

**Growth- Poverty Interface in Rajasthan**  
**A Tale of Two World Bank Studies on Poverty**

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### **A Tale of Two World Bank Studies on Poverty<sup>Ⓔ</sup>**

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In writing this note we have a limited purpose of showing that the World Bank data on poverty in the Indian states, may not necessarily represent the real movements in poverty at the state level when examined with respect to the poverty correlates. The series throws perverse results when growth rates are compared with the movements in poverty. This puts to question the validity of econometric analysis of various Indian states attempted in one of the studies. The model in which poverty and inequality measures are drawn from the consumption data but growth refers to the income data would ignore growth-inequality interface and is likely to make the results biased.

In a rigorous analysis of this data, Jha (2000) observes that ‘*...In a country of India’s size and complexity, examining the dynamics of growth inequality and poverty from an aggregate perspective can be misleading, It is discovered that movement in aggregate consumption, inequality and poverty measures are actually... ...moving in opposite directions in some states*’. The problem might be in the straw used for making the bricks rather than the bricks themselves.

A recent study by Besley, Burgess and Esteve-Volart (2005) (henceforth BBE) puts performance of the state as poor both with respect to the growth performance as well as the efficacy of growth in reducing poverty in the state. The study draws data from the *completed* World Bank poverty series developed by Ozler, Datt and Rawallion (1996) and develops a framework to look at the poverty-growth interface across Indian States. The framework shows that the poverty reduction performance in a state will depend on (a) the extent to which a unit of growth affects poverty and (b) growth performance of the state. In the next step the authors explore the factors explaining heterogeneity in poverty reduction experience across Indian states, both with respect to the growth performance by focussing on their policy regimes and initial conditions. Under the policy regime the study looks at the Land Reforms and the rural bank -branch expansion, labor deregulation and human development. The initial conditions considered by the

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<sup>Ⓔ</sup> One of the studies draws on the World Bank Series on Poverty in India and is jointly sponsored by the World Bank DFID, AFD and BMZ (GTZ, KFW Development Bank). The other study is prepared by the South Asia Division of the World Bank.

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authors are land revenue institutions, female literacy, female labor force participation and electrical generating capacity.

The study is attempted at the all India level, drawing observations on poverty (HCR, Poverty gap and Severity of Poverty), inequality (Gini Index) in various states and income level at the state level during 1957-58 to 1999-2000<sup>1</sup>. The basic analysis is attempted at the state level, *viz.*, the impact of growth and inequality on poverty reduction. The states are grouped into a two by two classification based on their performance on growth and its impact (elasticity) on poverty reduction. States such as Punjab and Kerala are the high performers in both the growth and its efficacy in poverty reduction. On the other hand, Bihar, Madhya Pradesh, **Rajasthan** and Uttar Pradesh (the typical BIMARU configuration) besides **Karnataka** and the special category states of Assam and Jammu & Kashmir are the poor performers *both* with respect to growth and its efficacy in poverty reduction. That is, these states not only observe poor growth in income but also have a poor impact on poverty reduction. West Bengal, a low performer in terms of growth, on the other hand, performs well in terms of the growth elasticity of poverty. (See Box-1).

## I

Rajasthan falls well below the average all India growth in per capita income as well as its impact on poverty reduction. The growth elasticity of poverty reduction in Rajasthan is estimated at 0.43, which the authors argue is the level prevalent in Sub-Saharan Africa. Corresponding value of growth elasticity of poverty reduction for Punjab, Kerala and West Bengal well above 1.0 with the All India figure 0.65.

The study further argues that it is the ***growth in the secondary sector***, with an average share of 17 per cent during the reference period that is responsible for the decline in poverty, both rural and urban, in Rajasthan. According to it, seventy six per cent of the fall in rural poverty in the state is contributed by growth in per

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<sup>1</sup> The original series on poverty developed by Ravallion *et al* and available till 1996-97 is completed till 1999-2000 by the authors.

**Box-1 States by total poverty elasticity and growth components**

<b>Poverty Elasticity</b>	<b>Growth</b>	(+)High Growth	(-) Low Growth
(+) High poverty elasticity		AP (-0.76) Gujarat (-0.66) Kerala (-1.23) Punjab (-1.03)	Orissa (-0.69) W B (-1.17)
(-) Low Poverty Elasticity		Haryana (-0.57) Maha. (-0.40) T.N. (-0.59)	Assam (-0.38) Bihar (-0.30) Karnataka (-0.53) M P (-0.39) Rajasthan (-0.43) U P (-0.64)

Source: Besley, Burgess and Esteve-Volart (2005),

capita income in the secondary sector between 1958 and 1997. Although we do not examine this proposition in some details, the proposition appears *untenable* with the secondary sector accounting for a mere 17 per cent of the state's SDP during the reference period.

Furthermore, the study shows that the decline in income inequality (read consumption inequality) has no beneficial impact on poverty reduction in most of the Indian states. On an average during the reference period, decline in income inequality has no impact on poverty reduction. Of the six states where inequality significantly affects HCR measure of poverty, its impact is *negative* in Andhra Pradesh, Karnataka and Bihar. Its impact is *positive* only in Punjab, Haryana and Maharashtra and weakly positive in West Bengal. In Rajasthan its impact is not significant even at 50 per cent level.

Recalling that the period prior to 1970-71 was the period of shortages, growth bottlenecks and high vulnerability to climatic factors, a growth-inequality relationship may not be that relevant. Add to it the refinement in poverty measurement began with the seminal work of Dandekar and Rath (1970-71). We therefore examine conclusions over a limited period since the Poverty Series is revised basing 1973-74 a consumer expenditure survey as the basis for computing poverty (GoI, 1993). The World Bank data on poverty both at the state level as well as the All India level also draws on the basis of 1973-74 consumer expenditure survey of the NSS and the methodology adopted for computing

poverty series is identical. (See, Appendix-1). In an inter-state comparison of the results on the Poverty Series, authors conclude that growth rather than the reduction in inequality contributes the bulk of poverty reduction in India. For comparison we retain observations of the BBE study since 1970-71.

We find problems with the World Bank analysis on two counts. The first relates to the divergence of the state level poverty estimates provided by the Cozler-Datt Series from the other series, whether official, or given by various scholars. (See for example, Sundaram and Tendulkar (2003); Deaton and Dreze (2002); Deaton (2003); Sen and Himanshu (2004) etc.). This raises the issue of validity of the World Bank Series for the kind of analysis attempted by the authors at the state level. The second problem relates to the specification itself in reaching the type of conclusions mentioned above. We first take up the second issue.

The theoretical framework for the analysis draws on the following simple regression equations:

$$P_{st} = \alpha_s + \gamma_t + \beta_s y_{st} + \varepsilon_{st}$$

And,

$$P_{st} = \alpha_s + \gamma_t + \beta_s y_{st} + \gamma_s \sigma_{st} + \varepsilon_{st}$$

Where, subscript s denotes a state and the subscript t denotes a year,  $P_{st}$  and  $y_{st}$  are logged variables representing headcount ratio of poverty, the per capita income (NSDP) of a state and  $\sigma_{st}$ , Standard deviation of logarithm of income.  $\varepsilon_{st}$  is the error term.

The authors refer it to the standard deviation of the logarithm of income, but this essentially refers to the standard deviation of the logarithm of consumption expenditure and is derived from Gini index of consumption inequality from the consumption expenditure survey data of the analysis<sup>2</sup>. The equations, therefore, have the dependent variables as well as the inequality measure based on the

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<sup>2</sup> This is calculated from the Gini index is as  $\sigma = \sqrt{2} \cdot \pi^{-1} (1+G)/2$ , where  $\pi$  denotes cumulative standard normal distribution and G is the Gini index divided by 100 (Aitchison and Brawny, 1966).

