Review Article **Open Access**

Inter State Disparities in India: Linkages between Human Development and Economic Indicators

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Abstract

India characterized as one of the emerging super power, constitute about 17% of world population, accounting for about 35% of the poor and 40% of the illiterates. At the time of independence considerable differences in economic and social development of different regions of the country existed. One of the main objectives of the planning process initiated in the early 1950's was to reduce these regional differences and to achieve regionally balanced development. There are more poor and illiterates today, and our IMR is about 60 per 1000 live births, which is one of the highest in the world. The current study tries to analyze interstate disparities in levels of income and features of HDI. An attempt was made to trace the causes of relatively low levels of income of some states. States with low values of indicators of human development were identified and on that basis backward regions were demarcated.

Keywords: Economics literature; Physical quality of life; Human development index; Gross state domestic product

Introduction

The development economics literature suggests various measures of development. Initially, economists considered GNP or a related income measure as the sole measure of development. As there is a philosophical distinction between income and wellbeing of people, supplementary approaches such as the Basic Needs (BN) approach and Physical Quality of Life (PQL) approach have been developed. The BN approach focuses on six

Indicators –education, health, food, water supply, sanitation and housing. PQL approach uses a simple index derived from infant mortality rate, life expectancy and literacy rate as a measure of development. In BN approach, there exists the problem of weighting, while the PQL approach totally neglects income and other basic needs [1]. has formulated the Human Development Index (HDI) on the reasoning that the real wealth of a nation (a region) is its people and therefore one must link people and development. The HDI is a composite index containing indicators relating to three factors: life expectancy at birth (representing a long and healthy life), educational attainment and real per capita income in purchasing power parity dollars. The above-mentioned approaches are widely used in studies to analyze inter-country [1,2], inter-state [3,4] and inter-district [5]. variations in development, standard of living, infrastructure development, etc. There is an alternative approach which measures a reduction in regional income inequality in terms of a fall in the standard deviation of the regional incomes. This standard deviation based approach is also known in the literature as sigma convergence [6], indicating sigma divergence.

They point out however, that in the intervening period, the dispersion has witnessed fluctuating trend. For instance, for the period 1961-71, the dispersion has narrowed down due to high growth rates in initially poor Indian states and a relatively slower growth recorded in initially rich states. But in the later sub-periods involving 1971-81 and 1981-91, the growth rates appear to be similar across rich and Poor states [7]. Also compute standard deviation of per capita SDP across states from the mid-1960s to mid-1990s. The estimated dispersion shows a steady rise from 0.22 in 1965-66 to 0.39 in 1994-95, indicating strong sigma divergence. The standard deviation and the coefficient of variation are simple measures that have been used to quantify inter-state inequality in the Indian economy [8]. Used the coefficient of variation

of the real per capita SDP across states to confirm that inequalities have indeed risen over the period 1960 to 1994. Their study reveals that although the dispersion fell mildly in the early 1960s mainly due to higher agricultural growth in the poorest of the regions brought about by 'Green Revolution', the later years witnessed sharp rise in inequality, particularly in the 1970s. Although the 1980s saw inequalities increasing less notably, the 1990s again displayed rising tendency of inequality. According to the authors, the dispersion was observed to be 1.6 times higher in the 1990s than that found in the 1970s [9], while attempting to measure variation in growth performance across 14 major Indian states in both pre-reform (1980s) and post-reform (1990s) years, observed a significant degree of dispersion in growth rates among Indian states during the later period. The coefficient of variation that was around 0.15 in the 1980s, almost doubled in the 1990s to around 0.27, indicating divergence [10]. Showed that the coefficient of variation had doubled from .14 during 1980s to .29 during the 1990s for 17 major Indian states based on Gross State Domestic Product (GSDP) at constant prices. Further, they also showed that coefficient of variation based on per capita GSDP had gone up from 0.22 during the 1980s to 0.43 during the 1990s, almost a two- fold increase.

