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Spatial Dimension of Social Development in India

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Abstract

Most of the recent studies conducted development experiences of India during recent times are done at the states level. This paper tries to find out whether there is any clustering of districts in India in terms of social development outcome. That is there are pockets of growth that are pulling up the national average. The paper basically uses census 2001 and NSSO 2004-05 dataset. Firstly the paper has constructed social development index of Indian states and districts. The paper uses Moran I statistics of development indicators to find out the spatial correlation among districts. The paper also uses simple regression framework to find out the determinants of the social development across districts. To overcome the problem of spatial dependency the paper uses spatial autoregressive model to find out the same. The paper confirms the presence of significant spatial clustering across districts. Moran index implying literacy rate is more or less uniform all over India. The low spatial correlation among household basic facilities, life expectancy, and monthly per capita consumption expenditure, poverty and inequality implies some of the districts are pocketing the benefit and others are deprived. The spatial autoregressive model indicates the spillover effect of the social development in the neighboring district.

Key Words: District, India, Moran's Index, Spatial Autoregressive Model

JEL: R11, C01, C31

1. Introduction

Regional disparities are a measure of the unequal distribution of income, wealth, power and resources between peoples in different locations. As a dimension of overall inequality, regional disparities have added significance when combined with regional divisions, political and ethnic tensions that can undermine social and political stability. It impacts individuals in every level of society, and affects variety of economic and social issues. Inequality is so important to analyze because it is continuing to grow, and people are becoming increasingly unequal (Levy 1998). The geographical differences in India are larger than in the United States, Europe and Japan (Sachs *et al.*, 2002). The accurate measurement of regional disparities and the analysis of their causes and consequences are therefore of particular importance. In the policy arena, a persistent and growing inequality builds a perception that inequality across regions is persistent and growing rapidly. These increasing spatial inequalities contribute to growing intra states and inter districts disparity. Most of the recent studies conducted development experiences of India during recent times are done at the states level. This paper tries to find out whether there is any clustering of districts in India in terms of social development outcome. That is there are pockets of growth that are pulling up the national average.

In a large number of developing countries, regional disparity is a major concern. The National Human Development Report, 2001 for India reveals vast differences in human development and poverty across the States in India. The report notes that 'At the state level, there are wide disparities in the level of human development' (NHDR, 2001). The report also notes that disparities amongst the States with respect to human poverty are quite remarkable. Alarmingly, it has been noted that over a decade there has been no reduction of such disparities. The report notes that while there have been improvement in the human development index and human poverty indices during the 1980s, the interstate disparities have persisted throughout the decade. It is generally recognized that inter regional disparities increases, at least in the initial stages of the development. As a result government everywhere, including India used to initiate deliberate policy measures to reduce this disparity. Dreze and Sen (1995) find that the diversities in economic and social development amongst the Indian states are quite remarkable. Of course, there have been a number of meaningful studies about indicators of regional well being like ones by Casen (2002), Malhotra (1998) and planning commission (2002). However there is no detailed study of intra-state and inter district- regional experience in economic and social development in India, examining the nature, extent and possible causes of disparities, the pattern of regional change and inter-relationship between economic and social development at the regional level.

Therefore it is important to follow an ordered approach to analyze social development and regional disparities among Indian states and districts. The present study addresses the following research questions:

- What are the non -income indicators of the social development in India?
- What are the causes that explain the regional disparities among Indian districts?

The paper is organized as follows: Section two deals with literature review. In sections three and four the paper describes the data and methodology of the study respectively. The main empirical results are presented in section five. Section six concludes the paper.

2. Literature Review

Various studies have tried to trace the path of development in India with a special focus on its regional pattern. Most of them have used 'States' as the unit of region and studied cross-sectional disparity in development over a few time-points to emphasize the long-term trend in it. Datt and Martin (1998) have tried to explain why some economies have performed so much better than others in escaping absolute poverty. They consider larger number of explanatory factors such as differences in technical progress, public spending, macroeconomic stability and initial endowments of physical and human development. They conclude that long-term progress in raising rural living standards has been diverse across states of India. The same authors (1993) observe 'disparities in living standards among regions and between urban and rural sectors have long raised concern in India.' Some of the recent studies also found the regional inequality in Indian States. Teldulkar (2010) has found that there has been a rising inequality in urban India. Kurian (2000) found evidences about wide regional disparities in India. He measures inequality in terms of sex ratio, female literacy rate, infant mortality rate and infrastructure development. The major conclusion of his paper is that forward states have moved ahead of the backward states in terms of the performance of the above maintained parameters. Purifield (2006) has categorized states into rich and poor and found that rich states are growing faster than the poor states and have successful in terms of reducing poverty and job creation compared to poor states. Kocher (2006) found that the state with weaker institution and poorer infrastructure experienced low gross domestic product (GDP) growth and lower industrial growth. Krishna (2004) has focused on the issues of growth variability and volatility in Indian states. The coefficient of variation of year-to-

year growth rates for a state was used as a measure of volatility. The four most volatile states in India were Orissa, Rajasthan, Gujarat and Uttar Pradesh while the three least volatile states were Punjab, Maharastra and Kerala. However, the volatility has been declining on the national level since the 1980s. The author notes that the dispersion of the growth rates of states increased considerably in the post-reform period (from 15 percent in the 1980s to 27 percent in the 1990s). Ahluwalia (2000) has explained inter-state differences in economic performance in terms of market development and the Indian states' ability to take advantage of economic liberalization. He found and argued that Rajasthan and Madhya Pradesh have performed reasonably well in recent years. At district level analysis, Debroy and Bhandari (2003) have identified the most backward districts, benchmarking them on the attainment of Millennium Development Goals (set by UNDP) across six measures of socio-economic progress: poverty, hunger, literacy, immunization, infant mortality and elementary enrolment. Topolova (2005) has examined the impact of trade reforms on poverty and inequality. She finds limited spatial (across geography), and inter-sectoral (across industry) migration has prevented wage rate convergence across region and industry.

From the above mentioned literature, it is seen that, in India still there is wide disparities across various regions. Even if government has allocated funds towards rural and back ward regions, poverty and inequality is still exist. Therefore in this context this paper tries to find out

a. What are the factors determining the social development in India?
b. Is there any nature of clustering of rich districts and poor districts in terms of social development indicators and what are the major characteristics of those districts?

One of the important objectives of this paper is to incorporate, with increased emphasis, non-monetary dimensions of disparity to complement indicators of income inequalities. Putting together all non- income related state & district level information in a statistically valid manner, the author has constructed indices reflecting the pattern of social development across states & districts.

3. Methodology

3.1Construction of Index

To start with instead of measuring the distance for each State/ district from a fixed minimum as is most recently the case with human development index (HDI), this paper has measured how far a state/ district is from the maximum value observed amongst all states & districts. This is specifically more suitable to our objective of measuring disparities amongst states & districts. In other words as disparity is a relative phenomenon the comparison of states/districts with the best one is a more sensible approach for our purpose. Therefore social development index (SDI) is a relative and not the absolute measure. The reason is that in all dimensions we obtain the dimension index of each state and districts applying the logic of relative distance it has traveled from the minimum values towards maximum values. These minimum and maximum values are the observed values and there by value of this index indicates relative position of states and districts of India. In case of state level we consider the state level observed minimum value & maximum value and in case of district level we consider the district level observed minimum value& maximum value to compute various dimension indices. Let I_{ij} denotes country j's index of deprivation for the i^{th} social indicator. Therefore,

$$I_{ij} = \frac{Max_i - X_{ij}}{Max_i - Min_i}$$

where, Max_i and Min_i are the maximum and minimum values for the indicator respectively and X_{ij} is the own values for the respective indicator. The overall index of deprivation for country *j* is the simple average of the deprivation indices for the n indicators is given by

$$\frac{1}{n}\sum I_{ij} \quad \ldots (3)$$

The social development is defined as the absence of deprivation.$(SDI)_j = 1 - \frac{1}{n}\sum I_{ij}$ ... (4)

Here n = 4 comprise as health index, education index, household amenities index and work culture index.