Since no income series to elicit such information is available whether at the all India level or at the state level, it is presumed that the Gini represents the Consumption Expenditure Data. (See Datt (1998) showing the same data. Table- 3).

consumption expenditure data while the major explanatory variable defining the growth<sup>3</sup> is based on the per capita real income of the state. It must, therefore, include the saving behavior, which has a bearing on income growth. For Rajasthan, which shows stagnant average consumption (Table-1) the steadily declining inequality in consumption implies that the consumption of the higher deciles in real terms is declining. This is unlikely that consumption of higher deciles declines when the per capita income is growing. It is possible to explicitly include savings as a growth augmenting variable but we shall ignore it to the moment and get back to the specification and analysis based thereon, given by the authors.

A second point concerning poverty measurement based on consumption expenditure relates to the current year's income as defining current year's consumption. The problem essentially arises in defining the relationship between income poverty estimates based on consumption expenditure in equations 1 and 2. Since the NSS rounds often run across two financial years, for which the income estimates are available, the consumption of the household draws much on previous year's income and the expected income from the current year. We think that Ahluwalia (1978) work, which includes both current and last year's income captures these points more clearly than the BBE paper. Add to it the quantity and the quality of public work/food program and one gets the real consumption behavior of the poor households, particularly in the rural areas.

Coming to the specifics, Rajasthan observes a near zero growth in the average consumption but the inequality in consumption expenditure (which the authors interpret as the inequality in income) is declining rapidly. (Table-1). The average

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<sup>3</sup> The authors justify use of income instead of consumption in the model. '.....It is important to note that yst is income per capita and not consumption per capita. In many ways it would be natural to use the latter, but for the fact that most studies of growth look at determinants of income and not consumption. Hence it would not be straightforward to translate conventional statements about growth into statements about poverty. If we look at poverty/ consumption elasticity, we find a large number. However, this is explained by the fact that a regression of log consumption per capita on log income per capita at the state level yields a coefficient (*income elasticity of consumption*) which is significantly below one.

The authors are however silent about the impact of income growth on income inequality (and not consumption inequality). The very fact that the income elasticity of consumption is significantly below one, implies that the change in inequality measure (over time) in the equation (Consumption inequality instead of income inequality) is seriously underestimated.

monthly per capita expenditure in Rajasthan is estimated at Rs. 66.70 during triennium ending 1959-60 and only Rs. 60.02 during 1990-91 to 1993-94<sup>4</sup>. The Gini Index of Consumption inequality however declines from 35.47 during triennium ending 1959-60 to 27.98 during 1991-94 and 26.5 in 1993-94. (Datt, 1998). Now an elementary set of calculations would show a stagnant consumption expenditure when inequality is declining implies that the share of top deciles in consumption is declining. If growth in SDP is not contributing to the income of upper deciles, (implying that the consumption elasticity of inter-temporal change in income is either *zero or negative* and hence does not contribute any increase in consumption level), where is it going after all?

It is argued that the consumption of higher deciles is under-estimated, in which case the inequality in consumption should really be higher than captured by the NSS data. Add to that the savings in higher deciles and income inequality would be further higher<sup>5</sup>. The point therefore remains as to how does one interpret the WB data and the results emerging there from. Obviously the specification is unable to pickup inequality generated by growth or otherwise.

We examine here the state level data of the World Bank and its usefulness for the kind of analysis offered in the BBE study, it in the light of some general analysis of such data for Rajasthan and other states. Clearly, the World Bank data is largely, though not exactly, consistent with official *poverty figures at the all India level* during 1973-74 to 1993-94 periods. However, the state level estimates given by the World Bank particularly for Rajasthan, and similarly for many other states, show large divergence with the official data on poverty. The divergence between the poverty estimates of the different states even though the methodology is the same in both makes us examine such data in the light of poverty correlates. In both the estimates, 1973-74 share of consumption at the All India level around the poverty line is applied to the state specific price movement in the related commodities. (See Appendix 2).

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<sup>4</sup> However, the trend rate of annual growth in MPCE is estimated at 0.16 per cent during 1958-94.

<sup>5</sup> This also brings to the focus to the growing divergence between the NSS consumption estimates and the National Accounts data on consumption expenditure. We shall not however touch this here. See for details Bhalla (2003), Deaton (2003), Sundaram and Tendulkar (2003).

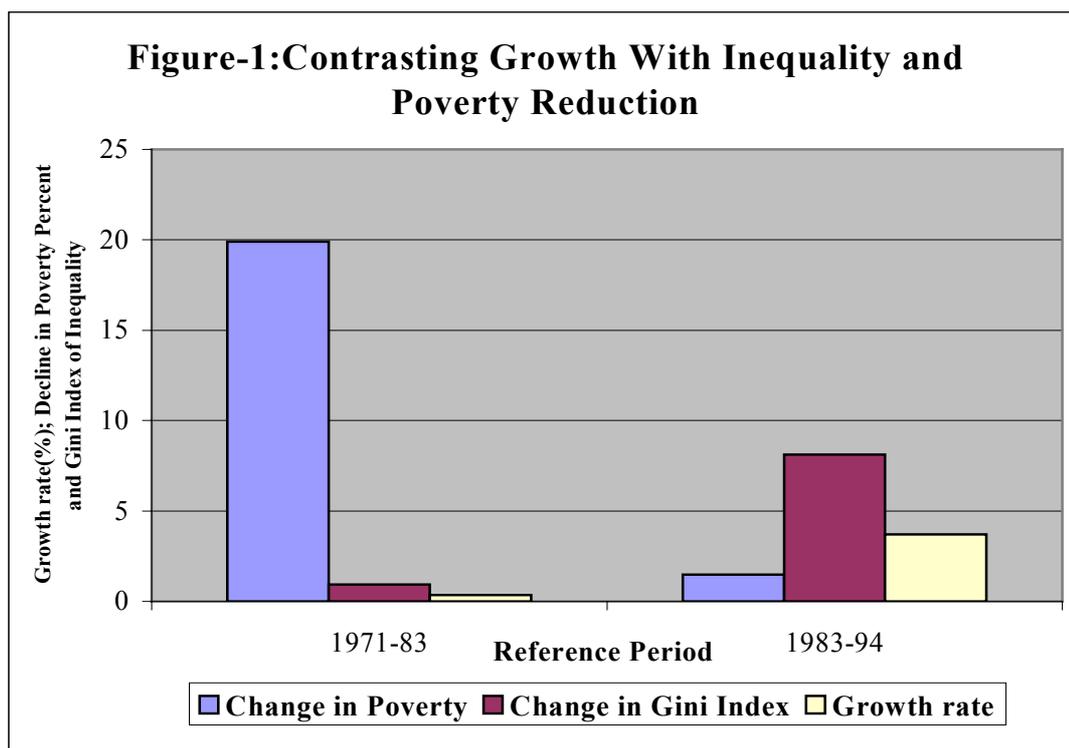
Referring to the Tables 1, 2 and 3 of the BBE paper, the decline in rural poverty (Head Count Ratio) in Rajasthan is the second highest at 19.9 per cent points, only after Kerala at 34.5 per cent, during the 13 year period of 1970-71 to 1983. The corresponding decline in urban poverty is 15.6 per cent, which is the 4th highest decline after Kerala (21.9 per cent), Haryana (19.9 per cent) and Gujarat (16.5 per cent). The overall decline is therefore amongst the highest in Indian states. However, growth in per capita income (NSDP) at 1980-81 prices, during this period is zero. This is true even when the reference period for the per capita income growth is taken as 1970-71 to 1980-81, 1970-71 to 1982-83 over 1970-71 to 1983-84. Therefore, major fall in rural poverty in Rajasthan occurs with zero growth in per capita income. When it comes to 1983-94 period, the decline in rural poverty in the state is negligible from 49.0 in 1983 to 47.5 in 1993-94, a mere 1.5 per cent point. This is the least among the major Indian states. Urban poverty during this period declines by 7.5 per cent points. When the period is further extended to 1996-97 nothing much change. The rural poverty declines to 46.1 per cent. Ironically, the period 1980-81 to 1997-98 or, for that matter, 1983-84 to 1997-98 (1983-97 in brief) is the period when real per capita income observes the highest growth in the state. (Figure-1) This holds true even for the primary sector. The compound annual growth in NSDP during 1983-97 is estimated at 6.3 per cent for the State. Corresponding figure for the primary sector is 4.7 per cent. No other sub-period during the last four decades observes similar growth. (Table- 1A).

