

Multidimensional Poverty in India: District Level Estimates

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1. Introduction

Spatial inequalities exist at all levels of disaggregation. However, the nature and extent of these inequalities vary with choice of indicator and geographical space over which comparisons are made. A given state may perform extremely well on all indicators but there may be districts within that state that are among the most deprived in the country. Or a state may have very high levels of attainment on economic development and health and very low levels of attainment on education and gender parameters.

No single indicator can capture the complexities of development. Therefore, indices are generally estimated by aggregating performance with regard to several indicators. This requires the identification of variables to be included in the index, the range to be used for scaling and weights to be allocated to the different variables. Decisions in this regard tend to be arbitrary and driven by availability of data. Changes in any of these factors can lead to very different results. In addition there is the issue of choice of method to be used in estimating the index.

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The paper tries to identify chronic poverty at the district level by using multidimensional indicators that reflect persistent deprivation, such as illiteracy, infant mortality, low levels of agricultural productivity and poor infrastructure.

2. Spatial distribution of the Chronically, Severely and Multi-dimensionally Poor: A State level analysis

The incidence of poverty in India has declined from 54.9 per cent to reportedly 26 per cent of the population and from 321.3 million to reportedly 260.2 million during the period between 1973-74 and 1999-2000. However, those in poverty are unevenly distributed across the country with concentration of poverty in some states. 71.65 per cent of India's poor and half of the population are located in six states. These are Uttar Pradesh (including Uttaranchal), Bihar (including Jharkhand), Madhya Pradesh (including Chhatisgarh), Maharashtra, West Bengal and Orissa. Between 50 to 66 per cent of the population of seven states (the six mentioned above and additionally Assam) was living below the poverty line in 1973-74. Twenty years later 35 to 55 per cent of their population was still in poverty. In Bihar, Orissa, Madhya Pradesh, Assam and Uttar Pradesh *persistently* high levels of poverty, in excess of 30 percent, have occurred for several decades (Mehta and Shah, 2003).

Table 1: Incidence and Concentration of Income Poverty in Seven Selected States of India

State	State share of India's		Percentage of the Population		
	Poor	Population	of the state that is in poverty		
	1999-2000	2001	1973-74	1993-94	1999-2000
Assam	3.63	2.59	51.21	40.86	36.09
Bihar*	16.36	10.69	61.91	54.96	42.6
Madhya Pradesh*	11.47	7.91	61.78	42.52	37.43
Maharashtra	8.76	9.42	53.24	36.86	25.02
Orissa	6.50	3.57	66.18	48.56	47.15
Uttar Pradesh*	20.36	17	57.07	40.85	31.15
West Bengal	8.20	7.81	63.43	35.66	27.02
All India	100.00	100.00	54.88	35.97	26.1

* including the districts in the now newly formed states.

Source: Mehta and Shah (2003) based on Government of India, *Poverty Estimates for 1999-2000*, Press Information Bureau, February 22, 2001 and March 1997 and Government of India, 2001 Provisional Population Tables.

Multidimensional Poverty

The poor suffer deprivation in multiple ways: low levels of income, illiteracy, relatively high levels of mortality, poor infrastructure, lack of voice and poor access to resources such as credit, land, water, and forests. Human and gender development indices improve on income-based indicators as measures of well being, by moving beyond income centered approaches, to measuring development and incorporating capabilities such as *being* healthy or literate into the development index.

Comparing the ranks of 15 large states on the basis of population below the poverty line estimated by the Planning Commission with values of the human development index shows that income based poverty incidence and performance on human development indicators seem to follow a similar pattern in most cases. The exceptions in this regard are Andhra, Kerala, Rajasthan, Tamil Nadu and Maharashtra (See table 2). Low attainments on literacy result in the rank for Andhra

Table 2: State Rankings: HDI and Population below the Poverty Line

Rank	Ranks of states based on Population below poverty line in 1993-94	Ranks estimated for HDI in 1991	Rank estimated for HDI in 2001	Difference in HDI Rank between 1991 and 2001
1	Punjab	Kerala	Kerala	0
2	Andhra Pradesh	Punjab	Punjab	0
3	Gujarat	Tamil Nadu	Tamil Nadu	0
4	Haryana	Maharashtra	Maharashtra	0
5	Kerala	Haryana	Haryana	0
6	Rajasthan	Gujarat	Gujarat	0
7	Karnataka	Karnataka	Karnataka	0
8	Tamil Nadu	West Bengal	West Bengal	0
9	West Bengal	Andhra	Rajasthan	+2
10	Maharashtra	Assam	Andhra	-1
11	Uttar Pradesh	Rajasthan	Orissa	+1
12	Assam	Orissa	MadhyaPradesh	+1
13	Madhya Pradesh	MadhyaPradesh	Uttar Pradesh	+1
14	Orissa	Uttar Pradesh	Assam	-4
15	Bihar	Bihar	Bihar	0