A major problem with this basic deprivation index is that deprivation is defined to be linear in the difference between the maximum and actual value. Kakwani (1993) points out that as far as the non-income indicators are concerned; there are biological and physical limits to the maximum achievements possible. This is because the values of several indicators have to satisfy some natural constraints. Consider two States A and B with say infant mortality rates of 50 and 40 respectively. Then, State A will find it easier to reduce the mortality rate to 45 than B to reduce the mortality rate to 35. A linear measure of deprivation does not address this problem. Kakwani (1993) suggests an axiomatic procedure for deriving indices of achievement for indicators which have asymptotic limits. He points out that it is essential to use non-linear transformations of the actual variables in measuring achievements in the social sector. A linear measure of achievement does not take this phenomenon into account. For indicators where lower values are more desirable, this effect is captured by taking strictly concave transformations. On the other hand, for measures such as the percentage completing a given level of education, higher values are more desirable, and then strictly convex transformations are appropriate. Let x denote some non-linear indicator such that higher levels are desirable[1]. Let the asymptotic upper bound for this indicator is *M* in the sense that *x* never reaches this value but it may come arbitrarily close to *M*. Let *m* be the lower bound of *x*. Now suppose the value of indicator *x* moves from x_1 to x_2. Therefore Kakwani's improvement index is given by $Q(x_1, x_2, M, m)$. Kakwani's improvement index is defined as:

$$Q(x_1, x_2, M, m) = f(x_2, M, m) - f(x_1, M, m) \quad \ldots (7)$$

where, $f(x_2, M, m)$ and $f(x_1, M, m)$ are the values of an achievement index.

To ensure that the achievement index lies between 0 and 1, Kakwani specifies

$$F(x, M, m) = 1 - \frac{g(M-x)}{g(M-m)} \quad \ldots (8)$$

Where *g* (.) is a positive, increasing function with lim g(x) = 0 as x approaches 0. The higher the value of *x*, the more difficult it is to record a further increase. In order to incorporate this into achievement index, it is sufficient to make g a concave function. Kakwani uses the class of constant elasticity (Atkinson) functions defined in equation 1.

$$g(x) = \frac{1}{(1-e)}x^{(1-e)}, \; 0 \le e \le 1 \quad \ldots (9)$$

This improvement index has the property that an equal increase is translated into a bigger improvement if it is achieved at a higher level[2]. The advantage of using achievement and improvement indices of the class given by equations (7-9) is that even the higher performing country in any given indicator has an incentive to improve its performance, because any increase will show up as an increase in achievement in that indicator.[3]

3.2 Construction of Spatial Autocorrelation

Moran introduced in 1950 the first measure of spatial autocorrelation in order to study stochastic phenomena, which are distributed in space in two or more dimensions (Moran, 1950). Moran's index has been subsequently used in almost all studies employing spatial autocorrelation. Moran's I is used to estimate the strength of this correlation between observations as a function of the distance separating them. Moran's I range from +1 meaning strong positive spatial autocorrelation, to 0 meaning a random pattern to -1 indicating strong negative spatial autocorrelation. The definition of Moran's I is given below for a spatialized variable z_i at location *i*.

$$I = \frac{\sum_{i,j} W_{ij}\left(Z_i - \bar{\bar{Z}}\right)\left(Z_j - \bar{\bar{Z}}\right)}{n\,\sigma^2(Z)}$$

where σ (Z) is the standard deviation of the variable. $W_{ij} = 1$ if the district *i* is adjacent to district *j*, and zero otherwise if the districts are not adjacent. In that case, the diagonal elements will be zero ($w_{ii} = 0$)

3.3 What Determine the Social Development in India?

The paper also identifies the factors which are responsible for differences in social development across districts in India. Thus we have the following model in our attempt to analyze the determinants of social development across the Indian districts by using simple regression technique.

SDI =f (PHB, SR, FLR, FWPR, EI, HI, HCR, SIW)

Where

PHB: Percentage of household having banking facility
SR: Sex ratio
FLR: Female literacy rate
FWPR: Female workforce participation rate
EI: Education expenditure inequality
HI: health expenditure inequality
HCR: Poverty head count ratio
SIW: Social insecurity of the woman

The paper also has employed Spatial Autoregressive Model (SCM) to capture the impact of interregional dependence on social development. Spatial econometric models provide a means to ascertain the role of small area interactions in determining regional outcomes, for instance in one area social development, independent of other driving factors in the region itself. If there is clustering of districts interns of social development outcome, it is difficult to find out what may be driving this clustering and whether in fact interactions between regions, either through neighborhood effects or through spillovers, are a plausible explanation of such segregation. Spatially adjacent observations are likely to exhibit spatial interdependence, owing to dynamics which accompany proximity. This reflects Tobler's (1970) 1st geography law, which states that 'everything is related to everything else but near things are more related than distant things'. Ignoring dependence between neighboring regions will lead to biased regression results (Anselin, 1988). A number of spatial econometric models have been developed, to overcome such problems and capture regional interdependence (Anselin, 1988), these are estimated using maximum likelihood techniques. The Spatial Autoregressive model (SAC) is given be

$$y = \rho\, w_1\, y + X\beta + \mu$$
$$\mu = \lambda w_2 u + \varepsilon$$

$\varepsilon \sim N(0, \sigma^2 I)$

where y is a n x 1 vector of observations for the dependent variable, X is a n x k matrix of observations on the explanatory variables (including a constant) with an associated k x 1 vector of unknown parameters β, and ε is a n x 1 vector of random terms. The error variance matrix $\sigma^2 I$ could be further generalised to capture the standard problem of heteroscedasticity by appropriate re-specification of its diagonal elements. The $n \ x \ n$ spatial weight matrices w_1 and w_2 are standardized (row elements sum to unity) and capture a 'spatial autoregressive process in the dependent variable', in other words the degree of inter-relatedness between regions. ρ and λ corresponding scalar parameters typically referred to as spatial-autoregressive parameters.

