dn) on the n-dimensional Cartesian space. In the n-dimensional space, the point O = (0,0, 0...0) represents the point indicating the worst situation while the point I = (1,1, 1...,1) represents the highest achievement in all dimensions. The index of financial development and economic development for the ith region, then, is measured by the normalized inverse Euclidean distance of the point di from the ideal point I= (1,1, 1....1). The exact formula is:

$$\text{FDI or EDI} = 1 - \frac{\sqrt{(1-d_1)^2+(1-d_2)^2+\ldots.(1-dn)^2}}{\sqrt{n}} \quad (2)$$

In formula (2), the numerator of the second component is the Euclidean distance of di from the ideal point I, normalizing it by √n and subtracting by 1 gives the inverse normalized distance. The normalization is done in order to make the value lie between 0 and 1 and the inverse distance is considered so that higher value of the FDI and EDI corresponds to higher financial development and economic development. The dimensions are the variables of development indicators and number of dimensions depend upon the variables considered for the respective development indicators.

3.2 Model

For tracing the effect of financial development on economic development (Ceteris paribus) in the regions of India, we define the model to be estimated and we use the same model for each sector of economic development.

EDI = *f* (Regions, FDI)

EDI = β0 + β1d1 + β2d2 + β3d3 + β4d4 + β5d5 + β6FDI + Ui

Where, EDI = Economic development indices (Agriculture development index (AGI), Industrial development index (IDI), Human development index (HDI), Infrastructure development index (INDI))

β1d1= dummy variable (dichotomous; 1= southern region, 0=others)

β2d2 = dummy variable (dichotomous; 1= western region, 0=others)

β3d3 = dummy variable (dichotomous; 1= northern region, 0=others)

β4d4 = dummy variable (dichotomous; 1= eastern region, 0=others)

β5d5 = dummy variable (dichotomous; 1= north-eastern region, 0=others)

β6FDI = financial development Index (Reference Category: Central region)

4. Financial Development Indicators and Regional Population, Geographical Area, and Credit Distribution in India:

Table 1.1 Regional Population Distribution

	1951	**1961**	**1971**	**1981**	**1991**	**2001**	**2011**
INDIA	361088	439235	548160	683329	846421	1028737	1210855
NR	10.58	10.94	11.27	11.84	12.27	12.93	13.12
SR	26.18	25.17	24.78	24.17	23.31	21.81	20.86
ER	22.13	22.57	22.43	22.15	22.07	22.15	22.41
WR	13.54	13.86	14.24	14.35	14.37	14.51	14.44
CR	24.73	24.16	23.71	23.86	24.25	24.87	25.44
NER	2.84	3.30	3.57	3.62	3.73	3.74	3.73

Source: RBI

Table 1.1 shows the distribution of population among the six regions of India from 1951 to 2011. In the year of the first census after independence in India, i.e. 1951, Southern Region was home to highest percentage of the total population at 26.1 %, which throughout to the final census that was conducted in the year 2011 was seen to be controlled and brought down to 20.8%. Further, Central Region was home to 24.7% during the first census year, accounting for the highest number of people after Southern Region till the fourth census and in the census of 1991 Central Region can be seen overtaking Southern Region at 24.2%, against 23.3%, respectively. Eastern Region at the start of the census in 1951 can been seen occupying third position with 22.1% of the total population, and in the census of 2001 Eastern Region can be seen to have surpassed Southern Region in terms of number of people and accounted for 22.4%, just second to Central Region and in the latest census of 2011 its share had witnessed a decimal increase. Simultaneously, Western Region can be seen to have accounted for 13.54% in the first census which goes to increase by almost a percentage point in 6 decades. Northern Region at the time of the census of 1951 accounted for 10.58% of the total population and with a percentage increase in every two decades the share of the Northern Region has reached 13.1%. North-Eastern Region as can be seen from the table.1, that its share in the total population has only increased by a percentage point from 2.8% to 3.7% between the period of 1951 to 2011.

Table 1.2 Region Wise Distribution of Geographical Area

REGION	AREA	% AREA
NR	549628	17.61
SR	255083	8.17
ER	433681	13.89
WR	737847	23.64
CR	508042	16.28
NER	636281	20.38
Total	3120562	100

Source: RBI.