Furthermore, the Gini index of income inequality declines only by 0.92 per cent points during 1971-83 when the poverty falls by around 20 per cent points; and by 8.11 per cent points when the poverty decline is a mere 1.5 per cent points in the state income.

**Table 1: Consumption and Poverty Estimates for Rural Rajasthan**

	Mean consumption (Rs./person/ month)	Head count index(H)	Gini Index
Average (1957-58 to 1959-60)	66.70	46.36	36.47
Average (1990-91 to 1993-94)	60.02	45.79	27.98
Trend Growth rate*(1958-94)	0.16	-0.54	-0.52

Source: Datt, Gaurav. (1998); IJLE



**Table-1A: Growth in Net state Domestic Product (Rajasthan)**

Sector of the Economy	1960-61 to 1970-71	1970-71 to 1982-83	1960-61 to 1982-83	1982-83 to 1996-97
Primary	2.08	1.63 <sup>Ω</sup>	2.76	4.98
Secondary	2.33	3.49	3.25	6.77
Tertiary	3.41	4.45	3.69	7.77
NSDP	2.53	2.70	3.10	6.16
Per Capita NSDP	0.10*	-0.20*	0.28*	3.77

\*Statistically insignificant even at 50 per cent level. <sup>Ω</sup>Statistically significant at 10 per cent. All other growth rates are statistically significant at 1 per cent or better. Growth in per capita NSDP since 1980-81 is stable at around 3.70 per cent per annum whether the reference period is 1980-81 to 1993-94, 1996-97, 1997-98 or whether it is from 1982-83 to 1996-97 or 1997-98.

One, therefore, comes to a conclusion that change in poverty in Rajasthan observes perverse movement both with respect to growth as well as decline in inequality. This implies that when the growth occurs in the state along with a substantial reduction in income inequality poverty does not decline and when poverty declines there is neither growth nor a decline in income inequality. By all standards this is perverse relationship which gets reflected in the very low growth elasticity of poverty reduction in the state. This is true for many other states (Table-2), but the contradiction is not as glaring as in Rajasthan. For example, in

Andhra Pradesh, growth during the latter period is more than the double of the former period but decline in poverty is half of the former period decline. Similar is the case with Maharashtra. In both these cases change in Gini index is almost constant during the two periods. In Karnataka a weak growth rate of 1.3 per cent with a large increase in inequality results in a poverty reduction of 20 per cent during 1971-83 while a robust growth rate of 3.9 per cent along with a decline in inequality reduces poverty by a mere 3.7 per cent.

In fact the zero order correlation across the listed Indian states between growth and poverty reduction as well as change in Gini Index and poverty reduction is zero. This is not the case when GoI data are used to compute such correlation across the states. (Table-3)

## II

Is the poverty reduction indeed neutral to growth is a question will explore below. Table-4 shows some of the poverty estimates provided by the GoI and the Cozler *et al.*<sup>6</sup> Even if the analysis is restricted till 1993-94 round of the Consumption Expenditure Survey, the estimates by Cozler *et al* are at least twice as large as the GoI estimates for Rajasthan. We do not have the complete series of the poverty estimates of World Bank till 1999-2000. But the points indicated in the graph shown in the Figure-9 of the BBE study do not indicate any lowering of poverty significantly in 1999-2000. Juxtaposing the two crosses representing Deaton's estimates on poverty during 1993-94 and 1999-00 against the WB series, clearly indicate that the series even till 2000 does not show any major decline in poverty in Rajasthan.

It is interesting to compare the variation in the two poverty estimates (GoI and the World Bank) between 1973-74 and 1993-94, across two Indian states, namely Rajasthan and West Bengal and also at the All India average. Between 1973-74 and 1993-94, poverty in Rajasthan declines from 44.7 per cent in 1973-74 to 33.5 percent in 1983 and 26.4 per cent in 1993-94 by official poverty estimates. It further declines to 13.3 percent in 1999-2000.

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<sup>6</sup> Poverty data given by Deaton, Sen-Himansu, Tendulkar etc move in sympathy with the GOI data till 1993-94. Even for the 1999-00 the estimates given by various scholars would be more consistent with the GOI series rather than the WB series as read from the graph in Fig.-9.

The World Bank estimates on the other hand observe poverty at 59.3 per cent in 1973-74, 49 per cent in 1983 and 47.5 per cent in 1993-94, and around 46 per cent thereafter<sup>7</sup>. The meager decline in the headcount ratio of poverty during the period when the states economy surges with a per capita income growth exceeding 4 per cent (81-01), the poverty elasticity of growth should obviously be near zero by the World Bank estimates. The proportionate change in poverty ratio is barely 3 per cent between 1983 and 1993-94. On the other hand during 70s when growth rate and per capita income is near zero, (Table-3) large fall in

**Table-2: Growth in Per capita income and change in Rural Poverty 1970-71 to 1993-94 (World Bank Series on Poverty)**

State	1970-71 to 1982-83			1982-3 to 1993-94		
	Growth rate	Change in Poverty	Change in Gini Index	Growth rate	Change in Poverty	Change in Gini Index
Andhra Pradesh	1.73	-19.50	0.47	3.89	-9.06	-0.8
Assam	0.01	-3.00	0.91	0.85	2.79	-1.96
Bihar	0.85	-3.92	-2.50	0.65	-6.44	-3.56
Gujarat	2.26	-26.60	-1.73	3.09	-3.84	-1.86
Haryana	2.45	-13.62	-6.92	3.76	8.32	3.73
Jammu & Kashmir	1.64	1.30	-0.06	0.07	2.52	5.45
Karnataka	1.34	-19.60	3.61	3.86	-3.71	-3.43
Kerala	0.19	-34.50	2.96	3.45	-12.63	-3.81
Madhya Pradesh	0.37	-10.80	-3.07	2.17	-7.68	-1.64
Maharashtra	2.66	-14.10	1.63	4.79	-6.74	1.83
Orissa	0.24	-9.44	-2.11	1.69	-16.47	-2.44
Punjab	3.04	-14.30	-1.58	3.17	-0.76	-0.48
Rajasthan	0.34	-19.90	-0.92	3.70	-1.47	-8.11
Tamil Nadu	1.20	-14.80	2.21	4.55	-18.24	-1.66
Uttar Pradesh	1.24	-8.99	0.13	2.22	-3.12	-1.29
West Bengal	0.43	-10.90	3.72	2.68	-21.93	-3.42

*Note: Growth rates in per capita income (NSDP) have been computed from the series given in EPW Research Foundation Publication. The 1971-83 series refers to the constant 1970-71 prices while the 1983-94 series refers to the constant 1980-81 prices.*

**Table-3: Zero Order Correlation between Growth in per capita income, poverty across Indian States. (Refer to Table-2)**

	1970-83	1983-94
WB Data	0.08 (76)	0.20 (46)
GOI Data	0.30 (26)	0.46( 7)

Figures in parentheses indicate the level (per cent) at which the coefficient is statistically significant. GoI data refers to 1974-83 in Column-2 as Revised estimates (Expert Committee Methodology) start only from 1973-74.