4. Data

The health related variables for which data are available are infant mortality rate, total fertility rate and life expectancy at birth. Data are reported by the Sample Registration System (SRS), for the time period 2004-05. As far education is concerned, literacy rate, school enrolment, data published by the Ministry of Human Resource Development, Government of India, in Education in India for the time period of 2004-05. For housing index the study considers all types of household amenities like, percentage of households having toilet facility, drinking water facility, electricity consumption, pucca house, semi-pucca house and kutcha house based on census 2001 data. For work culture index the study has considered main workers to total population, percentage of agricultural workers to total workers, household industry workers to total workers and work participation rate based on census 2001 data. For calculating the spatial autocorrelation among districts the paper has included the latitude and longitude of the districts. The data is available from the book Indian District Latitude and Longitude Coordinates. The paper also indentifies the factors responsible for differences in social development across districts. Availability of adequate infrastructure facilities is an important pre-condition for sustainable economic and social development. It is essential for a state or district to have better infrastructure (banking facility) for accessing finance at any point of time. Pande (2004) found that expansion of banking sector in the rural area can reduce poverty more in significant way. The data on percentage of household having banking facility is taken from census 2001. Sex ratio is defined as the number of females per 1000 males. It is one of the important indicators of the social development. In 80% of India's districts, a higher proportion of boys are born every year than a decade ago as a result of the growing availability of fetal sex- testing services. As a result it enhances the existing gender inequality in India. Increase in sex ratio will give more attention towards female population and will reduce the gender gap. The data on sex ratio is collected from census 2001. Female literacy rate and female workforce participation rate are another two important indicators for social development. It is seen that if female literacy rate increases and female are empowered they can take more initiatives for their child education, health condition and for over all family condition. Therefore ultimately female education and workforce participation will tend to improve the social development. Female workforce participation rate and female literacy rate data is available in census 2001. Education expenditure inequality and health expenditure inequality are the two indicators which hamper the social development. As inequality in education and health expenditure increases it will indirectly enhance the inequality in education and health achievement and will reduce the overall social development. The education and health expenditure inequality is calculated from NSSO 2004-05 unit level data[4]. The paper also includes poverty (head count ratio) reported by the planning commission as a measure of deprivation. As poverty increases it will reduce the social development. Social insecurity of woman per one lakh female population includes dowry death, domestic violence, rape, causing death be negligence and cruelty of the husband. Social insecurity

makes the woman handicapped and always creates hindrance for having the normal life. Therefore as social insecurity of the woman increases it will expectedly reduce the social development. Data on social insecurity of woman is taken from Crimes in India, 2001.

4.1 Construction of Index

a) Health Indicators

i. Life Expectancy at Birth

Life expectancy at birth of an individual (at any age) is the number of years the new born is expected to live given the prevailing age specific mortality rates of the population to which he or she belongs. It is an indicator of the longevity that a person is likely to enjoy in any society. It has an intrinsic value for people and its value also lies in its instrumental attributes of enabling the pursuit of other valued personal and social goals. It also indicates some other aspects of health attainments namely nutrition adequacy and a relative lack of morbidity.

ii. Total Fertility Rate

Total fertility rate is defined as number of children born to a woman, if she were to live through her reproductive years (age 15-49 years) and to bear children at each age in accordance with the prevailing age-specific fertility rates. This indicator pertains to the number of live births and not pregnancies. This is an indicator, which is useful for analyzing the prospects of population stabilization.

iii. Infant Mortality Rate

Infant mortality rate is defined as number of deaths per thousand live births in the first year of a child's life. It reflects the probability of a child dying before attaining the age of one year. Unlike the indicators on life expectancy that are relatively stable and slow moving, the infant mortality indicator is likely to be more sensitive to changes that have a bearing on the quality of life, particularly, to the health and longevity of people. These could be sudden adversities or non availability of critical public health and life support services. They are, thus, more useful from the point of policy targeting and tracking changes in health attainments of a population at more frequent intervals, when population is yet to complete its demographic transition.

b) Education Indicators

i. Youth Literacy Rates

The census of India, currently defines the literacy rate as proportion of literates to total population at age group 7 to 14 years. It is one of the important indicators to enhance human capital and productivity and enabling the process of acquisition, assimilation and communication of information and knowledge, all of which augments a person's quality of life.

ii. Adult Literacy Rates

Adult literacy rate, in India is defined as the proportion of literate population in age group 15 years and above. Like literacy rate, adult literacy rate gives an indication of enhancing choices and functioning of the people which leads to high human development. More particularly, it is a prevalence measure of education that reflects average social effort, in a society, over many years.

Such a measure is relatively intensive to current spread of education among children and underplays the importance of social investment in educating the youth in a society.

iii. School Enrolment

Enrolment is calculated as the ratio of the total number of students enrolled in the relevant stage by the estimated population in a specified age group. Thus the enrolment in primary section is defined as classes 1-5, with the corresponding age group of 6-10 years. Classes 6-8 constitute the secondary school enrolment with associated age group being 11-14 years, while higher secondary school enrolment is classes 9-12 with associated age group 15-18. It is the indication of the current flow of or spread of education.

c) Housing Indicators

In UNDP Human Development Report, per capita GDP is considered as a measure of standard of living but is not appropriate because increase in GDP need not necessarily reflect a higher standard of living. Per capita income is only a crude proxy. Therefore, the study is based on some other indicators like household amenities as a proxy for standard of living. These indicators are briefly explained below.

i. Quality of House

The census presents data on quality of houses based on the material used for construction of walls and roof separately. If both the walls and roofs are made of pucca material, a house is classified as pucca. If wall and roof are made of kutcha material the house is classified as kutcha. In all other cases the house is classified as semi-pucca. A wall is considered kutcha if the material used includes grass, leaves, bamboo, mud, un-burnt brick or wood. It is the pucca when the material used in its burnt brick, metal sheets, stone and cement concrete. Similarly, a roof is considered kutcha if the material used is grass, leaves bamboo, mud, un-burnt brick or wood. It is pucca when the material used includes tiles, slate, corrugated iron, zinc or other metal sheets, asbestos, cement sheets, bricks, lime, stone and concrete.

ii. Electricity Consumption

Access to electricity is a basic amenity in today's context. It is measured by the percentage of households using electricity as a source of lighting. This is a proxy for standard of living.

iii. Safe Drinking Water

As per census of India, if a household has access to drinking water supplied from a tap or a hand pump or tube well situated within premises is considered as having access to safe drinking water. It is also measured by percentage of households having tap or tube well for their purpose of drinking water.

iv. Toilet Facility

Toilet facility is one of the most important indicators of having good health and a proxy of standard of living also. It is also measured by percentage of household having toilet facility for the disposal of waste water.

d) Work Culture Indicators

i. Main Workers

In census, work is defined as participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. It even includes part time help or unpaid work on farm, family enterprise or in any other economic activity. All persons engaged in 'work' as defined above are workers. Persons who are engaged in cultivation or milk production even solely for domestic consumption are also treated as workers. Those workers who had worked for the major part of the reference period (i.e. 6 months or more) are termed as Main Workers.

ii. Agricultural Laborers

A person who works on another person's land for wages in money or kind or share is regarded as an agricultural labourer. She or he has no risk in the cultivation, but merely works on another person's land for wages. An agricultural labourer has no right of lease or contract on land on which she/he works.

iii. Household Industry Workers

Household Industry is defined as an industry conducted by one or more members of the household at home or within the village in rural areas. The larger proportion of workers in the household industry consists of members of the household. Household Industry relates to production, processing, servicing, repairing or making and selling (but not merely selling) of goods. Some of the typical industries that can be conducted on a household industry basis are: foodstuffs, beverages, tobacco Products etc.

iv. Work Participation Rate

Work participation rate is defined as the percentage of total workers (main and marginal) to total population.
The average value of the variables are given in the appendix Table 1A