The present study makes an attempt to study the differences in 15 major states which account for about 84% of the population in India. To analyze the disparities in levels of development among the states in India, economic and social indicators such as per-capita gross domestic product, percentage of people living below the poverty line, literacy rate, infant mortality rate and life expectancy at birth were considered. The data for these indicators for all the 15 states in India were compiled from the reports of Planning Commission, Government of India, NSSO, CME and Statistics at Glance, Directorate of Economics and Statistics of respective State Governments.

Table 1 gives the data on income and other indicators chosen for the study. The table also gives the human development index of the states estimated by the Union Planning Commission.

Regional Economic Development

The most widely used measure of relative regional economic development is per capita gross domestic product (PCGDP). Among the 15 states selected for the study, Punjab and Maharashtra were ranked 1st and 2nd in PCGDP in 1993– 94. Orissa (14th place) and Bihar (15th place) occupied the last two places in PCGDP. Gujarat, which was in the 4th place in 1993 occupied the 1st place in 2003 -04 and Punjab which was in the 1st Rank was relegated to 3rd place in 2003 – 04. The last 3 places were bagged by Orissa (13th rank), U.P. (14th rank) and Bihar (15th rank). It is to be noted that the PCGDP of the first three states in 2003 – 04 (Rs.49,058/-) was about three times larger than that of the last three poorest states (Rs.15,746/-). The PCGDP of India was about Rs.7,690/- in 1993 – 94 and Rs.11,799/- in 2003 – 04, and had increased by about 1.5 times. In 1993 – 94 and 2004 -05, seven states (Punjab, Maharashtra, Haryana, Gujarat, Tamil Nadu, Kerala and Karnataka) i.e. half of the states in India had PCGDP exceeding the average PCGDP of India. The remaining eight states namely Bihar, Orissa, U.P., Assam, M.P., Rajasthan, A.P and W.B. had their PCGDP below the average PCGDP of India.

Considering region-wise data, it was found that the average PCGDP was highest in both the study periods in the western region with Rs.9, 521/- and Rs.13, 817.33 during 1993-94 and 2003-04 respectively. The eastern region was found to be lagging behind the other regions in terms of PCGDP. The average PCGDP for eastern region was Rs.5,101/- and Rs.7,044/- during 1993-04 and 2003-04 respectively. The all India figure for these two periods were Rs.7,690/- and Rs.11,799/-. The eastern region consists of Assam, Bihar, Orissa and W.B. Further analysis showed that in the eastern region all the states were poor in relation to PCGDP. In the Southern region all the four states were neither poor nor rich in their PCGDP, occupying ranks between 5 and 9. In the western region, the poorest state M.P. is adjacent to the two richest states, Gujarat and Maharashtra. It is surprising that the prosperity of these states has not spread to the neighboring state M.P. Similarly, the two richest states in northern region, i.e. Punjab and Haryana are adjacent to the poorest states Rajasthan and U.P.

To find out how the selected variables had varied over the two study periods among the states, co-efficient of variations (C.V) were calculated and are given in Table 2. The variations in the PCGDP for the period 1993-04 and 2003-04 showed that C.V. had increased in the eastern, northern and western regions and at the all India level. Only in the southern region the C.V. of PCGDP among the states had declined from 8.2% in 1993-94 to 6.76% in 2003-04. Disparity in average level of living has clearly increased after the reforms. Curiously, the high phases in national income have been accompanied by increase in interstate inequality.

Regional Human Development Index

The national HDI reports are prepared by the Union Planning Commission and these reports reflect the state of human development in the country. As shown in Table 1, HDI improved from 38.1% in 1991 to 42% in 2001. Though HDI showed a significant overall improvement in the last two decades yet there had been wide disparities among the states in HDI. The variations in HDI (2001) among the states in the eastern region were 11.23% followed by western region (14.1%), northern region (15.08%) and southern region (18.24%). Though variations had declined yet variations still prevailed among the states. Kerala, Punjab and Tamil Nadu bagged the first three ranks in HDI value and for both the study periods and were well about the all India HDI value of 0.472. The HDI value of Kerala (0.638) and the next best state, Punjab (0.537) continue to remain quite Significant. By and large these states continued to remain in the same position between 1991 and 2001. While Rajasthan had improved its position from 11th rank during 1991 to 9th position in 2001, Assam has worsened its position on HDI moving backward from 10th position in 1991 to 14th position in 2001.