Source: *Planning Commission Press Release, March, 1997 and Planning Commission, National Human Development Report, (2002).*

plummeting from 2 on proportion of population below the poverty line to 9 /10 on HDI and for Rajasthan from 6 to 11/9. Conversely, Maharashtra's rank improves from 10 on poverty to 4 on HDI, Tamil Nadu's from 8 to 3 and Kerala's from 5 to 1 primarily due to high levels of literacy and significant reductions in infant mortality in these states. The HDI ranks for the different states remain fairly stable for most states between 1991 and 2001. 5 out of the 7 high income poverty states, i.e., Orissa, Madhya Pradesh, Uttar Pradesh, Assam and Bihar, have the lowest five ranks on human development as well. West Bengal is ranked 9 on poverty and 8 on human development out of 15 states. Maharashtra is the only state that is high on income poverty (rank 10) but performs well on human development (rank 4). The overall pattern reflects a convergence of deprivation in multiple dimensions or *multidimensional* poverty.

Human and gender development indices such as HDI, GDI, GEM and HPI have also been estimated by several researchers at the state level for India and their results show that Kerala, has the highest rank on all four indices and Maharashtra also performs well. Punjab and Haryana have high scores on human development but perform poorly on gender indicators. Orissa, Uttar Pradesh, Bihar, Madhya Pradesh and Assam have high income poverty and also perform poorly on HDI, GDI, GEM and HPI. Rajasthan ranks better on income poverty but performs dismally on all four multidimensional indicators. (see CPRC Working Paper No. 7).

Spatial distribution of the Multidimensional Poor at the Regional level

Disaggregated estimates of poverty and severe poverty are available at the regional level for 59 regions from 16 large states. The data show that the *severest* concentration of poverty in India is in 12 rural and 21 urban regions. Between 20 percent and 43 percent of the population living in these regions suffer *severe* poverty (income of 75 percent or less than the poverty line). All 12 rural and 15 out of 21 urban regions are located in five out of the seven states with high incidence of income poverty. Additionally, severe poverty also occurs in six urban regions

of three of the more developed states - Andhra Pradesh, Karnataka and Tamil Nadu.

The 12 rural regions are southern, (now Jharkhand) northern and central Bihar, central, southern and south western, Madhya Pradesh, inland central and inland eastern Maharashtra, southern Orissa and central, eastern and southern Uttar Pradesh. Approximately half to more than two thirds of the population of the rural areas of these regions was below the poverty line (the exact estimates are 46 per cent to 69 per cent). Variables reflecting multidimensional deprivation, such as incidence of child mortality, literacy, access to infrastructure such as electricity, toilet facilities and postal and telegraphic communications show that in these regions, child mortality is 1.7 times to 3.7 times, female literacy one tenth to half and total literacy one fourth to two thirds of the estimates for the best performing region. Similarly, access to public provisioning of infrastructure such as electricity, toilet facilities and post and telegraph are as low as 5 per cent, 6 per cent and 9 per cent of those in the best performing region.

The 21 urban regions with 20 per cent to 43 per cent of their population in severe poverty include inland southern and southwestern Andhra, northern Bihar, inland eastern and inland northern Karnataka, central, northern, southern and southwestern Madhya Pradesh as also Malwa, Vindhya and Chattisgarh, (now one of the newly formed states) regions of Madhya Pradesh, eastern, inland central, inland eastern and inland northern Maharashtra, coastal and southern Orissa, coastal and southern Orissa and southern Uttar Pradesh. 16 out of the 21 regions had 45 per cent to 72 per cent of their population below the poverty line. (see table 3). Estimates of access to education, health and infrastructure for the urban areas of these regions also reflect values that are well below those for the best performing region.

Most of these regions have suffered high incidence of income and non-income deprivation over many decades. With approximately half to three-fourths of the population of these areas in poverty, it is possible to conclude that those vulnerable to severe and long duration poverty tend to suffer deprivation in multiple and mutually reinforcing ways.