5. Empirical Evidence

5.1 Social Development Outcome in India: State Wise Scenario

One of the major concerns of economic planners in India has been that the regional inequality. There had been a huge gap between economically active and availability of resources and this manifested itself in the form of unequal levels of development. The poor suffer deprivation in multiple ways: low levels of income, illiteracy, relatively high levels of mortality, poor infrastructure and poor access to resources such as formal credit, formal job, land, water etc. Social development index improve on income based indicators as measures of well being, by incorporating beyond income indicators. A regional pattern emerges from the hierarchy of the states. Comparing the rank[5] of 29 States of India (Table 1) on the basis of social development index, income inequality and percentage of poor below poverty line (HCR), the interesting finding is that States like Manipur, Mizoram, Meghalaya and Nagaland have low poverty and inequality

but there exists very poor social development. However, Delhi, Punjab, Goa, Himachal Pradesh have high social development but there still persist high income inequality. That is benefit of development is pocketed by the some part of the region. The existence of regional disparity (in terms of social development, inequality and poverty) across states is supported by our empirical analysis. The economy may be achieving high social development with low inequality and poverty. On the contrary, it may face week social development because of high inequality and poverty. One way to classify the States in four quadrant diagram in terms of social development and income inequality (Figure 1) in one hand and on the other hand it is also interesting to find the relation between social development and poverty (Figure 2). The most striking finding is that Delhi, Goa, Andhra Pradesh, Haryana, Punjab, Maharashtra, Himachal Pradesh, Karnataka, Tamil Nadu, Gujarat, Uttaranchal, Sikkim and West Bengal performed well in terms of social development but perform poorly on income inequality. Among those states Maharashtra, Uttaranchal and West Bengal also faces the problem of high poverty. The fact is that, there has not been much job opportunity in West Bengal and Maharashtra in recent times because of stagnant industrialization and political controversies regarding its expansion. As a result, though these States performed well in terms of social development, it does not have any impact on the creation of job opportunities and upward mobility of the vulnerable section of the people. Kerala and Jammu & Kashmir are the two states where social development is high and both income inequality and poverty is below all India average. The most concern situation is in the south west quadrant where states are facing the problem of low social development and high income inequality and poverty. States like Madhya Pradesh, Uttar Pradesh, Orissa, Chhattisgarh and Bihar are in this quadrant. The south east quadrants are characterized as low social development with no problem of poverty and inequality. Mostly north eastern states and Rajasthan are in this region.

Table 1: Social Development Index of Indian States 2004-05

States	SDI	Income Gini	HCR
AP	0.389	0.289	10.47
AR	0.370	0.27	10.85
AS	0.382	0.195	22.08
BI	0.332	0.341	42.58
CH	0.366	0.295	40.77
DE	0.409	0.264	6.88
GO	0.432	0.294	5.63
GU	0.408	0.239	18.88
HA	0.396	0.322	13.34
HP	0.424	0.216	10.52
J&K	0.409	0.237	4.27
JH	0.359	0.225	46.15
KA	0.414	0.263	20.66
KE	0.418	0.205	13.2
MP	0.377	0.265	36.79
MH	0.413	0.307	29.58
MN	0.363	0.155	4.21
ME	0.360	0.157	3.57
MI	0.394	0.192	2.78

NA	0.390	0.207	3.31
OR	0.369	0.281	46.9
PU	0.424	0.279	9.02
RA	0.381	0.246	18.32
SI	0.423	0.167	16.02
TN	0.394	0.315	22.99
TR	0.372	0.216	34.59
UP	0.376	0.286	33.31
UT	0.405	0.279	40.64
WB	0.393	0.269	28.36

Source : Own calculation
Note: Abbreviation of the states are given in the appendix

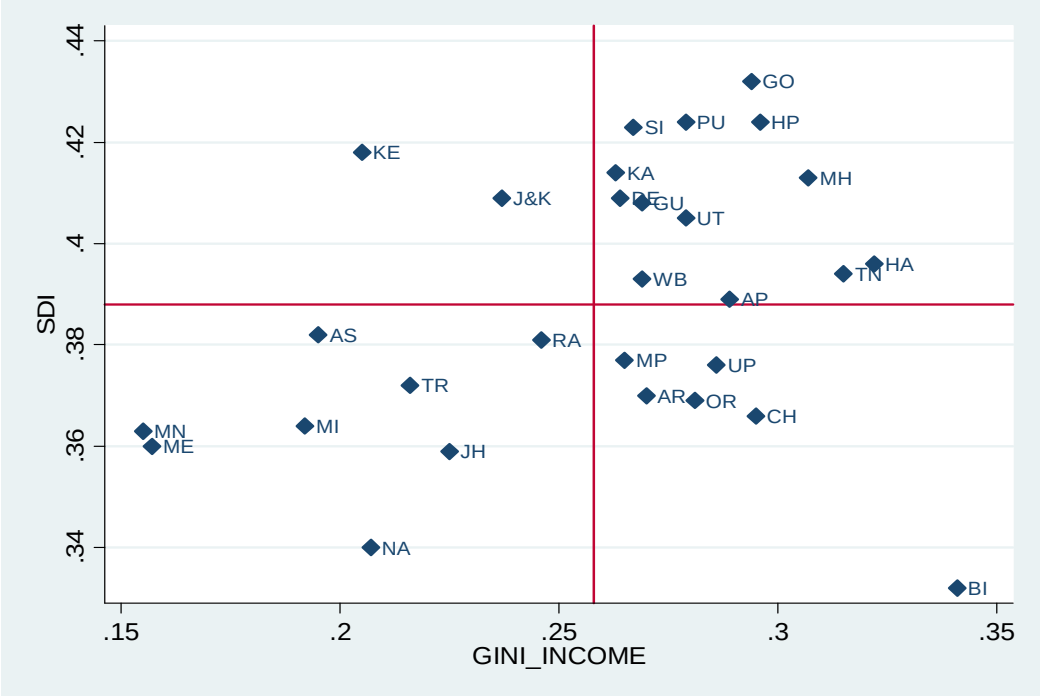

Figure1: Scatter plot between SDI and income inequality for Indian States (2004-05)

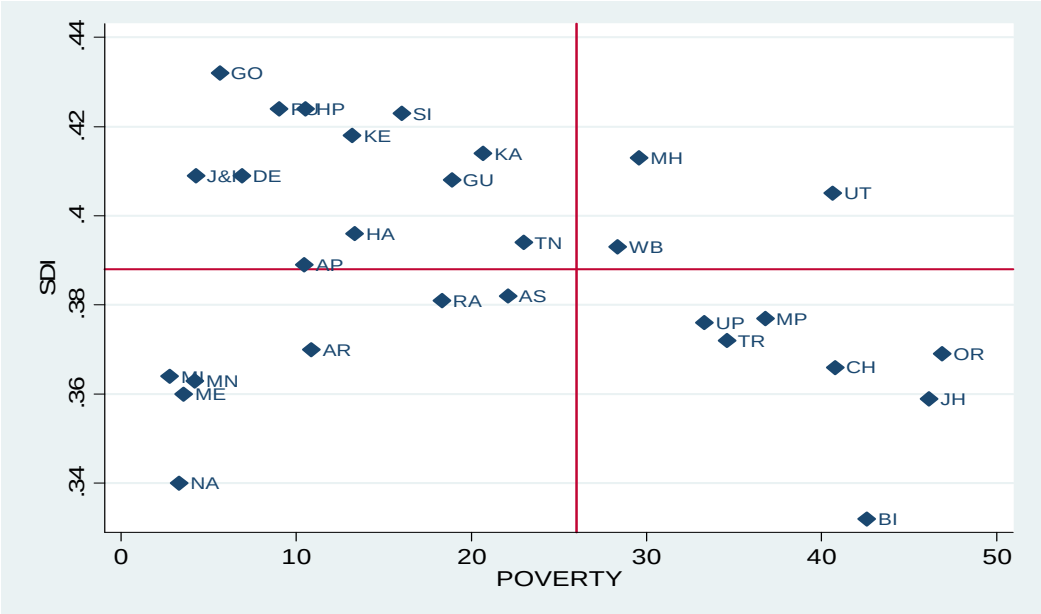

Figure 2: Scatter plot between SDI and poverty for Indian States (2004-05)