Region wise analysis revealed that there was a significant increase in HDI value for the eastern region, the increase being from 0.35 in 1991 to 0.41 in 2001. For northern region it was from 0.39 to 0.46, for

Variables / States	PCGDP 1993-94	PCGDP 2003-04	BPL 1993-94	BPL 2003-04	Literacy 1991	Literacy 2001	IMR 1991	IMR 2003	HDI 1991	HDI 2001	L.E 1999-2003	L.E 2001-2006
WB	6756	11612	35.7	24.7	57.7	68.6	62	46	0.404	0.472	63.5	65
Assam	5715	6520	40.9	19.7	52.9	63.3	92	67	0.348	0.386	57.8	58.3
Orissa	4896	6487	48.6	46.4	49.1	63.1	125	83	0.345	0.404	58.6	58.7
Bihar	3037	3557	55	41.1	38.5	47	75	60	0.308	0.367	61.6	59.7
UP	5066	5702	40.9	33.1	41.6	56.3	99	76	0.314	0.388	59.6	58.7
Punjab	12710	15800	11.8	8.4	58.5	68.7	74	49	0.475	0.537	67.6	69.6
Harayana	11079	15721	25.1	14	55.9	67.9	52	59	0.443	0.509	65	65.6
Rajasthan	6182	8571	27.4	22.1	38.6	60.4	87	75	0.347	0.424	60.7	61.8
Gujarat	9796	16779	24.2	16.8	61.3	69.1	78	57	0.431	0.479	62.5	64.6
Maharashtra	12183	16479	36.9	30.7	64.9	76.9	74	42	0.452	0.523	65.2	67.6
MP	6584	8284	42.5	39	44.2	63.7	133	82	0.328	0.394	57.2	56.9
AP	7416	11333	22.2	15.8	44.1	60.5	55	59	0.377	0.416	62.2	64.8
Karnataka	7838	13141	33.2	25	56	66.6	74	52	0.412	0.478	62.9	66.4
TN	8955	12976	35	22.5	62.7	73.5	54	41	0.466	0.531	64.3	66.5
Kerala	7938	12109	25.4	15	89.8	90.9	42	11	0.591	0.638	70.9	76
All India	7690	11799	36	27.5	52.2	64.8	77	60	0.381	0.472	61.8	63.5

Note: PDCDP – Per capita gross domestic product, BPL – Below poverty line, IMR- Infant mortality rate, HDI- Human development Index, L.E- Life expectancy. WB- West Bengal, UP – Uttar Pradesh, MP - Madhya Pradesh, AP- Andhra Pradesh, TN – Tamil Nadu.
Source: Planning Commission, Government of India, NSSO, CME, Statistics at Glance and Directorate of Economics and Statistics of respective State Governments.

Table 1: Selected Indicators.

Yearar	Variable	X_1	X_2	X_3	X_4	X_5	X_6
1993	X_1	1					
	X_2	-0.731**	1				
	X_3	0.523*	-0.39	1			
	X_4	-0.419	-0.522*	-0.544*	1		
	X_5	0.681**	-0.620*	0.938**	-0.68**	1	
	X_6	0.637*	0.634	0.826**	-0.620*	0.898**	1
2004	X_1	1					
	X_2	-0.657**	1				
	X_3	0.646**	-0.457	1			
	X_4	-0.542*	0.524*	-0.772**	1		
	X_5	0.741**	-0.590*	0.91**	-0.87**	1	
	X_6	0.432	-0.54**	0.738	-0.66**	0.771**	1

Source: Calculations based on secondary data.
X1 - Per capita gross domestic product, X2 - Below poverty line (Rs), X3 - Literacy
X4 - Infant mortality rate, X5 - Human development Index (Rs), X6 - Life expectancy.
* Statistically significant at 5% level ,** Statistically significant at 1% level.

