

**How Have the Disadvantaged Fared in India?
An Analysis of Poverty and Inequality in the 1990s**

by

J.V. Meenakshi

Delhi School of Economics
Delhi University
Delhi – 110007
India

Ranjan Ray*

School of Economics
University of Tasmania
GPO Box 252-85
Hobart Tasmania 7001
Australia

JEL: D12, I32

March 2002

Forthcoming in: Kishor Sharma (ed), *“Trade Policy Regime, Growth and Poverty in Asian Developing Countries”*,
Routledge, 2002.

* Ranjan Ray acknowledges the financial support provided by an Australian Research Council grant. The authors are grateful to Mr. Sanjeev Sharma of the Centre for Development Economics, Delhi School of Economics for help with the data.

1. Introduction

India has recently completed a decade of economic reforms which began in June 1991. While the immediate stimulus for the reforms was the serious balance of payments situation facing the country in the second half of 1991, the reforms process, started by the then Finance Minister, Manmohan Singh, was designed to bring about far reaching structural changes to the Indian economy. The sequence of measures, that has been referred to as the “process of liberalisation”, has generated a vigorous debate on the desirability and effectiveness of these changes. Much of the discussion has been conducted at the level of macro aggregates such as growth rates, trade figures, output levels, etc., and relatively little at the household level. The principal reason for this is that household level statistics, unlike macro aggregates, are available only with a lag. Consequently, as assessment of the impact of the changes on household welfare has not taken place until now.

As the country starts the process of “second generation reforms”, it is important to look back at the ‘90s and analyse the changes in poverty and inequality in the past decade. That is the principal motivation of this study. To keep the calculations manageable and to focus attention, the study concentrates exclusively on rural India. This paper comes in the wake of a flurry of recent articles on poverty in India in the 1990s in the context of economic reforms. Examples include Sen (1996), Jha (2000), Lal, Natarajan and Mohan (2000), and Palmer-Jones and Sen (2001). With the recent release of the large sample survey data on consumer expenditure (55th Round) by the National Sample Survey Organisation (NSSO) relating to the period July, 1999 to June, 2000, it is now possible to compare the picture on poverty and inequality at the end of the ‘90s with that in 1993/94 yielded by the consumer expenditure data from the 50th round.

Some significant changes in the scope and methodology of these surveys¹ [see Government of India (2001)] imply that the rounds are not strictly comparable. Indeed, Sen (2000) contends that the use of the mixed reference period renders the 55th round data completely non-comparable with the earlier large sample survey in the 50th round. It is important to note, also, that the NSS data is not without other limitations [see, for example, Bhalla (2000)] and, consequently, some [for example, Lal, et.al. (2000)] have relied on other data sets to provide evidence on this issue. However, the NSS data set is still the most comprehensive in its design and coverage, and remains the primary data base used for poverty and inequality calculations in India.

The debate on methodological comparability across rounds assumes significance in light of the precipitous decline in head count ratios of poverty between 1993/94 and 1999/2000, leading to fears that this decline is merely a statistical artifact, arising out of a comparison between non-comparable surveys. This has led researchers to attempt to suitably modify poverty estimates in order to bring a measure of comparability. While a detailed discussion of this work is beyond the scope of the present study, the consensus appears to be that adjustments do imply a lower magnitude of decline in poverty.

In this paper, we abstract from these methodological considerations and instead focus attention on several issues that have not been addressed in most previous analyses. Apart from providing comparative evidence on poverty and inequality in India at the all India and the State levels between the two large scale NSS consumer expenditure surveys (50th and 55th rounds), the present study has the following features.

¹ The most significant changes are with respect to the use of two different reference periods, and the use of an abridged schedule for some items. A good discussion of the impact of different recall periods is contained in the report of the NSSO's Expert Group on Non-Sampling Errors (2001).

- i) The study pays special attention to two disadvantaged groups in India, namely, the backward classes, ie., the scheduled castes and tribes (SC/ST) and female headed households, and examines how these groups have fared in the 90s in relation to the others.
- ii) The sensitivity of the poverty and inequality estimates to alternative treatments of household size and composition is examined. Since the expenditure data is provided at the household rather than the individual level, this is an important measurement issue and, as we report later, the incorporation of household composition has quite a significant impact on the poverty and inequality estimates.
- iii) The paper compares poverty estimates, based on the concept of “absolute poverty”, ie., using information on State specific and all India poverty lines, with those based on “relative poverty” that defines the poverty line as a fraction ($\frac{2}{3}$ in this study) of the sample median of per equivalent adult household expenditures. In addition, the paper proposes and uses an alternative poverty measure that defines a household to be “poor” if the expenditure share of cereals in its budget exceeds a-priori set cut offs (0.35, 0.40). Since there is nothing sacrosanct about using a particular poverty concept, the sensitivity of the poverty estimate to the alternative measures is of some policy interest.
- iv) The study decomposes the changes in poverty in India over the period 1993/94 and 1999/2000 between the “growth” and “redistribution” components. There is now a significant literature that provides evidence on such decomposition for India and other countries – see, for example, Jain and Tendulkar (1990), Datt and Ravallion (1992), Kakwani and Pernia (2001). We follow the methodology of the last study in providing evidence on this decomposition, not only at the all India level but, also, for each State and, separately, for the SC/ST and female headed household groups

The issue of sensitivity of poverty estimates to the treatment of household size, which is investigated here, has recently attracted considerable attention [for example, Buhmann, et.al. (1988), Coulter, et.al. (1992), Dreze and Srinivasan (1997), Lancaster, et.al. (1999), and Meenakshi and Ray (2001)]. Much of the interest in these studies has focussed on the impact of allowing economies of household size on the poverty calculations. Poverty studies on India have tended to ignore the question of household composition and economies of household size in consumption [see, for example, Dreze and Srinivasan (1996), Dubey and Gangopadhyay (1998), Datt and Ravallion (1998)]. Traditional analyses of poverty and welfare are conducted on a per capita basis, wherein households whose per capita incomes fall below a pre specified norm are identified as being poor. This ignores the fact that adults need more resources than children.