5.2 Social Development Outcome: District level scenario

This paper examines regional disparity in India from the perspective of the smallest geographical unit for which a consistent set of data is available: the district. By doing so, we are able to focus on pockets of deprivation rather than viewing deprivation as a phenomenon affecting a state or a region in its entirety: 'forward' states have deprived districts while 'backward' states have districts that are not deprived. The paper has constructed district level monthly per capita consumption expenditure (MPCE) from National Sample Survey Organisation (NSSO) 2004-05 unit level data. It is seen that in the state of Andhra Pradesh, districts like Adilabad, Nizamabad, Nellore, Chittoor has the lowest MPCE. Consider the case of Maharashtra. Dindori, Umaria, Raisen, Shivpuri are the districts where the MPCE is very low. However Andhra Pradesh and Maharashtra are considered as one of the richest states in India. Uttar Pradesh is considered as one of the backward state in India. Although some districts in Uttar Pradesh like Faizabad, Bulandshahr, Moradabad, G. Buddha Nagar are the districts with high MPCE. The interesting finding is although Tamil Nadu is more developed than Uttar Pradesh, albeit the rank of some of the districts in Tamil Nadu in terms of MPCE is squat compared to some of the districts in Uttar Pradesh. To give the snapshot of the density function of the district level MPCE, we use the kernel density function for the same (figure 3).

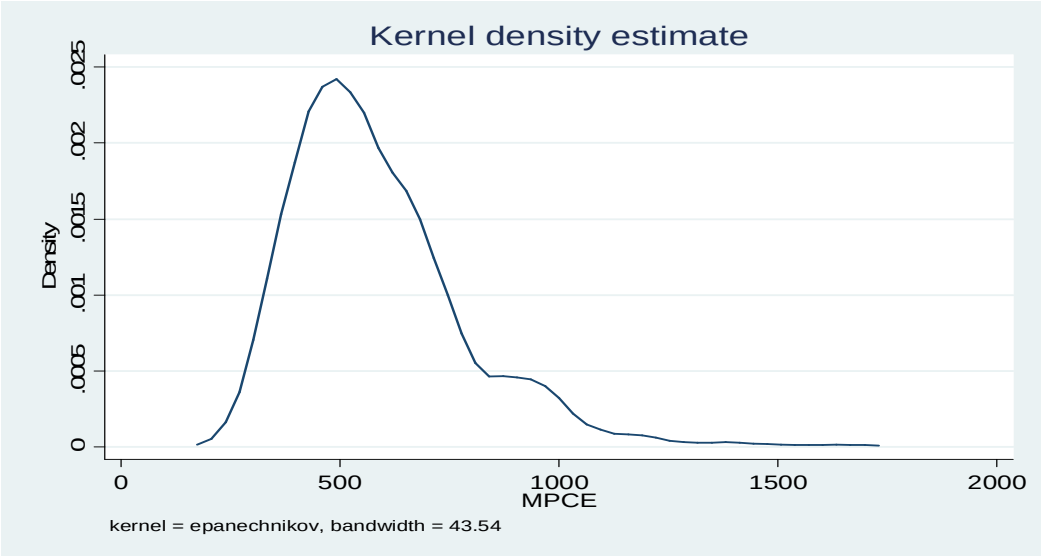

Figure 3: Kernel density function of monthly per capita consumption expenditure of Indian districts 2004-05

Therefore district level analysis will helpful to capture the intra state disparity. Appendix Table 2A and 3A have highlighted the top and bottom 50 districts in terms of social development, poverty and income inequality. The important finding is that the most of the developed districts in India are situated in Kerala, Punjab, Karnataka, Tamil Nadu and Delhi. The distinctly higher level of social development of Cochin regions of Kerala can be traced back to the progressive attitude of the former rulers of the Princely states. The case of Delhi is also caused by simultaneous working of different factors like - its small geographical size, its importance as the National Capital City and the huge capital expenditure incurred to modernize, develop and promote the National Capital Territory and make it comparable with other international cities. Tamil Nadu is an important case as it provides insights into the process of development in a state characterized by heavy industrialization, urbanization, better growth rates and low poverty levels compared to national average. It is a relatively middle income state (fifth among major States) and yet boasts of impressive attainments in human development outcomes which further enhance the economic growth and helps to reduce poverty in the long run. Punjab, on the other hand, is naturally endowed with fertile soil and agriculture and has thrived here making the State prosperous post green revolution. Infrastructure in this state has also developed in a superior way in comparison to other States over the years. The state government's growth oriented policies have helped it to reach this level. From the appendix Table 2A it is inferred that Gautam Budh Nagar, Ghaziabad, Varanasi (a districts in Uttar Pradesh), and Gurgaon, Kurukshter, Panipat (a districts in Haryana) has much better social development compared to other districts in Uttar Pradesh and Haryana, respectively. The most deprived districts in terms of social development index are situated typically in Bihar, Orissa, Assam, Nagaland, West Bengal, Arunachal Pradesh, Gujarat, Rajasthan, Jharkhand and Madhya Pradesh. Backwardness in certain areas in Gujarat, Madhya Pradesh, Bihar and Orissa are explained by preponderance of lower caste people living in these areas. In case of Bihar, the reason for backwardness is other way round – excess flooding in certain districts of Bihar (Debroy and Bhandari, 2003). In addition to these circumstantial reasons,

poor social development can persist because of policy failures. The major cause of backwardness is the scarcity of water due to lower precipitation and lack of other perennial sources of water, non-availability of suitable medical facility, poor literacy rate, their distinct style of living and the neglect of such regions by the ruling elite. Topography of region could also constrain the development of that region; the desert region of Rajasthan is an example of such a case. The pattern of deprivation in terms of poverty and inequality is different. The important finding is that the incidence of poverty is high in Dangs, the district in Gujarat. In Dangs 95% population are ST (census, 2001). They are mostly deprived from the infrastructural facility (such as hospital bed) which aggravated the condition of poverty and inequality in Dangs. Though only two districts in Orissa have low social development but most of the districts face the problem of poverty. On the contrary there are very less districts in Bihar where poverty is high and none of districts in Bihar and Orissa are included in maximum unequal districts. The interesting finding is that most unequal districts in India are situated in Tamil Nadu, Kerala, Maharashtra, Karnataka, Haryana Goa and Andhra Pradesh. However, most of these states are finding as high socially developed States.