Table 3: Deprivation at the Regional Level: Different Dimensions

Rural	State	Region	% severely poor	% poor	Child mortality	Female literacy	Total literacy	Electricity	Toilet facility	P & T
Bihar		Central	24.66	54.03	72.28	22.53	39.77	6.53	7.74	18.12
Bihar		Northern	27.62	58.68	76.05	15.71	30.39	3.88	3.98	22.68
Bihar		Southern	31.57	62.44	69.8	16.31	32.66	7.65	3.65	9.17
Madhya P.		Central	21.78	50.13	127.77	21.33	38.65	37.1	4.45	11.14
Madhya P.		South	22.37	46.36	123	27.27	42.24	36.73	3.5	13.02
Madhya P.		S Western	42.24	68.2	133.21	21.96	35.77	48.07	5.41	14.72
Maharashtra		Inl Central	28.91	50.02	60.23	27.5	45.74	48.63	2.85	25.51
Maharashtra		Inl Eastern	20.06	49.08	93.38	47.17	59.86	57.31	7.87	23.46
Orissa		Southern	34.08	69.02	123.25	11.01	23.56	6.64	2.77	11.83
Uttar P.		Central	26.79	50.2	98.43	18.95	34.92	5.74	3.42	17.82
Uttar P.		Eastern	23.2	48.6	92.33	15.12	35.33	10.32	3.26	13.98
Uttar P.		Southern	39.7	66.74	101.54	16.63	36.34	7.47	3.71	23.83
Max			1.67	7.55	35.39	87.96	91.06	85.88	48.69	99.11
Min			42.24	69.02	135.66	9.37	23.56	3.88	2.11	9.17

Urban		% severely poor	% poor	Child mortality	Female literacy	Total literacy	Electricity	Toilet facility	P & T
Andhra P.	Inl Southern	22.75	45.44	53.40	29.18	43.44	51.34	5.42	60.21
Andhra P.	SWestern	20.29	40.93	68.98	20.00	34.83	44.54	4.11	76.42
Bihar	Northern	21.68	49.37	76.05	15.71	30.39	3.88	3.98	22.68
Karnataka	Inl Eastern	20.15	36.29	61.04	44.73	55.95	46.67	9.56	68.15
Karnataka	Inl Northern	36.49	57.63	63.87	28.25	43.02	36.47	3.63	44.08
Madhya P.	Central	32.93	53.68	127.77	21.33	38.65	37.1	4.45	11.14
Madhya P.	Chattisgarh	21.88	44.2	109.06	20.98	35.22	25.26	3.31	13.11
Madhya P.	Malwa	21.85	45.53	92.93	14.45	31.49	43.96	4.92	12.51
Madhya P.	Northern	23.54	44.72	113.98	14.70	36.40	39.73	2.73	15.32
Madhya P.	South	27.9	51.23	123	27.27	42.24	36.73	3.5	13.02
Madhya P.	SWestern	36.6	57.14	133.21	21.96	35.77	48.07	5.41	14.72
Madhya P.	Vindhya	24.32	50.45	135.66	15.80	32.03	24.71	2.11	12.76
Maharashtra	Eastern	21.02	52.02	91.24	40.75	54.95	74.36	11.28	15.98
Maharashtra	Inl Central	42.62	60.13	60.23	27.5	45.74	48.63	2.85	25.51
Maharashtra	Inl Eastern	38.99	59.32	93.38	47.17	59.86	57.31	7.87	23.46
Maharashtra	Inl Northern	32.28	56.94	74.89	38.74	52.96	64.83	5.20	35.05
Orissa	Coastal	26.54	48.42	127.52	41.29	55.92	23.50	4.51	20.20
Orissa	Southern	33.53	45.64	123.25	11.01	23.56	6.64	2.77	11.83
Tamil Nadu	Coastal	20.31	42.11	50.11	44.46	57.66	37.5	7.06	61.12
Tamil Nadu	Southern	24.82	48.13	55.63	48.68	63.53	44.56	9.03	56.33
Uttar P.	Southern	37.54	72.52	101.54	16.63	36.34	7.47	3.71	23.83
Max		72.52	<1	35.39	87.96	91.06	85.88	48.69	99.11
Min		3.86	42.62	135.66	9.37	23.56	3.88	2.11	9.17

Source: Planning Commission, June, 2000 and NIRD, India Rural Development Report, 1999