<sup>7</sup> As is apparent from Figure 9 of the WB paper.

poverty is projected. Should this be a reflection on anti-poverty programs initiated during 70s, we may not be sure of but there is no apparent relationship between the growth and poverty reduction in Rajasthan during the 70s, 80s and 90s, if the World Bank data on poverty are to be believed.

The World Bank, on the other hand, observes a sharp fall in poverty since 1973-74. The head count also of poverty in West Bengal is nearly half that of 1983 estimate of poverty. *Only the all India figures of rural poverty match those of the World Bank series.* We shall now examine official poverty series and other variables related to poverty.

Although the expert committee of the GoI (1993) on Poverty found such criteria as the hunger, the share of food grain, total expenditure and Calorie intake not advisable by poverty measurement. These are relevant in examining changes across the two different states we have chosen and also with changes in poverty are to be related with variables, such as growth in income. We shall first look at these components of poverty.

Clearly variables, such as share of food, move in sympathy with the decline in poverty at the all India level. (See Columns-1 and 4 of the Table-4). There is no reason why these should not move consistently to validate poverty series elsewhere. We find this to be the cases in several states, such as West Bengal, Tamilnadu and Kerala. However, contrasting evidence emerges from the states like Rajasthan and West Bengal.

Number of persons spending more than 60 per cent of the total expenditure on **food** declines at all India level from 97 per cent in 1973-74 to 88 per cent in 1993-94 and 76 per cent in 1999-2000. Corresponding decline for West Bengal is from 98 percent in 1973-74 to 94.2 per cent in 1993-94 and 95 per cent in 1999-2000. In Rajasthan such decline is from 94 per cent in 1973-74 to 90 per cent 93-94 and 70 per cent in 1999-2000. One can assume that the bulk of population in India spends 60 per cent of the total expenditure only on food. However, when one looks at that the expenditure on **food grain**, the decline is rapid during last three decades. At the All India Level proportion of population spending more than 30 per cent total expenditure on food grain declines from 97 per cent in

1973-74 to 87 per cent in 1983 to 74 per cent in 1987-88, 66 per cent in 1993-94 and 52 per cent in 1999-2000. The decline in such population in West Bengal is from 98 per cent in 1973-74 to 87 per cent in 1993-94 and 86 per cent in 1999-2000. In Rajasthan, however, the decline is very sharp. Population spending more than 30 per cent on foodgrain declines 88 per cent in 1973-74 to 59 per cent in 1983, 45 per cent in 1987-88, 19 per cent in 1993-94 and only 7 per cent in 1999-2000. (Table-4)

Similar picture emerges with respect to the Calorie intake norms (Table-3). The proportion of population consuming below 2400 Calories declines over 70s, 80s and 90s. At the All India level as well as for the states individually, except for Kerala. However, Kerala in spite of increasing its Calorie intake during the last three decades is by far the most Calorie deficit state in India. In 1993-94, 71 per cent of the population in West Bengal is consuming below 2400 Calorie norm while the figure is 46 per cent in Rajasthan and 74 per cent at All India level.

Howsoever the poverty be measured, the World Bank figure sustain the poverty percentage twice as large as the official figures for Rajasthan when all other indicators show it otherwise, the poverty estimates provided by the various Indian scholars (Sundaram and Tendulkar, Deaten and Dreze, Sen and Himansu).

At yet at another level, West Bengal shows highest incidence of total hunger in India. In 1983 the incidence of hunger in West Bengal was 40 per cent as against the All India average of 19 per cent and only 4 per cent for Rajasthan. In 1993-94 incidence of hunger was estimated at 14.1 per cent as against 5.1 per cent at All India Level and only 0.6 per cent in Rajasthan. The 1999-2000 figures on hunger show a further decline in the incidence of hunger - 10.4 per cent in West Bengal, 3.3 All India and 0.2 in Rajasthan. One tends to conclude, therefore, if poverty data are interpreted along with other secondary evidence on poverty the World Bank Series grossly overestimates poverty in Rajasthan during 1980s and 1990s and, therefore, grossly underestimates the decline in poverty during the last two decades. By implication, the growth elasticity of poverty reduction has been underestimated. Therefore, there is no reason to put Rajasthan as amongst the

worst states in terms of poverty reduction and contribution of growth to poverty reduction.

In rural India where 60 per cent of expenditure remains on food across almost all the classes there cannot be a better indicator of poverty reduction than the decline in food grain expenditure. The hunger figures may add to the validity of such an observation. The above analysis puts the efficacy of World Bank analysis to question.

**Table-4: Alternative indicators of Poverty, Rajasthan, West Bengal and All India. (See Appendix 1 for other states)**

State/ Reference Year	HCR poor (%)		2400* Calorie norm Poor	Population spending more than*	
	W.Bank**	GOI <sup>§</sup>		60 % of total expenditure on food	30 % of total expenditure on Food grain
<b>Rajasthan</b>					
1973-74	59.3	44.7	18.8	93.9	88.1
1983	49.0	33.5	57.9	80.7	58.8
1987-88	50.4	33.2	44.6	83.3	45.2
1993-94	47.5	26.4	45.5	90.5	18.5
1999-2k**	46.1	13.5	52.8	70.1	6.8
<b>W.Bengal</b>					
1973-74	63.2	73.2	57.0	98.0	98.2
1983	49.2	63.1	77.5	98.5	98.3
1987-88	34.9	48.3	76.0	96.8	92.6
1993-94	27.3	43.2	70.8	94.2	87.5
1999-2k**	26.9	31.7	81.0	94.8	86.4
<b>India</b>					
1973-74	55.7	56.4	46.9	96.8	96.8
1983	45.3	45.6	68.0	89.7	86.5
1987-88	39.2	39.4	68.8	92.3	73.7
1993-94	36.7	37.1	74.3	88.0	66.1
1999-2k**	?	26.8	74.6	76.1	51.8

\*The values are approximates derived by the linear interpolation on the tabulated values and the distribution of persons by the monthly per capita expenditure classes.

\*\* World Bank Poverty Estimates corresponding to 1999-2k in the Table refer to 1996-97.

<sup>§</sup> Deaton, A. (2003), for GoI poverty estimates

Source: Various N.S.S reports. Datt, (1998), Jha, Raghbendra, (2000),

**Table-5: Head Count Ratios of calorie Deficit Population in Major States of India**

State	2400 Calories per day		2200 Calories per day		Calorie gap ratios (FGT (1)): 2400 Norm	
	1983	1999-00	1983	1999-00	1983	1999-00
Andhra Pradesh	68.5	80.7	56.9	69.7	17.1	20.1
Bihar	67.6	74.9	56.9	62.4	17.5	17.5
Gujarat	72.6	80.5	63.8	70.4	19.5	20.8
Haryana	54.1	55.1	42.8	43.5	12.4	11.3
Karnataka	64.0	78.9	55.2	69.9	18.5	21.7
Kerala	81.5	81.2	74.0	70.3	27.2	22.7
Madhya Pradesh	62.5	78.4	51.6	68.0	14.8	20.0
Maharashtra	73.1	83.3	61.6	70.5	18.1	20.4
Orissa	70.9	74.6	60.6	61.7	19.5	16.6
Punjab	46.2	62.8	36.8	48.1	11.5	12.5
<b>Rajasthan</b>	<b>54.2</b>	<b>56.7</b>	<b>43.4</b>	<b>43.0</b>	<b>16.1</b>	<b>10.5</b>
Tamil Nadu	80.6	86.5	74.6	78.7	30.2	27.0
Uttar Pradesh	58.4	64.5	47.1	52.0	13.6	13.6
<b>West Bengal</b>	<b>76.0</b>	<b>75.6</b>	<b>67.3</b>	<b>63.3</b>	<b>23.7</b>	<b>17.9</b>

Source: Meenakshi and Vishwanathan (2003).