Population distribution among the regions of India has been shown in Table 2. Central Region can be seen to have accounted for the highest percentages of land that is 23.6%, followed by Southern Region with 20.3%. Further, Northern Region with 17.6% shares with respect to the total geographical area accounts for the third largest region in India. Western Region with 16.2% positioned itself as the fourth while Eastern Region and North-Eastern Region as fifth and sixth land area with 13.8%, and 8.1%, respectively.

Table 1.3 Percentage Wise Aggregate Credit Distributions

Regions	Percentage Wise Distribution of credit
NR	21.78
SR	0.98
ER	7.17
WR	8.48
CR	33.78
NER	27.91

Source: RBI.

Region wise the amount of credit distribution plays an important role in the development of the region in India. Table 3, shows the shares of credits in terms of percentages for each region out of the total credit distribution and as can be seen that for Western Region, with 33.78% is the highest share from among the six regions, followed by Southern Region with 27.91% and 21.78% for Northern Region, when compared it makes 83.47% of the total credit distribution against 48.3% of the total population distribution and 54.1% of the total land area. The remaining 17.6% of the credit can be seen divided among the three regions, namely, Central Region with 8.48%, Eastern Region with 7.17%, and North-Eastern Region with 0.98% and it is the lowest among the six regions of India.

4.1 Region Wise Branches of Schedule Commercial Banks

Branches of SCBs

Bank's branches in developing countries have been considered as the main channel of conducting the banking transactions, (Yazan Khalid, 2012). The Southern Region's access to the financial services provided through the bank's branches is the highest among the six regions and is followed by Central Region in the 20% slab, ideally the position of the two mentioned regions must had been reversed if their population shares and geographical land area were to be considered at the base of their expanding strategies. Subsequently, North-eastern region can also be seen to have only 2.7% of

the bank's branches while Northern Region and Western Region have 16.6%, and 15.4 %, respectively. If comparison has to be drawn than the ideal share of North-eastern region should had been 3.7% in accordance with their population share and for Northern Region and Western Region the numbers would had been 13% and 14.4%, respectively. There exist signs of inequality for number of bank branches among the six regions.

4.3 Credit-Deposit Ratio

Credit-Deposit ratio is an indicator of utilization pattern of resources in respect of its mobilization. If any region is utilizing more resources this means that region have better development prospects. Table indicates that C-D ratio of northern, western, and southern regions have increased continuously from 47.6, 63.7, and 83.2 per cent in 1991 to 81.9, 90, and 93.2 per cent in 2018, respectively. The trend line for southern region also shows that this region has seen maximum credit disbursal vis a vis. its deposits mobilization. The same can be infer from its mean value which is highest among all the region both pre 2006 and post 2006 period. While C-D ratio of north-eastern and eastern regions have declined continuously from 70 and 52.6 per cent in 1991 to 41 and 44.1 per cent in 2018 respectively. Moreover, the mean value for northern region has seen a drastic increase which is also reflected in the trend line for northern region. With little bit fluctuations in decade of 2000, credit-deposit ration of central region was almost constant at nearly 50 per cent. From the table it can be inferred that C-D ratio of developed regions of India is faring better than other underdeveloped regions and also continuously over the period.

4.4 Regional Credit Distribution

The overall credit disbursal has seen an increasing trend in the western region which is 27.80 percentage to 33.69 percentage. Which is also reflected through the increase in its means value from 32.01 in 1990 to 2005 period to 35.07 in 2006 to 2018 period. Moreover, the same kind of increasing trend can also be seen in the northern region. However, the three regions viz. north-eastern region, eastern region and central region has seen a continuous decline in the credit distribution to these regions i.e., from 1.5 percentage to 0.9 percentage, 13.5 percentage to 7.16 percentage, 11.02 percentage to 8.47 percentage, respectively. The credit distribution to southern region has remain same on an average with little bit fluctuation in the middle.