3. Indicators and Methods

Multidimensional indicators were estimated for about 379 districts in 15 large states of India based on data for the early 1990s. Variables chosen were those for which data is available at the district level and that reflect long duration deprivation. For example, persistent spatial variations in the infant mortality rate could be considered to reflect persistent deprivation to the means of accessing good health. This could be due to several factors such as inability to get medical care due to lack of income, lack of available health care facilities in the vicinity, poor quality of drinking water resulting in water borne diseases that cause mortality, lack of roads and public transport that enable quick transportation to hospitals in case of emergency or all of the above. Similarly, illiteracy could be considered to be a persistent denial of access to information, knowledge and voice. Low levels of agricultural productivity may reflect poor resource base, low yields due to lack of access to irrigation and other inputs, poor quality of soil resulting from erosion or lack of access to resources for investment because of lack of collateral or adverse climatic or market conditions. Poor quality of infrastructure reflects persistent denial of opportunities for income generation and growth. These district level indicators were used to help sharpen the identification of areas in chronic poverty.

Three groups of indices were computed.

1. An average of three indicators representing education, health and income, with equal weights of one third assigned to each. These are:
 - a. An average of female literacy and percent population in the age group 11-13 years attending school
 - b. Infant mortality rate
 - c. Agricultural productivity.
2. An average of four indicators representing education, health, income and development of infrastructure with equal weights of one fourth assigned to each. These are:
 - a. An average of female literacy and percent population in the age group 11-13 years attending school

- b. Infant mortality rate
 - c. Agricultural productivity
 - d. Infrastructure development.
3. An average of four indicators representing education, health, income and development of infrastructure with equal weights of one fourth assigned to each. These are:
- a. An average of literacy and percent of population in the age group 11-13 years attending school
 - b. Infant mortality rate
 - c. Agricultural productivity
 - d. Infrastructure development.

Each of these sets of three indices is computed on the basis of three different methods with a view to determining robustness of the results. The three methods are:

1. the method used by the UNDP with the minimum-maximum range given below:
 - a. For literacy, female literacy and percent population in the age group 11-13 years attending school – 0 to 100 in each case
 - b. Infant mortality rate – 0 to 200
 - c. Agricultural productivity – 0 to 30
 - d. Infrastructure development – 0 to 500
2. calculating an Adjusted value of each index so that the values obtained are not sensitive to changes in the ranks with changes in the minimum – maximum limits used. The method for calculating the AHDI is based on Panigrahi and Sivaramakrishna, 2002.¹ The minimum-maximum used is the same as in the UNDP method in (1) above.
3. calculating an Adjusted value of each index so that the values obtained are not sensitive to changes in the ranks with changes in the minimum – maximum limits used. The minimum-maximum used is the actual minimum and maximum for each of the variables.

Data are from the Census (1991), Bhalla and Singh (2001) and CMIE (2000).

4. Deprivation at the District Level: Identifying the 50 to 60 most deprived districts in India

The 9 sets of results were then sorted to identify the most deprived districts.

The seven most deprived districts computed on the basis of the 9 sets of indices have been identified as Bahraich and Budaun in UP, Barmer in Rajasthan, Damoh and Shahdol in MP, Kishanganj in Bihar and Kalahandi in Orissa (see table 4). The results clearly show stability across all 9 indices with regard to the identification of the most deprived districts.

Comparing the districts identified as most deprived on the basis of multidimensional indicators in table 4 with the states and regions that are identified as having the largest percentage of their population below the poverty line and in severe poverty (see tables 1, 5 and 6), shows that:

- Six of the seven most deprived districts are located in four of the seven high income poverty states identified in table 1. These are Orissa, Bihar, Madhya Pradesh and Uttar Pradesh.
- None of the districts in Assam, West Bengal and Maharashtra are included in the seven districts with the highest multidimensional deprivation.
- Rajasthan is not one of the seven states with the highest incidence of income poverty. However, the district of Barmer is included among the seven districts with the highest multidimensional deprivation due to levels of literacy especially female literacy being about the lowest in the country (7.7 per cent), very low levels of agricultural productivity and high infant mortality.
- Kalahandi in Orissa is the most deprived regardless of how we measure poverty. It is among the 7 most multidimensionally deprived districts and also belongs to the poorest rural region (Southern Orissa) in the country, with 69 per cent of people living