5.3 Spatial Analysis of Social Development Outcome

Finally, we want to examine whether our social development indicators are regional, or India specific. Emergence, or clustering of districts in terms of social development outcome would yield a low or even negative spatial-correlations among regions, but if all regions are on average similar then there will be positive spatial correlations among regions. We form an idea about spatial correlation using Moran's Index (Table 2). Our result indicates that literacy rate has the high positive Moran index implying literacy rate is more or less uniform all over India. However, low positive correlation among percentage of household having electricity connection, percentage of household having drinking water facility, percentage of household having banking sector facility shows household amenities in India are geographically patchy. Similarly the low positive correlation of life expectancy indicates that some of the districts are pocketing the benefit of health infrastructure and others are deprived. Sex ratio also has low positive Moran index indicates that distribution of sex ratio is also geographically scattered. Low positive Moran index of poverty, income inequality and social insecurity of women indicates that, in some districts the problem of poverty, income inequality and insecurity of women are high and in some districts it is low. MPCE also has the low positive Moran index indicates that some districts have high MPCE and some districts have low MPCE.

Examining what determines the social development in Indian districts, some interesting results emerge (Table 3). The female literacy rate, female workforce participation rate and sex ratio are the three important factors which affect the social development across districts. In quantifying the same we find that a 100 % increase in PHB leads to about 56% increase in social development. Similarly, 100% increase in FLR leads to increase in 12% increase in social development. From our result we can also see that, 100 % increase in FWPR can increase social development by 46%. On the other hand increase in education expenditure inequality; health expenditure inequality, poverty and social insecurity of woman tends to decrease the social development. The important fact is that 100% increase in SIW social development is reduced by 31%. The OLS model is tested for heteroskedasticity using the Breusch-Pagan test which is rejected at the 1% level.

Following the confirmation of spatial autocorrelation in the OLS residuals, we now run models which incorporate spatially weighted variables. Lambda emerges as significant in the SAC model indicating the presence of some 'unspecified' inter-relationships between neighboring regions. This means that independent of other factors the higher the social development in

neighboring regions the higher the region's social development, which confirms the presence of economic spill-over in our dataset. This supports our result that Gautam Budh Nagar, Ghaziabad, Varanasi (districts in Uttar Pradesh bordering Delhi), and Gurgaon, Kurukshter, Panipat (districts in Haryana in the neighborhood of Delhi) has much better social development compared to other Districts in Uttar Pradesh and Haryana, respectively.

Table 2: Moran Index of Indian Districts

Variables	Moran I	E(I)	Sd (I)	Z	p-value
SR	0.16	0	1.01	6.09	0
LR	0.46	0.032	0.036	7.09	0
LE	0.19	0	1.08	6.08	0
PHEC	0.12	0.02	0.045	5.34	0
PHDW	0.15	0.01	0.031	4.21	0
PHB	0.21	0	1.07	5.09	0
Gini	0.10	0	1.08	6.78	0
HCR	0.15	0	1.08	3.01	0
MPCE	0.20	0	1.06	4.32	0
SIW	0.11	0	1.09	4.31	0

Note: so we can reject our null hypothesis that there is zero spatial autocorrelation present in those variables.

Table 3: OLS and SAC Results for SDI Determinant

	OLS	SAC
PHB	0.56 * (3.12)	0.46 * (3.22)
SR	0.12* (4.12)	0.02* (3.12)
FLR	0.46* (2.31)	0.36* (2.41)
FWPR	0.13 * (5.1)	0.15 * (2.1)
EI	-0.15** (-1.96)	-0.05** (-1.96)
HI	-0.34** (-1.97)	-0.24** (-1.99)
HCR	-0.23** (-1.99)	-0.13** (-1.96)
SIW	-0.31 * (-5.01)	-0.21 * (-3.01)
C	0.43 * (3.01)	-0.23 * (-2.01)
N	576	576
Adjusted R^2	0.35	0.45
RHO		0.01
Lambda		0.42 ** (1.96)
Breusch-Pagan LM	20.93	12.67

Note: Value in the parenthesis indicates the t statistics. *,** indicates 1% and 5% level of significance

6. Conclusion:

This paper confirms the presence of significant spatial clustering across districts. The important finding is that most of the developed districts in India are situated in Kerala, Punjab, Karnataka, Tamil Nadu and Delhi. On the other hand the most of the deprived districts in terms of social

development are situated typically in Bihar, Orissa, Assam, Nagaland, West Bengal, Arunachal Pradesh, Rajasthan, Jharkhand and Madhya Pradesh. The paper examines whether our social development indicators are regional, or India specific. We form an idea about spatial correlation using Moran's Index. Moran statistics indicates that literacy rate has the high positive Moran index implying literacy rate is more or less uniform all over India. However there is a low spatial correlation among household basic facilities, life expectancy, monthly per capita consumption expenditure, poverty and inequality indicates that some of the districts are pocketing the benefit and others are deprived. The simple OLS indicates that female literacy rate, female workforce participation rate and sex ratio are the three important factors which affect the social development across districts. On the other hand increase in education expenditure inequality; health expenditure inequality, poverty and social insecurity of woman tends to decline the social development. The spatial autoregressive model indicates the spillover effect of the social development in the neighboring district. For example, Gautam Budh Nagar, Ghaziabad, Varanasi (districts in Uttar Pradesh bordering Delhi), and Gurgaon, Kurukshter, Panipat (districts in Haryana in the neighborhood of Delhi) has much better social development compared to other Districts in Uttar Pradesh and Haryana, respectively. The major policy conclusion of the paper is that social development can improve through proper policy mechanism. Policymakers should take proper initiatives to increase the access of basic education, health facilities, finance, productive assets and legal empower of the vulnerable section of the population. This will help the people for upward mobility in the economy.

Notes :

1. If x represents an indicator where lower value is expected for the society, then it is socially optimal to reduce the level of x. In that case, the role of M and m need to be interchanged.
2. Kakwani chooses the form of g(x) =Ln(x), and claims that the corresponding improvement index lies between 0 and 1. This claim is based on the intriguing assertion that 'it is customary to define Ln(x) approaching zero as x approaches zero'.
3. This is not the case with the HDR procedure, where the top performer has zero deprivation.
4. Education expenditure inequality and health expenditure inequality are calculated in following way $G = 1 - \sum_{k=1}^{n}(X_k - X_{k-1})\ (Y_k + Y_{k-1})$ where X_k is the cumulated proportion of the population variable, for k = 0,...,n, with $X_0 = 0$, $X_n = 1$and Y_k is the cumulated proportion of the expenditure variable, for k = 0,...,n, with $Y_0 = 0$, $Y_n = 1$.
5. Value of the social development index, HCR and gini coefficient of Indian States are presented in table1. The rank of the states on those variables based on those values. Rank is not reported in the paper.

Reference :

Anselin, L. (1988) *Spatial Econometrics: Methods and Models*, Kluwer Academic Publishers, Dordrecht, The Netherlands.

Burgess, R and Panda, R. (2004) Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment, *The American Economic Review,vol.95, no 3:780-795*

Cassen, R.H (2002), "Well-Being in the 90's : Towards a Balance Sheet", Economic and Political Weekly37(27):2789:2794

Datt, G. and M. Ravallion 1998. Why Have Some Indian States Done Better Than Others at Reducing Rural Povert? *Economica*, vol. 65, no. 2, pp. 17-38.