5. Various Economic Development Indicators

5.1 Agricultural Development Indicators

5.1.1 Cropping Intensity

The northern region has seen significant increase in its cropping intensity, this is also reflected by rising trend line and highest mean value, however the region has highest standard deviation from its mean value. The other two regions such as eastern region, central region and western region showing an increasing trend though not very significantly as far as cropping intensity is concerned. Moreover, the southern region has seen a marginal increase in cropping intensity. The western region with its lowest mean value of 120.85 has seen mild increase in its cropping intensity.

5.1.2 Share of Agriculture in GDP

As far as share of agriculture in GDP the contribution from northeastern region has remain stagnant on an average at 3.5 percentage and this region has lowest mean value of 3.52 among all the regions. The northern region has seen an overall decline in the contribution of agriculture to GDP. Moreover, the eastern region and west region has seen a marginal increase in their agriculture share to GDP. The central region and southern region have seen an increase and decrease respectively with some fluctuation in the middle. Also central has highest mean value at 23.64 and southern region has 22.81.

5.1.3 Gross Irrigated Area

The five regions viz. northern region, eastern region, central region, western region and southern region have seen increase in their gross irrigated area, however the central region has seen maximum increase in the gross irrigated area, the central region and its mean value at 37.005. However, the north eastern region has remained stagnant as far as gross irrigated area is concerned also with lowest mean value among all the regions.

5.2 Industrial Development Indicators

5.2.1 The Number of Factories

The fact is very much established in the literature of economics that manufacturing is an important factor in the economic development of a region. The credence to manufacturing as an "Engine of Growth" is due to the structural change in low productive agriculture to more productive industrial sector in Europe and then in America. The change was subsequently experienced in countries of East-Asia (Szirmai, Naudé, and Alcorta, 2013). The position of China as a global power house on the global level has been due to her transforming journey to accomplish manufacturing power in the last 40 years.

A strong base of factories has doubled and tripled their numbers of factories since the liberalization of the financial markets in India. Moreover, the sum result of numbers of factories in Eastern Region, North-Eastern Region, and Central Region is still less than the numbers of factories in Western Region, alone.

5.2.2 The Number of Employees

The importance of SMEs in dynamic development and growth of the economy can be observed from its contribution in reducing poverty and help people increase their income by generating job opportunities in the broader sector of its own. The number of employees in the six regions has been considered as an indicator of industrial development to reflect the development and growth of the sector in each of the region separately

The western region with 37% leads in the number of employees which is followed by southern region. Northern region has 15% employed workforce and along with central region which has 12% of the employees portrays an approximate constant line while North-Eastern and Eastern regions extremely lags behind at 0.26% and 4.16%, respectively.

5.2.3 Gross Fixed Capital Formation

Gross capital formation (GCF) refers to the aggregate of gross additions to fixed assets (i.e., fixed capital formation), (NAS, 2007). 'Some historians and philosophers of economic's history, indeed, have not only laid great stress on the importance of the new element, the fixed capital, in the industrial revolution, but have attempted to prove that it was a major factor in altering the shape and direction of movement of the whole economy.' (Sidney Pollard, 1964)

The gross fixed capital formation of western and southern regions with minor ups and downs, is constantly increasing, while that for northern, central and eastern regions a fluctuation can observed. Further, for north-eastern the gross fixed capital formation is declining.

5.2.4. Fixed Capital

The Harrod-Domar-Romer Model of Endogenous Growth as well as of the Sollow-Swan model has excreted immense stress on the importance of domestic investment to reduce disparities in convergence of the lines of developments of the regions. Fixed capital as an indicator of the strength and capability of industry in a region has been considered to highlight the differential growth it effected upon the prospectus of industrial development in the six regions of India.

The western region has 31% shares in the total fixed capital, followed by southern region with 23% and eastern region has a share of 21%, while the shares of all other three remaining regions are less than 15% in the fixed capital of the country.

5.3 Human Development Indicator

5.3.1 Life expectancy

Life expectancy is a statistical estimate of the average number of years a person is expected to live, based on actuarial data. It is one of the important indicator of human development and economic development as well.

The southern region has highest life expectancy followed by northern and western region. On the other hand, north eastern region has lowest life expectancy followed by central region and eastern region. Here from the standard deviation of the better regions are consistent with positive changes in Life Expectancy and lower regions are volatile in their performances.