Table 4: 7 Most Deprived Districts in India on all 9 Indices

1	2	3	4	5	6	7	8	9
Kalahandi	Bahraich	Bahraich	Kalahandi	Bahraich	Bahraich	Kalahandi	Bahraich	Bahraich
Bahraich	Damoh	Kishanganj	Bahraich	Damoh	Budaun	Bahraich	Damoh	Shahdol
Budaun	Shahdol	Shahdol	Budaun	Shahdol	Kishanganj	Damoh	Shahdol	Damoh
Damoh	Kalahandi	Budaun	Damoh	Kalahandi	Shahdol	Budaun	Barner	Kishanganj
Barner	Barner	Damoh	Kishanganj	Barner	Damoh	Barner	Kalahandi	Barner
Shahdol	Budaun	Kalahandi	Barner	Budaun	Kalahandi	Shahdol	Kishanganj	Budaun
Kishanganj	Kishanganj	Barner	Shahdol	Kishanganj	Barner	Kishanganj	Budaun	Kalahandi

Note: Indices 1, 4 and 7 are based on 3 variables (an average of female literacy and schooling, infant mortality and agricultural productivity).

Indices 2, 5 and 8 are based on 4 variables (an average of female literacy and schooling, infant mortality, agricultural productivity and infrastructure).

Indices 3, 6 and 9 are based on 4 variables (an average of literacy and schooling, infant mortality, agricultural productivity and infrastructure).

below the poverty line. (see tables 5 and 6). Kalahandi has very low levels of literacy and an extremely high level of infant mortality of 137.

- All the regions of Bihar have relatively high levels of poverty. However, Kishanganj in Northern Bihar is additionally one of the 7 districts with the most multidimensional deprivation. While poverty incidence at 62 per cent is higher in Southern Bihar (now Jharkhand) compared with 58 per cent in Northern Bihar, rural areas of both are included among the seven regions that have the highest levels of income poverty. The female literacy rate in Kishanganj is 10 per cent and infant mortality close to the highest in Bihar at 113.
- The South west region of Madhya Pradesh has the second highest proportion of the rural population in poverty and severe poverty in India (68 per cent) and has the fifth highest level of urban poverty. However, none of the districts of this region are among the 7 most multidimensionally deprived.
- The only other part of Madhya Pradesh that is included among the poorest seven regions of India is urban Central Madhya Pradesh.

Table 5: Population in poverty and severe poverty in regions to which 7 most deprived districts belong

State	Region	Districts	Rural % population poor	Rural % population severely poor	Urban % population poor	Urban % population severely poor
Orissa	Southern	Kalahandi	69.02	34.08	45.64	33.53
Bihar	Northern	Kishanganj	58.68	27.62	49.37	21.68
Madhya Pradesh	Central	Damoh	50.13	21.78	53.68	32.93
Madhya Pradesh	Vindhya	Shahdol	36.71	13.8	50.45	24.32
Uttar Pradesh	Eastern	Bahraich	48.6	23.2	38.6	18.48
Uttar Pradesh	Western	Budaun	29.59	10.24	31.03	14.37
Rajasthan	Western	Barmer	25.48	5.84	23.68	7.43

Source: Based on K.L. Datta and Savita Sharma, Level of Living in India, Planning Commission, 2000.

Table 6: 7 Regions with the largest percentage of population in poverty and severe poverty in India

Rural		Poor			Very Poor
Orissa	Southern	69.02	Madhya Pradesh	South Western	42.24
Madhya Pradesh	South Western	68.2	Uttar Pradesh	Southern	39.7
Uttar Pradesh	Southern	66.74	Orissa	Southern	34.08
Bihar	Southern	62.44	Bihar	Southern	31.57
West Bengal	Himalayan	58.73	Maharashtra	Inland Central	28.91
Bihar	Northern	58.68	Bihar	Northern	27.62
Bihar	Central	54.03	Uttar Pradesh	Central	26.79
Urban		Poor			Very Poor
Uttar Pradesh	Southern	72.52	Maharashtra	Inland Central	42.62
Maharashtra	Inland Central	60.13	Maharashtra	Inland Eastern	38.99
Maharashtra	Inland Eastern	59.32	Uttar Pradesh	Southern	37.54
Karnataka	Inland Northern	57.63	Madhya Pradesh	South Western	36.6
Madhya Pradesh	South Western	57.14	Karnataka	Inland Northern	36.49
Maharashtra	Inland Northern	56.94	Orissa	Southern	33.53
Madhya Pradesh	Central	53.68	Madhya Pradesh	Central	32.93

Source: Based on K.L. Datta and Savita Sharma, Level of Living in India, Planning Commission, 2000.