**Table –6: Total Hunger in India (Per cent)**

NSS Round	Year	Rajasthan	W. Bengal	All India
38	1983	3.8	39.6	18.5
46	1989-90	3.3	20.0	11.5
47	1990-91	1.3	16.0	7.1
48	1991-92	0.9	16.4	7.7
49	1992-93	0.4	18.6	6.2
50	1993-94	0.6	14.1	5.1
55	1999-2000	0.2	10.4	3.3

Source: Chand, Ratan.(2004)

### III

A more recent report (World Bank (2005)) on the Rajasthan's economy by the World Bank's South Asia Division, however, does not show the same confidence on the World Bank data on poverty and therefore uses an alternative set given by Deaton and Dreze (2002). This is in conformity with a series of other estimates given by such scholars as Deaton and Dreze (2002); Sundaram and Tendulkar (2003), Sen and Himanshu (2004) as well as the official poverty data.

The report confirms existence of low poverty in the state even at low income levels. ... *In terms of real per capita income ranking for the 14 major Indian states, Rajasthan is fifth from bottom. However, only four states have poverty*

*lower than Rajasthan. The poverty rate is almost seven per cent points below the national average even with below average per capita income. This is true regardless of the poverty estimates one uses.* (Not from the World Bank poverty data set). The poverty gap index for Rajasthan is also lower than the national average. For rural areas, it is 3.0 for Rajasthan as against 5.2 for India, while for urban areas, it is 1.7 for Rajasthan as against 2.3 for India.

The report however, distances itself from the BBE paper on India in as much as ‘... The absolute elasticity of rural poverty with respect to real growth in agriculture and allied output between the last three NSS thick rounds is almost identical- 1.06 and 1.02- implying that the underlying structural relationship between the two variables stayed largely similar’. Had the authors cared to go beyond 1987-88, similar results would have been visible. In fact changes in poverty and income growth, whether overall or agriculture sector, during 1983-99 may be more useful to assess the growth poverty interface.

Now, this is a much better stand when compared to the one taken in the BBE paper where the primary sector has been found to be totally ineffective in contributing to poverty reduction in the state. The reported elasticity of rural poverty reduction with respect to primary sector and the secondary sector growth is estimated as 0.16 (statistically insignificant) and 0.46. So that secondary sector with a mere 17 per cent share in NSDP contributes 86 per cent of poverty reduction in rural Rajasthan according to the BBE paper.

What is bizarre, however, is the explanation offered by the WB report on ‘Poverty income puzzle’ in Rajasthan. It argues that... *the poverty income puzzle reflects low income-inequality and clustering of households just above the poverty line in Rajasthan. ... .. Even a marginally higher poverty line cut off could raise poverty rate significantly- since there are large proportion of population who are technically non-poor, but clustered above the poverty line at low income levels. Raising the relevant poverty line income by 10 per cent raises the number of poor by 35-36 per cent in both the rural and the urban areas. These clustering patterns are stronger in Rajasthan than observed nationally. A 10 per cent increase in poverty line cut off would raise urban poverty by some 34*

*per cent and rural poverty by some 29 per cent at the aggregate national level. Thus given the proneness of the Rajasthan economy to frequent droughts large number of even the non-poor are precariously placed in terms of poverty.*

These are very carefully worded statements indeed, which hide more than they reveal about the poverty in the state. There are two issues involved here. The first relates to the clustering of poor above the poverty line. A careful look at the distribution of consumption expenditure shows that the elasticity of poverty HCR with respect to the cut of point in the state at 0.7 to 0.8. That is a 10 per cent increase in poverty cut off point increases the poverty HCR by 7 per cent. This is true for the 1973-74, 1983, 1993-94 or even the 1999-2000 distribution of consumption expenditure. However, there is nothing clear when the authors write a 35-36 per cent increase in poverty population. Surely it must refer to the absolute numbers of poor. For, at a poverty HCR of 13 per cent (Official poverty per cent) or 17 percent (as given by Deaton), this would increase the proportion of poor from 13 to 20 per cent or from 17 to 24 per cent depending on the initial HCR. And this would imply a 50 per cent or 40 per cent increase in the number of the poor. If poverty levels in the state further drop to the poverty levels in Punjab, an elasticity of 0.7 would imply a 100 per cent increase in poverty population. And if the reference poverty HCR were 50 per cent, as was the case during 1973-74, the same elasticity would imply a mere 14 per cent increase in poverty. (Table-7). Higher the reference poverty HCR, lower is the increase in percentage of poor. This to my mind is not a correct way to look at a consumption distribution and the impact of 10 per cent poverty cut of on the poverty population.

Figures 2, 3 and 4 show the distribution of consumption expenditure for the distribution of consumption expenditure for high poverty, low poverty and middle poverty states respectively. Shape of the distribution of consumption expenditure of Rajasthan clearly follows other low poverty states such as Punjab and Haryana, which appears positively, skewed on the fixed points on x-axis. This is in contrast to the high poverty states Orissa, Bihar, Madhya Pradesh and Uttar Pradesh, which observe a negatively skewed distribution.

The clustering, which the authors talk about is not visible on the smoothly rising part of the consumption curve of Rajasthan in Figure-3.

**Table-7: Elasticity of Poverty and Concentration of the Poor at the Poverty Line**

States typically representing the Rural Poverty HCR	Elasticity of Poverty <i>w r t</i> poverty cutoff	Poverty Population (HCR % )	Per cent Increase in	
			Poverty Cut off	Poverty Population
Orissa	0.7	50	10	14
Maharashtra	0.7	25	10	28
Rajasthan	0.7	13	10	50
Punjab	0.7	6	10	118

The other argument on higher probable incidence of poverty relates to the proneness of the rural economy to recurring droughts. A number of factors explain stabilization of incomes during the period of stress. These include diversification of household employment/income including migration and public policy for mitigating the effects of drought.

**Livelihood Patterns: Complimentarity in the Sources of Income:** Agriculture continues to be the dominant rural activity in the State. However, due to a rather uncertain crop production, households practice large number of activities to minimize risk. This includes animal husbandry, non-farm activities and migration.(Table-8). Strong growth is observed in the share of rural non-farm activities in the state. The share of rural non-farm male workers to total workers in the state has increased from 15.9 per cent in 1972-73 to 19.2 per cent in 1983, 30.3 per cent in 1993 and 32.7 per cent in 1999. This is the third largest growth in the share of rural non-farm male workers during 1983-99 after Kerala and Assam.

Table-9 shows sources of income of the various households' type. Nearly 45 per cent of the self-employed in agriculture draw additional income from other farm activities, predominantly animal husbandry and 22 per cent draw income from wages. Similarly, 72 per cent and 34 per cent of the non-agricultural labor households draw income from cultivation and other farm activities respectively. Forty-nine and 26 per cent of the agricultural labor households draw sustenance from agriculture and other farm activities. Households employed in non-agricultural activities draw income from cultivation (53 per cent), Other farm

activities (23 per cent), and wage income (22 per cent). If an *Index of Income Diversification* here is defined as, sum of all the sources of income for a specified household type divided by the total number of households in that category, non-agricultural labor households had the highest value (2.09) of this index in 1993-94. This implies that on an average, non-agricultural labor households had at least one more source of income besides non-agricultural labor as the main source. Corresponding value for self employed in non-agriculture was 1.87 followed by the households employed in agriculture and the agricultural labor households at 1.76. What is more, such diversification has increased during 1993-99. The income diversification index increased to 1.96 in agricultural labor households and the households self employed in agriculture. It increases to 1.98 for the households self employed in the non-agricultural activities and 1.80 from 1.41 for the residual category.