5.3.2 Literacy rates

Literacy rates can have different definitions and forms of measurement in different parts of the world. However, the most commonly agreed upon definition comes from The United Nations Educational, Scientific and Cultural Organization (UNESCO), which defines the literacy rate as: *"The percentage of the population of a given age group that can read and write".* Being able to read and write is vital for a person's and society's social and economic development. High literacy rates indicate that a large percentage of the population can read and write, which suggests that there is widespread communication and complex problem-solving taking place. This, in turn, indicates a higher level of social and economic development. However, low literacy rates can signify stagnation or regression.

The regional performance from 1951 to 2001 shows that southern region is out performing in literacy rate i.e. 52.76, followed by western region and northern region whereas central region is underrepresented in literacy rate followed by eastern region and north eastern region. After 2001 to 2011 a drastic change can be seen among all the regions and the status. The western region is outperforming in this time period followed by southern and northern region. But still the inequality gap exists among low performing regions.

5.3.3 Per capita state GDP

Gross domestic product (GDP) per capita is an economic metric that breaks down a country's economic output per person. Economists use GDP per capita to determine how prosperous countries are based on their economic growth. GDP per capita is calculated by dividing the GDP of a nation by its population. Countries with a higher GDP per capita tend to be those that are industrial, developed countries. GDP per capita is a global measure for gauging the prosperity of nations and is used by economists to analyze the prosperity of a country based on its economic growth. Likewise, we also calculate per capita state GDP for states in order to capture the prosperity of the particular state. States with a higher GDP per capita tend to be those that are developed.

It is one of the important indicator of human development. Before 2001 western region is highest in the matter of per capita state GDP followed by northern region and southern region whereas central region being lowest followed by north eastern region and eastern region. After 2001 the per capita state GDP of northern region was highest followed by southern region and western region. There is development in all regions by the time, but we can also see the variations among regions.

5.4 Infrastructure Development Indicators

5.4.1 National Highways

The three regions viz. north regions, north eastern region, eastern region has seen a constant decline in the construction of national highways. The construction of national highways in the western region after being constant till 2015, it started rising from 2016 onwards significantly. Moreover, the construction of national highways in southern region and central region has been following a decreasing trend. However, the means value for southern and central regions remains the highest at 21.26 and 21.39 respectively.

5.4.2 Per Capita Availability of Power

All the six regions viz; northern regions, north eastern region, eastern region, central region, western region, and southern region has seen an increasing trend in the per capita availability of power. However, the western regions turn out to be outlier which is showing an drastic increase which is also reflected by its trend line and its mean value being the highest among all the regions at 5513.129.

5.4.3 Railway Network

The expansion of rail network has remained stagnant in the all the six regions i.e., northern region, north eastern region, eastern region, central region, western region and southern region. However, the expansion in the north eastern region has remain at the lowest level, also its mean value being the lowest among all the regions at 3.97.

5.4.4 The State Highways

The five regions, that is, north eastern region, eastern region, central region, western region, and southern region has seen a decline in the construction of state highway in these regions. However, only northern region has seen an increase in the construction of national highways. The mean value for western regions being the highest among all the regions at 33.91, followed by southern region at 25.9, the north eastern region has lowest mean value of 3.95. However, the standard deviation from its mean value is lowest for eastern region at 0.68.

6. Linkage Between financial development index and economic development indices

6.1 Panel Regression Analysis of Agriculture Development Index and Financial Development Index

Dependent variable: AGI		R Squared	0.9626
Sample: 1 174		Adjusted R-squared	0.9613
Included observations: 174		F- Statistic	716.49
Prob. (F- Statistic)	0.0000		

Table 1.37 Regression Analysis of Agriculture Development Index and Financial Development Index

	Coefficient	**Std. Error**	**t- Statistic**	**Prob.**
FDI	.1242474	.0650335	1.91	0.058
D1	-.2898271	.0405629	-7.51	0.000
D2	-.4624627	.0272882	-16.95	0.000
D3	.1000616	.0213997	4.68	0.000
D4	-.0729008	.0142448	-5.12	0.000
D5	-.638397	.0227085	-28.11	0.000
Constant	.6735425	.0221418	30.42	0.000

Model 1

$AGI = \beta0 + \beta1d1 + \beta2d2 + \beta3d3 + \beta4d4 + \beta5d5 + \beta6FDI + Ui$ (1)