However, two districts, Damoh in Central MP and Shahdol in Vindhya, are among the most multidimensionally deprived districts in India. With infant mortality rates at 166 in Damoh and 137 in Shahdol, extreme health deprivation exists in these districts.

- Rajasthan does relatively well in income poverty terms and less well on multidimensional criteria. Barmer in Western Rajasthan is one of the 7 most multidimensionally deprived districts, with a female literacy rate of 7.7 per cent, extremely low levels of agricultural productivity and an infant mortality rate of 99.
- While southern UP is among the poorest regions in the country, none of the districts in this region gets included in the 7 most multidimensionally deprived districts of India. However, Bahraich (female literacy 10 per cent and infant mortality rate 138) in Eastern

UP and Budaun (female literacy 12 per cent and infant mortality rate 146) in Western UP are in this group of districts.

Similarly, computations based on the 9 indices listed above show that the 52 to 60 districts with the highest levels of multidimensional deprivation out of 379 districts in 15 large states of India (see table 7) are located in six states of India.

- Five of these six states are among the seven high income poverty states in table 1, i.e., Orissa, Bihar, Madhya Pradesh, Uttar Pradesh and Assam.
- The distribution of districts between the six states is 21 to 26 districts in Madhya Pradesh, 11 to 12 districts in Rajasthan, 6 to 10 districts in UP, between 5 to 8 districts in Bihar, 4 districts in Orissa, and 1 district in Assam.
- The constancy of districts regardless of indicators used and method of computation is clearly reflected in the results. The same 52 to 60 districts are identified as the most deprived in almost all 9 cases.
- Low literacy, especially female literacy and high infant mortality are major factors in explaining the incidence of multidimensional deprivation.
- Identification of districts that reflect chronic deprivation in multidimensional parameters is the first step in determining strategies to correct such imbalances.

5. Conclusions

Spatial estimates at various levels of disaggregation reflect convergence of deprivation in multiple dimensions or *multidimensional* poverty. Those in poverty are unevenly distributed across India with concentration of poverty in some states. Variables reflecting multidimensional deprivation, such as incidence of child mortality, literacy, access to infrastructure such as electricity, toilet facilities and postal and telegraphic communications are estimated to be several times worse in regions with high incidence of poverty relative to those in the best performing region.

Table 7: Most deprived 50 to 60 districts out of 379 districts

Index	1	2	3	4	5	6	7	8	9
State									
Assam	Dhubri	Dhubri	Dhubri	Dhubri	Dhubri	Dhubri	Dhubri	Dhubri	Dhubri
Bihar	Araria	Araria	Araria	Araria	Araria	Araria	Araria	Araria	Araria
Bihar		Deoghar			Deoghar	Deoghar	Kishanganj	Deoghar	Deoghar
Bihar									Katihar
Bihar	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj	
Bihar	Palamu	Palamu	Palamu	Palamu	Palamu	Palamu	Palamu	Palamu	Palamu
Bihar	Purnia			Purnia			Purnia		Purnia
Bihar		Sahibganj	Sahibganj		Sahibganj	Sahibganj		Sahibganj	Sahibganj
Bihar	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi
MP	Bastar	Bastar	Bastar	Bastar	Bastar	Bastar	Bastar	Bastar	Bastar
MP	Betul	Betul	Betul	Betul	Betul	Betul	Betul	Betul	Betul
MP	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur	Chhattarpur
MP	Damoh	Damoh	Damoh	Damoh	Damoh	Damoh	Damoh	Damoh	Damoh
MP	Datia			Datia			Datia		
MP									Dhar
MP	East Nimar	East Nimar	East Nimar	East Nimar	East Nimar	East Nimar	East Nimar	East Nimar	East Nimar
MP	Guna	Guna	Guna	Guna	Guna	Guna	Guna	Guna	Guna
MP	Jhabua	Jhabua	Jhabua	Jhabua	Jhabua	Jhabua	Jhabua	Jhabua	Jhabua

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MP	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla	Mandla
MP	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna	Panna
MP	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen	Raisen
MP	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh	Rajgarh
MP		Rajnandgaon		Rajnandgaon		Rajnandgaon		Rajnandgaon		Rajnandgaon			
MP	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam	Ratlam
MP	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa	Rewa
MP	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar	Sagar
MP	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna	Satna
MP	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore	Sehore
													Seoni
MP	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol	Shahdol
MP	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur	Shajapur
MP	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri
MP	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi	Sidhi
MP	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja	Surguja
MP	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh
MP	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar	West Nimar
Orissa	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam	Ganjam
Orissa	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi	Kalahandi