Table-10 shows composition of income from various sources in different parts of the state. Except for the canal irrigated areas of the Indira Gandhi Nahar Project (IGNP), where the land productivity matches that of Punjab, cultivation provides less than a third of the rural household income in all other regions. And even in the IGNP it is only half of the household income.. Depending upon the economic environment, other sources of income take dominance in different parts of the state. Thus in south Rajasthan, with very small land holdings seasonal migration accounts for over 40 per cent of the household income. Animal husbandry, with a more stable inter-temporal income stream is another important source of household income.

**Table-8: Castes and Livelihood strategies**

	Livelihood Strategies
Upper castes	<ul style="list-style-type: none"> <li>• Intensification of Agriculture</li> <li>• Diversification of Agri-business</li> <li>• Public and Private sector regular employment</li> </ul>
Intermediate and Artisan Castes	<ul style="list-style-type: none"> <li>• Diversification of farm activities</li> <li>• Migration</li> </ul>
Lower Castes	<ul style="list-style-type: none"> <li>• Wage labor</li> <li>• Migration</li> <li>• Diversification</li> </ul>

Source: HDRC, Ajeevika: livelihoods in Rajasthan, Discussion paper Series-6, UNDP, India

**Table-9: Distribution of Households by Household Type getting income from Alternative Sources (1999-2000) in Rajasthan**

Household type	Farm income		Wage/Income	Non-farm Income	Others Sources*	Index of Income Diversification**	
	Cultivation	Other				1999-00	1993-94 <sup>0</sup>
Self-employed in Non-Ag Agriculture Labour	543	251	146	915	127	<b>1.98 (13)</b>	<b>1.87 (11)</b>
Other Labour	542	267	937	60	158	<b>1.96 (09)</b>	<b>1.76 (10)</b>
Self-employed in Agric.	672	300	924	52	69	<b>2.02 (15)</b>	<b>2.09 (16)</b>
Others	980	486	241	80	169	<b>1.96 (53)</b>	<b>1.76 (54)</b>
<b>All types</b>	452	203	498	46	597	<b>1.80 (09)</b>	<b>1.41 (09)</b>
<b>All types</b>	<b>787</b>	<b>381</b>	<b>418</b>	<b>181</b>	<b>188</b>	<b>1.96(100)</b>	<b>1.80(100)</b>
Estimated hh (00)	50099	24243	26583	11547	11943	63656	57798

\*Includes Pension, Rent, Interest and Dividends and miscellaneous other sources

\*\*Figures in Parenthesis in the last column indicate per cent distribution of households

<sup>0</sup>See Appendix Table, A 1.3

Source: GOI (2001), NSS Report No.463, Sources of Household Income in India

**Table-10: Important Sources of Household Income** (proportion of total household income)

	Tribal South	Semi-arid North Central	Desert West	Canal Irrigated East
Agriculture	26.5	32.4	31.7	51.7
Animal Husbandry	13.5	17.8	16.7	13.7
Wage Labour	7.7	15.1	14.6	22.6
Household Industry	2.5	6.6	6.5	0.3
Other Income	8.1	13.3	18.2	10.8
Migration	41.7	12.6	12.4	0.8

Source: Ajeevika Household Survey, 2002.

**State intervention for the household food security-** Before I deal with this issue, I would like to emphasize the magnification of the impact of drought; the political economy surrounding distribution of work and the sheer magnitude of money involved, the third harvest, make it indistinguishable from the normal years poverty estimates so far. Such droughts as 1987-88 and 1993-94, when

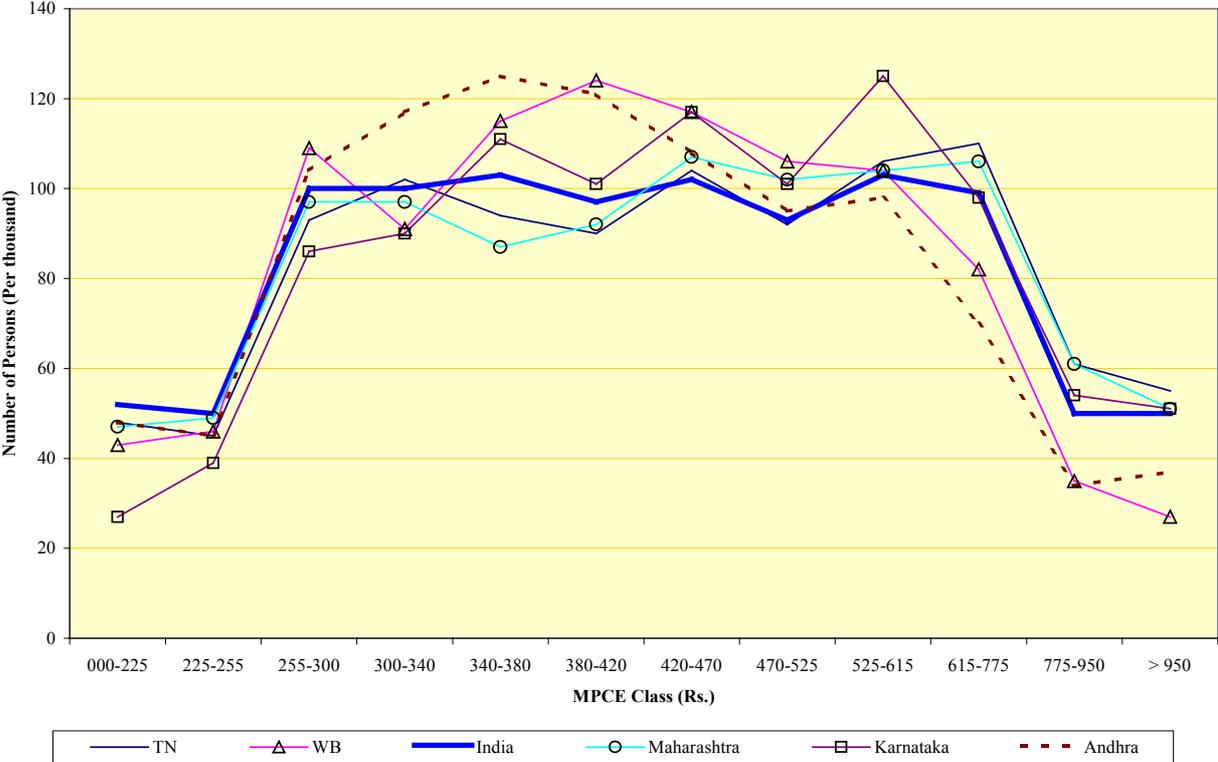
food grain production in the state fell to 4.8 million ton as compared to the average of 7.6 million ton during the preceding triennium and 7.1 million ton compared to 10.1 million ton during the preceding triennium, did capture a significant decline in poverty population.

The magnification of drought can be seen from the elasticity of affected population with respect to agricultural/ foodgrain production. Sagar (2003) estimates this elasticity at 6.89. This implies that a 15 per cent fall in agricultural production is estimated to affect entire rural population. Corresponding elasticity *with respect to* per capita foodgrain production is 5.92. While variations in agricultural production do affect rural population, such magnitudes are untenable. Referring to the major drought of 2003-03, the Government of Rajasthan observes, *...This is the 5<sup>th</sup> year in succession of severe drought conditions due to failure of monsoon. The severity of drought the current year is worse than in past four years* (GOR, 2003). The population affected by drought is estimated to fluctuate between 21.5 to 33 million during 1998-99 and 2000-01. The five years period apparently includes 2001-02. *In fact, the agricultural year 2001-02 was one of the two years when food production in Rajasthan was an all time high during the last century, the only other year being 1997-98.* This is the kind of magnification that awakens its administration for prompt action<sup>8</sup>.