For central region:

$AGI= \beta0 + \beta6FDI + Ui$

$= .6735425 + .1242474 + Ui$

For southern region:

$AGI= \beta0 + \beta1d1 + \beta6FDI + Ui$

$= .6735425 + (-.2898271) + .1242474 + Ui$

$= (\beta0 + \beta1)\, d1 + \beta6FDI + Ui$

$= (.6735425 + (-.2898271)) + .1242474$

$= 0.3837154 + .1242474 + Ui$

For western region:

$AGI= \beta0 + \beta2d2 + \beta6FDI + Ui$

$= .6735425 + (-.4624627) + .1242474 + Ui$

$= (\beta0 + \beta2)\, d2 + \beta6FDI + Ui$

$= (.6735425 + (-.4624627)) + .1242474$

$= 0.2110798 + .1242474 + Ui$

For northern region:

$AGI= \beta0 + \beta3d3 + \beta6FDI + Ui$

$= .6735425 + .1000616 + .1242474 + Ui$

$= (\beta0 + \beta3)\, d3 + \beta6FDI + Ui$

$= (.6735425 + .1000616) + .1242474$

$= 0.7736041 + .1242474 + Ui$

For eastern region:

$AGI= \beta0 + \beta4d4 + \beta6FDI + Ui$

$= .6735425 + (-.0729008) + .1242474 + Ui$

$= (\beta0 + \beta4)\, d4 + \beta6FDI + Ui$

$= (.6735425 + (-.0729008)) + .1242474$

$= -0.0554655 + .1242474 + Ui$

For north eastern region:

$AGI= \beta0 + \beta5d5 + \beta6FDI + Ui$

$= .6735425 + (-.638397) + .1242474 + Ui$

$= (\beta0 + \beta5)\, d5 + \beta6FDI + Ui$

$= (.6735425 + (-.638397)) + .1242474$

$= 0.0351455 + .1242474 + Ui$

The above model interprets the linkage between financial development and agricultural development. From the above model we can analyse that agricultural development is positively and significantly related to financial development, and 1 percent change in financial development leads to .1242474 percent change in agricultural development. At the same time the intercept term is positive and highest in northern and central region followed by southern region. On the other hand, it is negative in eastern region and in north eastern region it is positive but low, that shows the variations among regions that means inequality within the regions.

6.2 Panel Regression Analysis of Industrial Development Index and Financial Development Index

Dependent variable: IDI		R Squared	0.9593
Sample: 1 174		Adjusted R-squared	0.9579
Included observations: 174		F- Statistic	656.53
Prob. (F- Statistic)	0.000		

Table 1.38 Regression Analysis of Industrial Development Index and Financial Development Index

	Coefficient	Std. Error	t- Statistic	Prob.
FDI	.0425879	.0714689	0.60	0.552
D1	.4020804	.0445768	9.02	0.000
D2	.4238639	.0299884	14.13	0.000
D3	-.0308061	.0235173	-1.31	0.192
D4	-.0443539	.0156543	-2.83	0.005
D5	-.3575589	.0249557	-14.33	0.000
Constant	.3601387	.0243328	14.80	0.000

Model 2

$IDI = \beta0 + \beta1d1 + \beta2d2 + \beta3d3 + \beta4d4 + \beta5d5 + \beta6FDI + Ui$ (2)

For central region:

$IDI = \beta0 + \beta6FDI + Ui$

$= .3601387 + .0425879 + Ui$

For southern region:

$IDI= \beta0 + \beta1d1 + \beta6FDI + Ui$

$= .3601387 + .4020804 + .0425879 + Ui$

$= (\beta0 + \beta1)\, d1 + \beta6FDI + Ui$

$= (.3601387 + .4020804) + .0425879$

$= 0.7622191 + .0425879 + Ui$

For western region:

$IDI= \beta0 + \beta2d2 + \beta6FDI + Ui$

$= .3601387 + .4238639 + .0425879 + Ui$

$= (\beta0 + \beta2)\, d2 + \beta6FDI + Ui$

$= (.3601387 + .4238639) + .0425879$

$= 0.7840026 + .0425879 + Ui$

For northern region:

$IDI= \beta0 + \beta3d3 + \beta6FDI + Ui$

$= .3601387 + (-.0308061) + .0425879 + Ui$

$= (\beta0 + \beta3)\, d3 + \beta6FDI + Ui$

$= (.3601387 + (-.0308061)) + .0425879$

$= 0.3293326 + .0425879 + Ui$

For eastern region:

$IDI = \beta0 + \beta4d4 + \beta6FDI + Ui$

$= .3601387 + (-.0443539) + .0425879 + Ui$

$= (\beta0 + \beta4)\, d4 + \beta6FDI + Ui$

$= (.3601387 + (-.0443539)) + .0425879$

$= -0.3157848 + .0425879 + Ui$

For north eastern region:

$IDI= \beta0 + \beta5d5 + \beta6FDI + Ui$

$= .3601387 + (-.3575589) + .0425879 + Ui$

$= (\beta0 + \beta5)\, d5 + \beta6FDI + Ui$

$= (.3601387 + (-.3575589)) + .0425879$

$= 0.0025798 + .0425879 + Ui$

This model clarifies the relationship between financial development and Industrial development. The above model interprets that industrial development is positively, but insignificantly related to

financial development, and 1 percent change in financial development leads to .0425879 percent change in industrial development. The intercept term is positive, significant and highest in western and southern region followed by central region. On the contrary, it is positive but low in northern region and eastern region. In the north eastern region, it is positive, but very low. This shows there is variation among regions, that further means, there is inequality among regions.

6.3 Panel Regression Analysis of Human Development Index and Financial Development Index

Dependent variable: HDI		R Squared	0.9295
Sample: 1 156		Adjusted R-squared	0.9266
Included observations: 156		F- Statistic	327.28
Prob. (F- Statistic)	0.000		

Table 1.39 Regression Analysis of Human Development Index and Financial Development Index

	Coefficient	Std. Error	t- Statistic	Prob.
FDI	.4730179	.103882	4.55	0.000
D1	.3448438	.0601735	5.73	0.000
D2	.6129461	.0414638	14.78	0.000
D3	.4861422	.0352446	13.79	0.000
D4	.2026542	.0233847	8.67	0.000
D5	.2482904	.0389725	6.37	0.000
Constant	-.0775626	.0370795	-2.09	0.038

Model 3

$HDI = \beta0 + \beta1d1 + \beta2d2 + \beta3d3 + \beta4d4 + \beta5d5 + \beta6FDI + Ui$ (3)

For central region:

$HDI = \beta0 + \beta6FDI + Ui$

$= -.0775626 + .4730179 + Ui$

For southern region:

$HDI= \beta0 + \beta1d1 + \beta6FDI + Ui$

$= -.0775626 + .3448438 + .4730179 + Ui$

$= (\beta0 + \beta1)\, d1 + \beta6FDI + Ui$

$= ((-.0775626) + .3448438) + .4730179$

$= 0.2672812 + .4730179 + Ui$

For western region:

$HDI= \beta0 + \beta2d2 + \beta6FDI + Ui$

$= -.0775626 + .6129461 + .4730179 + Ui$

$= (\beta0 + \beta2)\, d2 + \beta6FDI + Ui$

$= ((-.0775626) + .6129461) + .4730179$

$= 0.5353835 + .4730179 + Ui$

For northern region:

$HDI= \beta0 + \beta3d3 + \beta6FDI + Ui$

$= -.0775626 + .4861422 + .4730179 + Ui$

$= (\beta0 + \beta3)\, d3 + \beta6FDI + Ui$

$= ((-.0775626) + .4861422) + .4730179$

$= 0.4085796 + .4730179 + Ui$

For eastern region:

HDI = β0 + β4d4 + β6FDI + Ui
= -.0775626 + .2026542 + .4730179 + Ui
= (β0 + β4) d4 + β6FDI + Ui
= ((-.0775626) + .2026542) + .4730179
= 0.1250916 + .4730179 + Ui
For north eastern region:
HDI= β0 + β5d5 + β6FDI + Ui
= -.0775626 + .2482904 + .4730179 + Ui
= (β0 + β5) d5 + β6FDI + Ui
= ((-.0775626) + .2482904) + .4730179
= 0.1707278 + .4730179 + Ui

From the above model we identified the relationship between financial development and human development and it shows that human development is positively and significantly related to financial development, and 1 percent change in financial development leads to .4730179 percent change in human development. The intercept term is positive, significant and highest in western and northern region followed by southern region. On the contrary, it is negative for central region and positive and low in eastern region and north eastern region. In the north eastern region, it is positive, but very low. The variation among regions shows the inequality between regions.