----------, 1993. Regional Disparities, Targeting, and Poverty in India, in Michael L. and J. van Der Gaag (eds.) '*Including the Poor'*. World Bank, Wasgington D.C.

Debroy, B. (2003), "Introduction" in Debroy, B., and L. Bhandari, (eds.), District-Level Deprivation in the New Millennium, Konark Publishers and Rajiv Gandhi Institute for Contemporary Studies, New Delhi, India, pp. 8 – 11.

Dreze J. and Sen, A (1995). *India: Economic Development and Social Opportunity*, Oxford University press

Kakwani, N. 1993. Performance in Living Standards: An International Comparison, *Journal of Development Economics*, vol. 41, pp. 307-336.

Kochar, K., Kumar, U., Rajan, R., and A., Subramanian. (2006) "India's Patterns of Development: What Happened, What Follows," NBER Working Paper No. 12023, National Bureau of Economic Research, Cambridge, MA.

Krishna, K. L. (2004), Patterns and Determinants of Economic Growth in Indian States, ICRIER Working Paper No.144, September.

Kurian, J. N., (2000), "Widening Regional Disparities in India: Some Indicators" Economic and Political Weekly, pp. 538-50, February.

Levy, Frank. 1998. *The New Dollars and Dreams: American Incomes and Economic Change.* New York, NY: Russell Sage Foundation.

Malhotra, Rajeev (1998), An Interpretation of the Capability Approach for constructing developmental and Derivational Indices- A Comparison of Alternative Estimates at Regional level for India (Mimeographed)

Moran, P.A.P(1950) Notes on Continuous Stochastic Phenomena, Biometrika,37:17-33

Planning Commission (2002), National Human Development Report 2001, Government of India, New Delhi

Purfield, C. (2006), "Mind the Gap – Is Economic Growth in India Leaving Some States Behind,"International Monetary Fund Working Paper No. 06/103, April.

Sachs, J. D., N. Bajpai and A. Ramiah (2002), "Geography and Regional Growth" *The Hindu*, 25 and 26 February

Tendulkar, D. S. (2010) "Inequality and Equity during Rapid Growth Process," in S. Acharya and R.Mohan (eds.), India's Economy Performance and Challenges, Oxford University Press, pp.82-99.

Tobler, W. (1970) 'A computer movie simulating urban growth in the Detroit region', Economic Geography, 46, 234-40.

Topolova, P. (2005) "Trade liberalization, Poverty and Inequality: Evidence from Indian Districts," in Ann Harrison (ed.), Globalization and Poverty, University of Chicago Press.

Appendix

State Abbreviations

State code	State	State code	State
AP	Andhra Pradesh	MA	Maharashtra
AR	Arunachal Pradesh	MN	Manipur
AS	Assam	ME	Meghyalaya
CH	Chhattisgarh	MI	Mizoram
BI	Bihar	NA	Nagaland
DE	Delhi	OR	Orissa
GO	Goa	PU	Punjab
GU	Gujarat	RA	Rajasthan
HA	Haryana	SK	Sikkim
HP	Himachal Pradesh	TN	Tamil Nadu
JK	Jammu & Kashmir	TR	Tripura
KA	Karnataka	UP	Uttar Pradesh
KE	Kerala	UT	Uttaranchal
MP	Madhya Pradesh	WB	West Bengal

Table 1A: Average Values of the Variables used in the Index

	Mean	Minimum	Maximum	Std.Dev.
Youth Literacy Rate	59.73	26.20	95.80	12.87
Adult Literacy rate	54.67	22.13	97.56	10.45
School Enrolment	45.79	17.69	69.07	10.49
Electricity Consumption	46.39	1.2	98.50	29.55
Safe Drinking Water	26.97	70	92.80	20.10
Toilet Facility	32	0.05	63	35.12
Main Workers	31.80	0.00	57.80	7.35
Agricultural Laborers	28.02	32	66.30	15.95
Household Industry Workers	3.61	40	26.30	3.34
Work Participation Rate	43.21	24.10	64.80	7.85
Life Expectancy at Birth	63.91	46	75	4.67
Total Fertility Rate	3.33	0	6	1.04
Infant mortality rate	60.15	6	151	23.50

Table 2A: Top 50 Districts in India in terms of Social Development Index, Poverty and Inequality

SDI		HCR		GINI		Rank
State name	Dist Name	State name	Dist Name	State name	Dist Name	
Delhi	East	Arunachal Pradesh	Tawang	Delhi	South	1
Karnataka	Dakshina Kannada	Arunachal Pradesh	Upper Siang	Manipur	Ukhrul	2
Kerala	Ernakulum	Assam	Dhemaji	Manipur	Thoubal	3
Punjab	Nawanshahr	Delhi	North East	Karnataka	Koppal	4
GO	South Goa	Delhi	North West	Assam	North Cachar Hills	5
GO	North Goa	Delhi	South	Assam	Darrang	6
Karnataka	Udupi	Delhi	South West	Delhi	North West	7
Delhi	North East	Gujarat	Junagadh	Manipur	Senapati	8
Delhi	South	Gujarat	Kachchh	Madhya Pradesh	Barwani	9
Kerala	Thrissur	Gujarat	Porbandar	Manipur	Tamenglong	10
Himachal Pradesh	Lahul & Spiti	Himachal Pradesh	Lahul & Spiti	Meghalaya	South Garo Hills	11
Punjab	Ludhiana	Jammu & Kashmir	Anantnag	Bihar	Sheohar	12
Punjab	Jalandhar	Jammu & Kashmir	Pulwama	Assam	Lakhimpur	13
Kerala	Kottayam	Karnataka	Udupi	Assam	Hailakandi	14
Kerala	Alappuzha	Manipur	Tamenglong	Rajasthan	Jaisalmer	15
Kerala	Kasaragod	Manipur	Ukhrul	Manipur	Churachandpur	16
Punjab	Rupnagar	Meghalaya	South Garo Hills	Delhi	North East	17
Punjab	Fatehgarh Sahib	Mizoram	Aizawl	Uttar Pradesh	Chandauli	18
Uttar Pradesh	Gautam Budh Nagar	Mizoram	Kolasib	Assam	Karbi Anglong	19
Delhi	West	Mizoram	Mamit	Karnataka	Gadag	20

Punjab	Hoshiarpur	Mizoram	Serchhip	Maharashtra	Sindhudurg	21
Delhi	South West	Nagaland	Dimapur	Meghalaya	East Garo Hills	22
Uttar Pradesh	Ghaziabad	Nagaland	Kohima	Rajasthan	Kota	23
Delhi	North West	Nagaland	Mokokchung	Jharkhand	Lohardaga	24
Kerala	Pathanamthitta	Nagaland	Mon	Uttar Pradesh	Sonbhadra	25
Kerala	Kollam	Nagaland	Phek	Karnataka	Davanagere	26
Himachal Pradesh	Kinnaur	Nagaland	Tuensang	Uttar Pradesh	Rudraprayag	27
Kerala	Trivundram	Nagaland	Wokha	Mizoram	Serchhip	28
Punjab	Gurdaspur	Nagaland	Zunheboto	Assam	Dhemaji	29
Kerala	Kannur	Assam	Darrang	Madhya Pradesh	East Nimar	30
Delhi	North	Goa	South Goa	Bihar	Araria	31
Karnataka	Bangalore	Madhya Pradesh	Neemuch	Delhi	South West	32
Uttar Pradesh	Varanasi	Manipur	Thoubal	Jharkhand	Kodarma	33
Himachal Pradesh	Solan	Manipur	Imphal West	Karnataka	Gulbarga	34
Kerala	Kozhikode	Gujarat	Anand	Jammu & Kashmir	Udhampur	35
Haryana	Gurgaon	Andhra pradesh	Warangal	Manipur	Chandel	36
Punjab	Patiala	Punjab	Jalandhar	Jammu & Kashmir	Kargil	37
Tamil Nadu	The Nilgiris	Gujarat	Dohad	Assam	Sonitpur	38
Himachal Pradesh	Shimla	Punjab	Nawanshahr	Gujarat	Porbandar	39
Kerala	Malappuram	Manipur	Imphal East	Bihar	Begusarai	40
Punjab	Sangrur	Arunachal Pradesh	Upper Subansiri	Bihar	Buxar	41
Himachal Pradesh	Hamirpur	Assam	Lakhimpur	Mizoram	Kolasib	42
Haryana	Kurukshter	Arunachal Pradesh	Papum Pare	Uttar Pradesh	Jyotiba Phule Nagar	43