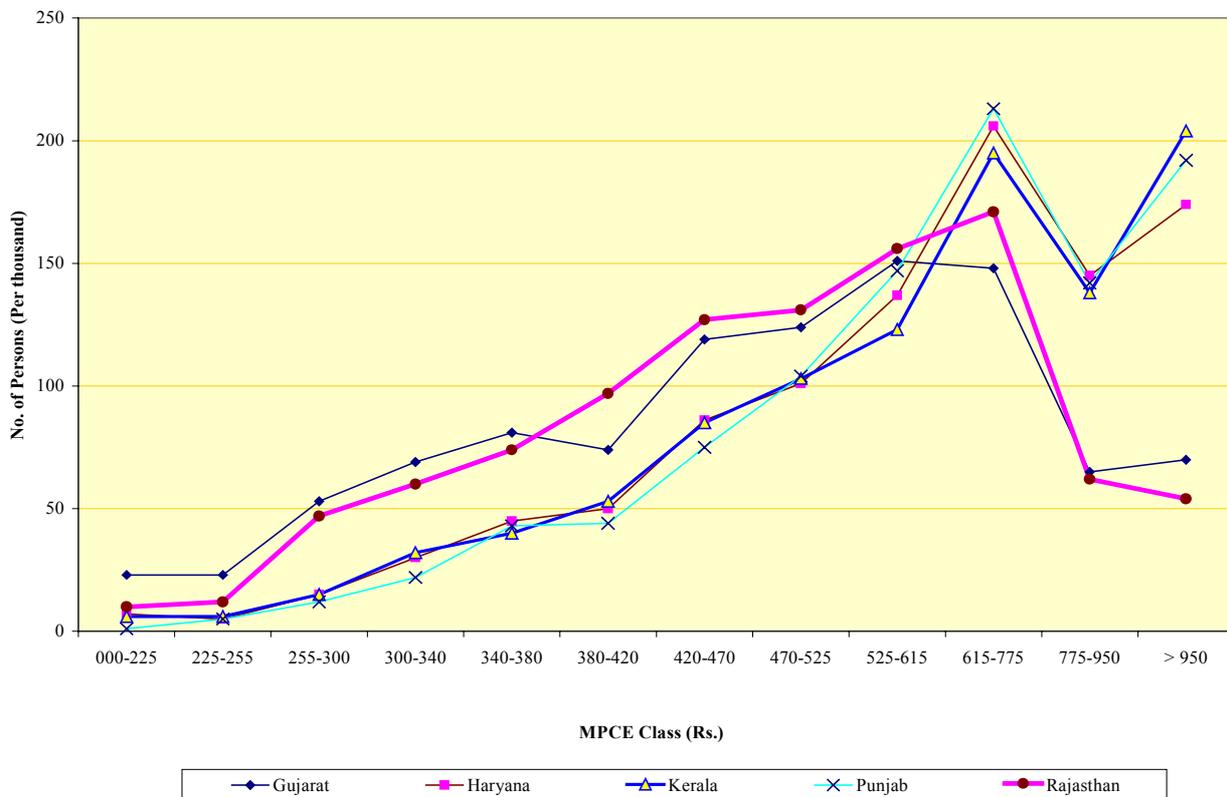
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<sup>8</sup> Such magnification of the impact of drought involves elected representatives as well as the rural administration. Because of competitive demands to declare their areas as drought affected, the members of legislative assembly and the local self governance are pursued to put pressure on the Tehesildar and the Girdawar to this end. In common administrative parlance, a drought is often referred to as the third harvest.

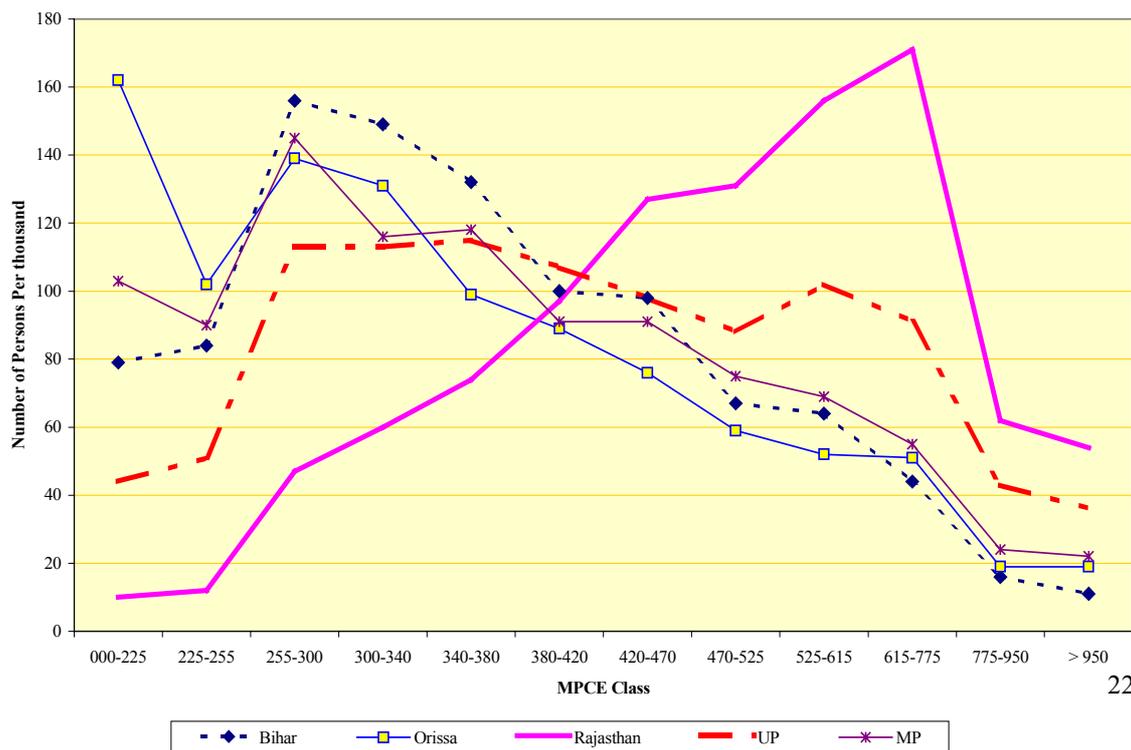
**Figure-2: Distribution of Consumption Expenditure in medium poverty states:1999-2000**