6.4 Panel Regression Analysis of Infrastructure Development Index and Financial Development Index

Dependent variable: INDI		R Squared	0.9464
Sample: 1 102		Adjusted R-squared	0.9430
Included observations: 102		F- Statistic	279.58
Prob. (F- Statistic)	0.000		

Table 1.40 Regression Analysis of Infrastructure Development Index and Financial Development Index

	Coefficient	Std. Error	t- Statistic	Prob.
FDI	.0998703	.0836534	1.91	0.236
D1	.0463267	.0477656	0.97	0.335
D2	.0400202	.0337293	1.19	0.238
D3	-.0984824	.0280372	-3.51	0.001
D4	-.1517312	.0152193	-9.97	0.000
D5	-.4019553	.0293427	-13.70	0.000
Constant	.4111945	.0284433	14.46	0.000

Model 4
INDI = β0 + β1d1 + β2d2 + β3d3 + β4d4 + β5d5 + β6FDI + Ui (4)
For central region:
INDI = β0 + β6FDI + Ui
= .4111945 + .0998703 + Ui
For southern region:
INDI= β0 + β1d1 + β6FDI + Ui
= .4111945 + .0463267 + .0998703 + Ui
= (β0 + β1) d1 + β6FDI + Ui
= (.4111945 + .0463267) + .0998703

= 0.4575212 + .0998703 + Ui
For western region:
INDI= β0 + β2d2 + β6FDI + Ui
= .4111945 + .0400202 + .0998703 + Ui
= (β0 + β2) d2 + β6FDI + Ui
= (.4111945 + .0400202) + .0998703
= 0.4512147 + .0998703 + Ui
For northern region:
INDI= β0 + β3d3 + β6FDI + Ui
= .4111945 + (-.0984824) + .0998703 + Ui
= (β0 + β3) d3 + β6FDI + Ui
= (.4111945 + (-.0984824)) + .0998703
= 0.3127121 + .0998703 + Ui
For eastern region:
INDI = β0 + β4d4 + β6FDI + Ui
= .4111945 + (-.1517312) + .0998703 + Ui
= (β0 + β4) d4 + β6FDI + Ui
= (.4111945 + (-.1517312)) + .0998703
= 0.2594633 + .0998703 + Ui
For north eastern region:
INDI= β0 + β5d5 + β6FDI + Ui
= .4111945 + (-.4019553) + .0998703 + Ui
= (β0 + β5) d5 + β6FDI + Ui
= (.4111945 + (-.4019553)) + .0998703
= 0.0092392 + .0998703 + Ui
The above analysis explicates the positive but insignificant relationship between financial development and infrastructure development which further shows that a percent change in financial development will change infrastructure development by .0998703 only. The infrastructure development is lowest in north eastern region due to less financial development and highest in the southern region as it is financially well developed, which represent inequality among regions.

7. Conclusion and Policy Prescription

On the basis of empirical analysis, we conclude that in most of the sectors we found that southern, western and northern region are well-off in both the prospects i.e. financial development as well as economic development. On the contrary eastern, central and north eastern region are under developed financially and has poor performance in most of economic development prospects. From the above analysis, we also searched out that the regions that are well developed financially has better performance in economic development and the regions that are less developed financially has poor performance in the economic development, that further shows there is a strong linkage between financial development and economic development and banking resources can contribute to economic development. At the same time, we also observed that there is inequality between the regions of India which has been proved through four sectors of economic development indicators, financial development Indicators, population and area of respective regions. So, the study recommends that in order to achieve economic development we need to enhance and develop our financial system too and it should be as per population distribution and geographical area of the respective regions to remove the inequality of the regions, that means the development should be balanced in every prospects.

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