Table 2: Correlation Matrix.

Period / Variables	1993-1994					2003-2004				
	ER	NR	WR	SR	All India	ER	NR	WR	SR	All India
PCGDP	30.83	42.35	29.5	8.12	35.8	47.52	44.68	34.8	6.76	35.87
BPL	18.85	45.31	27.2	21.18	33.29	38.79	55.29	38.9	25.23	44.19
Literacy	1.48	20.56	19.5	30.66	24.17	15.46	9.46	9.49	18.03	14.82
IMR	30.8	25.79	34.7	23.51	32.94	24.04	20.19	33.5	51.96	32.69
HDI	11.27	19.39	16.4	20.32	19.01	11.23	15.08	14.1	18.24	16.29
LE	4.39	5.90	6.60	6.12	5.91	5.14	7.38	8.76	7.47	8

Source: Calculations based on secondary data.
Note: PDCDP – Per capita gross domestic product, BPL – Below poverty line, IMR- Infant mortality rate, HDI- Human development Index, L.E- Life expectancy, ER – Eastern region, NR- Northern region, WR- Western region, SR- Southern region.

Table 3: Co-efficients of Variations.

western region, the increase in HDI value was from 0.40 to 0.46 and for southern region, it was 0.46 to 0.52 respectively during 1991 and 2001. Excepting the eastern region all the other regions had their HDI values exceeding the all India HDI value. An analysis on the relationship between HDI and PCGDP revealed that correlation existed between the two, the correlation being 0.68 in 1993-94 and 0.74 in 2003-04.

Linkages between Economic Development and Human Development

While it has been argued that better human development will lead to healthier and qualified labour force leading to higher productivity, it is a common experience that good economic performance will always lead to higher HDI. India has done much better in terms of income growth than in terms of human development. The absolute number of total poor stood at 302 million in 2004-05, accounting for about a quarter of the poor in the world. One could find rather a close association between low income and poor human development, though it is not clear which is the cost and which is the effect. From the correlation values given in Table 3 it could be seen that there is high correlation between PCGDP and HDI. Apart from this with every 1 unit increase in HDI, people below poverty line declined by 0.62 units. A negative correlation exists between HDI and BPL.

The percentage of people living below poverty line was the least in Punjab, Haryana. A.P, Gujarat and Kerala. While Punjab retained the first position in having the lowest percentage of people living below poverty line during 1993-04, Orissa and Bihar bagged the 14th and 15th places respectively in respect of people living below poverty line. In Punjab, A.P, Gujarat, Haryana, Kerala, Rajasthan, Karnataka, T.N and

WB the percentage of people living below poverty line was less than the national average in both 1993-04 and 2003-04. It was heartening to note that Assam which had 49% people living below poverty line in 1993-04, had improved its position and now only 19.75 of the population were below the poverty line. Another point to be noted that while Punjab had single digit people BPL, Orissa had the figure 46.4. The high poverty states are in contiguous, lying in the eastern part of India.

Region wise analysis revealed that there was a decline in the percentage of the People living below the poverty line in 2003-04 in all regions. But western (28.83%) and eastern regions (32.975%) still had higher percentage of people living below the poverty line, compared to the all India average figure of 27.5.