**Figure-3 Distribution of Consumption Expenditure in Low Poverty States: 1999-2000**



**Figure-4: Distribution of Consumption Expenditure in BOMARU States: 1999-2000**



**Appendix 1: Poverty Correlates for Selected Indian States**

Reference Year	Head Count Ratio of the poor (%)		MPCE Percentile Spending More Than		Average Exp on Foodgrains (% to total)	Population consuming less than 2400 Cal
	World Bank <sup>s</sup>	Govt. of India <sup>@</sup>	60 % of Total Expenditure on food	30 % of Total Expenditure on Foodgrain		
<b><i>India</i></b>						
1973-74	55.7	56.4*	96.8	96.8	48.3	46.9
1977-78	50.6	53.1*	92.4	90.2	37.4	57.6
1983	45.3	45.6*	89.7	86.5	36.3	68.0
1987-88	39.2	39.4	92.3	73.7	30.5	68.8
1993-94	36.7	37.1	88.0	66.1	28.4	74.3
1999-2k		26.8	76.1	51.8	26.2	74.6
<b><i>Rajasthan</i></b>						
1973-74	59.3	44.8*	93.9	88.1	39.59	18.8
1977-78	53.5	35.9*	83.8	70.5	22.87	27.8
1983	49.0	33.5*	80.7	58.8	26.92	57.9
1987-88	50.4	33.3	83.3	45.2	24.05	44.0
1993-94	47.5	26.4	90.5	18.5	20.80	45.5
1999-2k		13.5	70.1	6.8	20.47	52.8
<b><i>W.Bengal</i></b>						
1973-74	63.2	73.2*	98.0	98.2	57.01	57.0
1977-78	56.3	68.3*	98.1	96.0	44.95	62.4
1983	49.2	63.0*	98.5	98.3	47.16	77.5
1987-88	34.9	48.8	96.8	92.6	39.64	76.0
1993-94	27.3	46.2	94.2	87.5	36.00	70.8
1999-2k		31.7	94.8	86.4	33.96	81.0
<b><i>Tamilnadu</i></b>						
1973-74	59.3	57.4*	97.2	97.0	47.40	64.8
1977-78	58.1	57.7*	91.4	92.4	39.81	74.1
1983	55.0	54.0*	90.8	93.1	38.52	86.3
1987-88	48.4	46.3	91.1	81.9	32.12	88.3
1993-94	36.7	35.9	89.9	73.2	46.19	85.5
1999-2k		20.0	75.5	4.5	22.65	92.4
<b><i>Andhra Pradesh</i></b>						
1973-74	56.8	48.4*	90.7	94.2	46.32	54.6
1977-78	47.8	38.1*	86.8	91.8	39.26	58.7
1983	38.0	26.5*	77.7	80.6	33.41	70.3
1987-88	34.0	20.9	73.8	66.7	28.76	84.2
1993-94	28.9	15.9	79.3	69.8	28.38	82.6
1999-2k		10.5	83.3	66.0	28.56	83.3
<b><i>Gujarat</i></b>						
1973-74	58.1	46.4*	97.8	97.5	42.71	62.4
1977-78	55.3	41.8*	92.5	76.2	31.92	64.3
1983	39.2	29.8*	90.6	49.9	26.01	71.8
1987-88	42.9	28.6	96.0	23.8	24.35	50.8
1993-94	35.4	22.2	93.5	00.0	21.42	82.4
1999-2k		12.4	74.2	00.0	18.97	83.2
<b><i>Karnataka</i></b>						
1973-74	61.0	55.1*	95.0	100.0	51.19	56.8
1977-78	54.2	48.2*	89.4	92.6	37.83	55.4
1983	44.7	36.3*	85.7	87.6	34.44	61.6
1987-88	43.5	32.6	90.3	77.9	29.24	73.0
1993-94	41.0	30.1	87.4	59.6	27.32	74.5
1999-2k		16.8	75.2	18.3	25.43	81.4
<b><i>Maharashtra</i></b>						
1973-74	64.6	57.7*	95.1	96.0	44.88	
1977-78	78.8	64.0*	89.5	88.6	27.53	73.8
1983	54.6	45.2*	77.7	74.2	30.94	78.7
1987-88	52.3	41.0	84.9	55.8	24.77	84.5
1993-94	47.8	37.9	80.7	37.7	23.60	88.2
1999-2k		23.2	43.8	26.3	22.99	92.2

## APPENDIX-2

### The Expert Committee Methodology for Estimating Poverty at the State Level

1. Having decided to accept the minimum living standard for defining poverty line normatively, we feel that it should be applied uniformly to all parts of the country for assessing poverty. The commodity basket corresponding to this norm should be standardized at the national level and applied to all States. This is being recommended in order to enable comparability across States and overtime. In this connection, attention is also drawn to the views of Shri S. Guhan, one of our members, in this supplemental note.
2. The Poverty Line recommended by the Task Force on projection of minimum needs and effective consumption demand, namely a monthly per capita total expenditure of Rs.49.09 (rural) and Rs.56.64 (urban) rounded respectively to Rs.49 and Rs.57 at all India level at 1973-74 prices be adopted as the base line. This was anchored in the recommended per capita daily intake of 2400 calories in rural areas and 2100 calories in urban areas with reference to the consumption pattern as obtained in 1973-74. The Group recommends that these norms may be adopted uniformly for all States.
3. Poverty estimates will vary according to the base year chosen for defining the poverty line. The choice of the base year will have to be guided by convenience and consistency recognizing that some degree of arbitrariness is inherent in the choice of any base year. Given that much systematic work has already been done with the base 1973-74, the Group is in favor of continuing it as the base year for estimating the poverty line.
4. State-specific poverty line should be estimated as follows. The standardized commodity basket corresponding to the poverty line at the national level should be valued at the prices prevailing in each State in the base year, i.e., 1973-74. For updating poverty line to the current prices in a given year, we need a State-specific consumer price index. For this purpose, the observed all-India consumption pattern of the 20 to 30 per cent of the population around the poverty line in 1973-74 should constitute the State-specific weighting diagram. This diagram should be used in the construction of State-specific

price index over the years using the desegregated commodity indices from the consumer price index for the agricultural laborers (rural) and consumer price index for the industrial workers and non-manual employees (urban). The implicit reasoning underlying the procedure is that any consumer with income equal to the poverty line will be able to buy a normatively fixed bundle, which is common to all consumers and invariant over time. The all India commodity basket corresponding to the 1973-74 official poverty line has been chosen for this purpose. Since prices vary between States and periods, the procedure calls for price adjustments for inter-State variations in the base year and State-specific price movements over time.

5. It is necessary that the deflators chosen should satisfy three main requirements: (a) they should be State-specific, consistent with the adoption of State-specific poverty lines on the basis of State-specific base year prices, (b) they should reflect, as closely as possible, prices relevant to the consumption baskets of those around the poverty line and (c) the data base for the construction of the deflators should be periodically available, comparable across States, and consistent. In the background of these considerations, after considering various possible choices for the deflator, the Group came to the conclusion that it would be most suitable to rely on the desegregated commodity indices from Consumer Price Index for Agricultural Laborers (CPIAL) to update the rural poverty line and a simple average of suitably weighted commodity indices of consumer price index for industrial workers (CPIIW) and consumer price index of non-manual employees (CPINM) for updating the urban poverty line.

#### **The World Bank Methodology for Estimating Poverty at the State Level**

The rural and urban poverty lines we use are those defined by the Planning Commission (GOI, 1979), at the per capita monthly expenditure levels of Rs.49 for rural areas and Rs.57 for urban areas (rounded to the nearest rupee) at October 1973-June 1974 all-India prices. They corresponded to a norm of per capita intake of 2400 calories per day in rural areas and 2100 calories per day in urban areas. The Planning Commission followed the "food-energy method" in deriving the rural and urban poverty lines, which thus corresponded to levels of per capita

total expenditure at which the caloric norms were typically attained in the rural and urban sectors. However, an independent estimate of the urban-rural cost of living differential for 1973-74 (Bhattacharya et al., 1980) also confirmed the inter-sectoral cost of living differential of about 16 per cent implicit in the Planning Commission poverty lines (also see Datt, 1997).

The nominal consumption distributions for each survey period were converted to constant prices using spatial (cross-state) price indices anchored to the consumption pattern of households in the neighborhood of the poverty line, and temporal consumer price indices for urban and rural sectors anchored to the consumption patterns of low-income workers.<sup>9</sup>

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<sup>9</sup> A substantial effort was invested into the construction of a consistent set of price indices across states and survey periods, using monthly data on consumer prices indices from the Labour Bureau (disaggregated to the center level for the urban index). Our primary deflators were the Consumer Price Index for Industrial Workers (CPIIW) for the urban sector, and the *adjusted* all-India Consumer Price Index for Agricultural Labourers (CPIAL) for the rural sector. The adjustment carried out to the CPIAL was for the price of firewood, which has been held constant in the official CPIAL series since 1960-61. The nominal state-level distributions were further normalized for inter-state cost of living differentials estimated separately for urban areas. For further details on the construction of the price indices, see Ozler, Datt and Ravallion (1996), Datt (1997), and Datt and Ravallion (1992).

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