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Orissa	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput	Koraput
Orissa	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani	Phulbani
Rajasthan	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara	Banswara
Rajasthan	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer	Barmer
Rajasthan	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara	Bhilwara
Rajasthan	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur	Dholpur
Rajasthan	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur	Dungarpur
Rajasthan	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer	Jaisalmer
Rajasthan	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor	Jalor
Rajasthan	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar	Jhalawar
Rajasthan	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur	Nagaur
Rajasthan	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali	Pali
Rajasthan	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi	Sirohi
Rajasthan	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk	Tonk
UP	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich	Bahraich
UP	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda	Banda
UP	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti	Basti
UP	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun	Budaun
UP	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda	Gonda
UP	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi

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UP	Lalitpur	Lalitpur	Lalitpur	Lalitpur	Lalitpur	Lalitpur	Lalitpur	Lalitpur	Lalitpur
UP	Shahjahan- pur		Shahjahan- pur		Shahjahan- pur		Shahjahan- pur		Shahjahan- pur
UP	Siddrath- nagar		Siddrath- nagar		Siddrath- nagar		Siddrath- nagar		Siddrath- nagar
UP	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur

Note: Indices 1, 4 and 7 are based on 3 variables (an average of female literacy and schooling, infant mortality and agricultural productivity).

Indices 2, 5 and 8 are based on 4 variables (an average of female literacy and schooling, infant mortality, agricultural productivity and infrastructure).

Indices 3, 6 and 9 are based on 4 variables (an average of literacy and schooling, infant mortality, agricultural productivity and infrastructure).

Multidimensional indicators were estimated for 379 districts in 15 large states of India on the basis of variables that can be considered to reflect persistent deprivation. These include variables such as illiteracy, infant mortality, low levels of agricultural productivity and poor infrastructure. The seven most deprived districts computed on the basis of the 9 sets of multidimensional indices reflecting deprivation are Bahraich and Budaun in UP, Barmer in Rajasthan, Damoh and Shahdol in MP, Kishanganj in Bihar and Kalahandi in Orissa. While Kalahandi in Southern Orissa is located in one of the most income poor regions in the country, Bahraich and Budaun in Eastern and Western UP are not in the poorest regions of India. Therefore, the districts identified as poorest on income criteria are not always the same as regions identified as poorest in multidimensional terms. This could be both due to averaging out between better and worse performing districts constituting a region as also the inclusion of variables reflecting non-income measures of development through incorporating capabilities such as *being* healthy or literate.

The 52 to 60 most deprived districts out of 379 districts in 15 large states of India are distributed as follows: 21 to 26 districts in Madhya Pradesh, 11 to 12 districts in Rajasthan, 6 to 10 districts in UP, between 5 to 8 districts in Bihar, 4 districts in Orissa, and 1 district in Assam.

Identification of districts that reflect chronic deprivation in multidimensional parameters is the first step in determining strategies to correct such imbalances. While it is true that some districts get averaged out in the regional and state level analysis, the fact that districts in MP, Bihar, Orissa and UP are among the most deprived is no surprise. The policy related implications of estimates of female literacy at 7.7 per cent for Barmer and infant mortality at 166 in Damoh (even the data pertain to the early 1990s) need serious attention.

References

- Agarwal, Bina 1997. Gender, Environment, and Poverty Interlinks: Regional Variations and Temporal Shifts in Rural India, 1971-91. *World Development*, Vol. 25, No.1, 23-52.
- Bhalla, G. S. and Singh, Gurmail 2001. *Indian Agriculture: Four Decades of Development*. New Delhi: Sage.
- Census of India 1991. *State District Profile*. Registrar General of India.