Kerala	Idukki	Punjab	Hoshiarpur	Mizoram	Mamit	44
Himachal Pradesh	Una	Jammu & Kashmir	Jammu	Rajasthan	Karauli	45
Haryana	Ambala	Meghalaya	West Garo Hills	Assam	Nalbari	46
Haryana	Panipat	Meghalaya	East Khasi Hills	Rajasthan	Bundi	47
Maharashtra	Kolhapur	Karnataka	Chikmagalur	Chhattisgarh	Jashpur	48
Tamil Nadu	Kanniyakumari	Mizoram	Lunglei	Meghalaya	West Khasi Hills	49
Himachal Pradesh	Bilaspur	Manipur	Senapati	Jammu & Kashmir	Garhwa	50

Table 3A: Bottom 50 Districts in India in terms of Social Development Index, Poverty and Inequality

SDI		HCR		GINI		Rank
State Name	Dist Name	State name	Dist Name	State Name	Dist Name	
Bihar	Sheohar	Gujarat	Dangs	Tamil Nadu	Dharmapuri	50
Bihar	Kishanganj	Chhattisgarh	Dantewada	Uttar Pradesh	Etawah	49
Bihar	Saharsa	Jharkhand	Lohardaga	Uttaranchal	Nainital	48
Bihar	Khagaria	Uttar Pradesh	Chandauli	Haryana	Gurgaon	47
Bihar	Purnia	Chhattisgarh	Bastar	Tamil Nadu	Tiruvannamalai	46
Jharkhand	Garhwa	Orissa	Nabarangapur	Uttar Pradesh	Jalaun	45
Bihar	Araria	Orissa	Sambalpur	Maharashtra	Jalna	44
Bihar	Katihar	Bihar	Araria	Tamil Nadu	Theni	43
Bihar	Supaul	Orissa	Kandhamal	Maharashtra	Hingoli	42
Bihar	Sitamarhi	Madhya Pradesh	Umaria	Karnataka	Udupi	41
Bihar	Madhepura	Jharkhand	Pakaur	Orissa	Jharsuguda	40
Bihar	Darbhang	Orissa	Koraput	Chhattisga	Korba	39

	a			rh		
Bihar	Madhubani	Madhya Pradesh	Mandla	Tamil Nadu	Nagapattinam	38
Bihar	Banka	Orissa	Debagarh	Tamil Nadu	Kancheepuram	37
Bihar	Pashchim Champaran	Uttaranchal	Bageshwar	Maharashtra	Thane	36
Bihar	Purba Champaran	Madhya Pradesh	Dindori	Kerala	Alappuzha	35
Jharkhand	Palamu	Orissa	Baudh	Maharashtra	Chandrapur	34
Jharkhand	Chatra	Orissa	Kalahandi	Kerala	Malappuram	33
Madhya Pradesh	Sheopur	Orissa	Nuapada	Uttar Pradesh	Lalitpur	32
Gujarat	Dohad	Orissa	Sundargarh	Chhattisgarh	Mahasamund	31
Assam	Dhubri	Jharkhand	Gumla	Uttar Pradesh	Kanpur Nagar	30
Jharkhand	Godda	Orissa	Malkangiri	Maharashtra	Latur	29
Bihar	Sheikhpura	Orissa	Rayagada	Tamil Nadu	Vellore	28
Orissa	Malkangiri	Uttar Pradesh	Siddharthnagar	Haryana	Panipat	27
Uttar Pradesh	Bahraich	Orissa	Balangir	Uttar Pradesh	Sitapur	26
Bihar	Lakhisarai	Bihar	Nawada	Uttar Pradesh	Basti	25
Bihar	Munger	Uttar Pradesh	Pilibhit	Madhya Pradesh	Dewas	24
Rajasthan	Banswara	Maharashtra	Gadchiroli	Rajasthan	Bikaner	23
Jharkhand	Giridih	Madhya Pradesh	Shahdol	West Bengal	Maldah	22
Bihar	Muzaffarpur	Jharkhand	Purbi Singhbhum	Rajasthan	Churu	21
Orissa	Rayagada	Bihar	Madhepura	Karnataka	Bangalore	20
Arunachal Pradesh	East Kameng	Orissa	Bargarh	Chhattisgarh	Raipur	19
Uttar Pradesh	Sonbhadra	Orissa	Gajapati	Kerala	Thrissur	18
Bihar	Bhagalpur	Uttaranchal	Tehri Garhwal	Maharashtra	Raigarh	17

Bihar	Nawada	Madhya Pradesh	Seoni	Maharashtra	Osmanabad	16
Uttar Pradesh	Banda	Bihar	Begusarai	Haryana	Jind	15
Bihar	Samastipur	Bihar	Muzaffarpur	Uttar Pradesh	Budaun	14
Jharkhand	Dumka	Karnataka	Raichur	Andhra Pradesh	Visakhapatnam	13
Orissa	Koraput	Jharkhand	Deoghar	Uttaranchal	Udham Singh Nagar	12
Bihar	Gaya	Orissa	Jharsuguda	Gujarat	Surat	11
Jharkhand	Pakaur	Chhattisgarh	Rajnandgaon	Maharashtra	Nandurbar	10
Bihar	Nalanda	Jharkhand	Ranchi	Punjab	Faridkot	9
Jharkhand	Sahibganj	Madhya Pradesh	Raisen	Rajasthan	Dhaulpur	8
Nagaland	Mon	Uttar Pradesh	Rampur	Uttar Pradesh	Aligarh	7
Bihar	Kaimur (Bhabua)	Madhya Pradesh	Sidhi	Andhra Pradesh	Cuddapah	6
West Bengal	Uttar Dinajpur	Orissa	Dhenkanal	Goa	North Goa	5
Jharkhand	Lohardaga	Madhya Pradesh	Jhabua	Haryana	Rewari	4
Assam	Kokrajhar	Bihar	Bhagalpur	West Bengal	Medinipur	3
Jharkhand	Paschim Singhbhum	Uttar Pradesh	Gonda	Rajasthan	Rajsamand	2
Uttar Pradesh	Budaun	Uttar Pradesh	Shrawasti	Andhra Pradesh	Mahbubnagar	1

Note: higher rank indicates more backward districts