Educational Attainment

In terms of literacy rate, Kerala, Maharashtra, TN and Gujarat occupied the first four places. There wasn't much variation in the literacy attainment among the states for the period 1991 and 2001. Kerala (89.8%), Maharashtra (64.9%), TN (62.7%), Gujarat (61.3%) Punjab (58.5%), WB (57.7%), Karnataka (56%) Haryana (59.9%) and Assam (52.9%) were above the state average rate of 52% in 1991. The other states namely Orissa (49.1%), MP (42.2%), A.P (44.1%) UP (41.6%), Rajasthan (38.6%) and Bihar (38.5%) were below the state average level of 52%. It is to be noted that these states were in the same position in2001 also with Assam having the literacy rate (63.3%) less than the national average of 64.8%. In 1991, 50% of the population had educational attainment

And in 2001 two-thirds of the population had their educational attainment but still it is to be noted that 50% of the states had not

improved the literacy rate. Southern region stands top in literacy rate with the average literacy rate of 72.88% in 2001 compared to the national average literacy rate of 68.4% and next to southern region, western region had the literacy rate of 69.9%. For northern region (63.32%) and eastern region (60.5%) the Literacy rate was less than the national average level.

Applying the OLS technique with literacy rate as the independent variable and PCGDP as dependent variable for the year 1991, the estimated simple linear regression equation showed that with every 1% increase in literacy rate the states could improve the PCGDP by Rs. 110 and in 2001 by Rs.280. Further analyzing, the positive sign of the coefficients indicate the direct relation between PCGDP and literacy rate. Again it was found that by increasing the literacy level, the states could reduce the percentage of people living below poverty line. It was found that a 1% increase in literacy rate could reduce the number of people living below poverty line by 0.33%. But this estimate was statistically significant only at 15% level. In the year 2001 also though it had the expected negative sign, it was statistically significant only at 8% level. For every 1% increase in the literacy level the number of people living below poverty line diminishes by 0.51%.

Health Development

The life expectancy at birth for males was 61.8 years and 63.8 years for the period 1999-2003 and 2001-2006 respectively. For the females these figures were 63.5 and 66.9 years respectively. During 2001-06 the highest life expectancy at birth for both males and females was achieved in Punjab. In both eastern and western regions the life expectancy was below the national average. Infant mortality rate was 60% for India in 2003. It had come down from 77% in 1991. While southern region was found to be in top place in having less infant mortality rate, it has to be noted that the highest infant mortality rate was observed in Orissa (83%) followed by MP (82%). It has to be again noted that in 1991 the infant mortality rate had exceeded 100% in these two states.

It could be seen that the infant mortality rate was significant and negatively correlated with life expectancy rate. It shows that with the decline in infant mortality rate, the life expectancy will increase. Life expectancy had a positive significant correlation with PCGDP. The table shows a low correlation between infant mortality rate and PCGDP ($r=-0.491$) in 1993 and ($r=-0.542$) in 2003. The study by [11] found a non-linear relationship between infant mortality rate and PCGDP. Following this the relationship between infant mortality rate and PCGDP was estimated through nonlinear relationship

$$IMR = \alpha + \beta \ (1/PCGDP).$$

Using the state level cross section data and applying OLS technique the estimated equation was

$$IMR = 38.973 + 165433.525 \ (1/PCGDP).$$

The estimated β value is 165433.525 and significant at 5 percent level. Hence the effect of PCGDP on IMR is -0.00119 [-165433.525/117992]. Thus 1 % increase in PCGDP in India could decline the IMR by .001%.

Conclusion

In the current study, the interstate disparities in India were analyzed using cross section data on PCGDP, education, health and other economic indicators. Using coefficient of variation, HDI, correlation, the variations prevailing among the states and also some of the factors causing the disparities were assessed. Eastern region was lagging behind the other regions in PCGDP; particularly Bihar was much behind the other states. The PCGDP of Punjab was about four times that of Bihar. That is the measure of the gap between the richest and the poorest states. The HDI value for Punjab was 0.537 and that of Bihar was 0.367. Thus one could find considerable inequalities in income and disparities in levels of human development among the states in India. In addition income inequalities were much higher than the inequality in human development. Though India Has performed well, the growth itself and the benefits of growth have not been spread evenly. The groups of states in the eastern part of India were lagging behind other states. By increasing the literacy levels and also providing basic health amenities, to a certain extent the disparities could be reduced. A further analysis on the sectorial contribution to GDP, would give a clear perception on in which sector concentration must be laid to Improve per-capita income and to reduce disparities in progress among the states.

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