- CMIE (Centre For Monitoring Indian Economy) 2000. *Profiles Of Districts*. CMIE Private Limited, Economic Intelligence Service. Mumbai, October.
- Datt, Gaurav and Ravallion, Martin 1996. India's checkered History in Fight Against Poverty: Are There Lessons for the Future? *Economic and Political Weekly*, Special Number.
- Ghosh, P. K., Kundu, Amitabh and Shariff, Abusaleh 2002. *Indexing Human Development in India: Indicators, Scaling and Composition*. National Council of Applied Economic Research, Working Paper Series No. 83.
- Government of India 1997. *Report of the Committee To Identify 100 Most Backward and Poorest District in the Country*. Ministry of Rural Areas and Employment.
- Haq, Mahbub ul 1996. Human Development Paradigm for South Asia. *Mainstream*.
- Haan, Arjan de and Lipton, Michael 1998. Poverty in Emerging Asia: Progress, Setbacks and Log-jams. *Asian Development Review*, Vol.16, No.2.
- Krishnan, T. N. 2000. The Route To Social Development In Kerala: Social Intermediation And Public Action. In *Development With A Human Face: Experiences In Social Achievement And Economic Growth*, edited by S. Mehrotra and R. Jolly, Oxford, England: Oxford University Press.
- Kurian, N. J. 2000. Widening Regional Disparities in India: Some Indicators. *Economic and Political Weekly*.
- Mahanty, Ghanshyam 2000. Human Development in Andhra Pradesh: A District Level Analysis. *The Indian Journal of Labour Economics*, Vol. 43, No. 2.
- Mehta, Aasha Kapur and Shah, Amita 2001. *Chronic Poverty in India: Overview Study*. CPRC Working Paper No. 7, University of Manchester.
- Mehta, Kapur Aasha 1996. Recasting Indices for Developing Countries: A Gender Empowerment Measure. *Economic and Political Weekly*, Vol. 31, No. 43.
- Mehta, Aasha Kapur and Shah, Amita 2003. Chronic Poverty in India: Incidence, Causes and Policies. *World Development*, Vol. 31, No. 3.
- Panigrahi, Ramakrushna and Sivaramakrishna, Sashi 2002. An Adjusted Human Development Index: Robust Country Rankings with respect to choice of fixed maximum and minimum indicator values. *Journal of Human Development*, Vol. 3, No. 2.
- Ravallion, M. 1996. Issues In Measuring And Modeling Poverty. *The Economic Journal*, 106, 1328-1343.
- Rajakutty, S., Acharya, S. and Haque, T. 1999. India's Rural Development Report 1999: Regional Disparities In Development And Poverty. National Institute Of Rural Development (NIRD), Hyderabad.
- Rani, Geetha P. 1999. *Human Development Index in India: A District Profile*, Vol. 41, No.1, 9-30.
- Rao, H. and Babu, M. Devendra 1996. Intra-Regional Disparities In Hyderabad-Karnataka Region: An Analysis. In *Regional Development: Problems And Policy Measures*, A. Aziz and S. Krishna, New Delhi: Concept Publishing Company.
- Sivaramakrishna, Sashi and Panigrahi, Ramakrushna. Articulating Uneven Regional Development for Micro and Macro Planning. *Journal of Human Development* (forthcoming).
- Shivkumar, A. K. 1994. Human Development Index For Indian States. *Economic And Political Weekly*, Vol. 36.
- UNDP (United Nations Development Programme) 1999. *Human Development Report 1999*. New York: Oxford University Press.

Vani, B. P. and Vyasulu, Vinod 1997. Development and Deprivation in Karnataka: A District-Level Study. *Economic and Political Weekly*.

Endnotes

¹ 1. In the case of the UNDP three indicator (life expectancy at birth, education and income) based calculations:

i) let

$l = L_b - L_k$, where L_b is the maximum actual LEB index value, say, of country b, and L_k is the minimum actual LEB index value, say, of country k

$e = E_m - E_n$, where E_m is the maximum actual EDN index value, say, of country m, and E_n is the minimum actual EDN index value, say, of country n

$g = G_p - G_q$ where G_p is the maximum actual GDP index value, say, of country p, and G_q is the minimum actual GDP index value, say, of country q.

ii) Take the minimum of (1,e and g). Let us suppose that $1 < e$ and $1 < g$ (i.e. 1 is the minimum or least value among 1,e and g).

iii) Then let $e^* = 1/e$ and $g^* = 1/g$

iv) Adjust L_j , E_j and G_j as follows.

Since 1 is minimum, let:

$aL_j = L_j$ for all j

$aE_j = e^*E_j$ for all j

$aG_j = g^*G_j$ for all j

v) $aHDI_j = (aL_j + aE_j + aG_j)/3$

vi) Choose $\max_j(aHDI_j)$ and HDI_j

vii) Let $v = (HDI_j)/\max_j(aHDI_j)$

viii) Let $AHDI_j = v(aHDI_j)$

ix) Rank countries according to AHDI with higher values getting a better rank.