Further, larger households may be able to take advantage of bulk discounts associated with larger purchases of a given commodity, say, cereals and thereby achieve a greater level of utility than that by a smaller household. While the importance of incorporating household size and composition in welfare analysis has long been recognised, empirical work on Indian data has been relatively scarce. The present study adds to the limited literature on this issue in the context of poverty in India [Dreze and Srinivasan (1997), Meenakshi and Ray (2001)], and extends it to include evidence in the context of inequality.

The remainder of this paper is as follows. Section 2 presents the methodology used in this study. The data is described, and its principal features are discussed in Section 3. The results are presented and discussed in Section 4. The main conclusions are summarised in Section 5.

2. Methodology

The estimates of economies of household size and of adult equivalence scales were obtained by estimating the following Engel curves expressed in budget share terms, w_i :

$$w_i = \alpha_i + \beta_i \left[\log \left(\frac{Y}{N^*} \right) \right] + \gamma_i \left[\log \left(\frac{Y}{N^*} \right) \right]^2 + \delta_{i1} D_1 + \delta_{i2} D_2 + \delta_{i3} L + u_i \quad i = 1, \dots, n \quad (1)$$

where Y is aggregate household expenditure, $N^* = (n_a + \rho n_c)^\theta$ is the economies of scale and equivalence scale adjusted measure of household size. n_a , n_c denote the number of adults, children, respectively, in the household and θ , ρ are the demographic parameters. D_1 , D_2 are dummy variables corresponding to households belonging to SC/ST and female headed households respectively. L is the size of landholdings owned by the household, and u_i is the stochastic error term. The estimates of θ , ρ , that have been reported for each State in Meenakshi

and Ray (2001, Table 3), are significant and well determined and show wide variation between the various regions. The State specific estimates, almost always, reject the hypothesis, $\theta = \rho = 1$, that is implicit in the use of the unadjusted household size as the expenditure deflator in the conventional use of per capita expenditure figures in the poverty calculations in India. The two sets of poverty estimates, namely, those corresponding to the use of N^* (adjusted household size) and N (unadjusted household size) are referred to below as OPL1, OPL2 respectively.

In contrast to the above poverty measures, which are based on the official poverty line (OPL), the study also estimates poverty based on alternative definitions of the poverty line. These include the concept of “relative poverty” with the poverty line defined as two-thirds of the sample median expenditure. In addition, we report poverty estimates using a “behaviourally determined” (BD) poverty measure where a household is considered “poor” if the cereal share of its budget exceeds 0.35, 0.40. These will be denoted as BD1, BD2, respectively. The basis for this poverty measure, also used by, for example, Rao (1981), and Lancaster, et.al. (1999), is Engel’s law which states that the share of food (cereals, in our case) is inversely related to household welfare. The behaviourally determined poverty measure has the advantage of not requiring knowledge of subsistence expenditure or poverty line. Consequently, in the context of intertemporal poverty comparisons, while information on prices relevant to the poor are needed by the conventional measures to construct year specific poverty lines, such information is not required in case of the behaviourally determined poverty measure. However, the principal disadvantage of the latter is the arbitrariness involved in the choice of any particular value as the cut off for the cereal share. Consequently, the evidence on the sensitivity of the poverty estimate to the cut off used, that is presented later, is of some policy interest.

The decomposition of the temporal change in poverty between the “pure growth” and the “inequality components” is made as follows. Following Kakwani and Pernia (2000), suppose η is the proportional change in poverty when there is a positive growth rate of 1%. This can be decomposed into two components, η_g and η_1 as follows:

$$\eta = \eta_g + \eta_1 \quad (2)$$

where η_g is the pure growth effect and η_1 is the inequality effect. η_g is the percentage change in poverty when the distribution of income does not change, while η_1 is the change in poverty when inequality changes in the absence of growth. The degree of pro-poor growth is measured by the index:

$$\phi = \frac{\eta}{\eta_g} \quad (3)$$

Three cases can now be distinguished.

Case 1: $\phi > 1$ which implies that growth is “pro-poor”, ie., the poor benefit proportionally more than the non poor.

Case 2: $0 < \phi < 1$ which implies that growth is not strictly pro-poor even though it still reduces poverty incidence.

Case 3: $\phi < 0$ which implies that economic growth actually leads to an increase in poverty.

3. Data and its Principal Features

The data for this study is provided by the unit record data on consumer expenditure in the rural areas collected for each of the States in India in the 50th round (1993/94) and the 55th round (1999/2000) of the National Sample Survey. In the 55th round, 71385 households in over 6000 villages were surveyed; the corresponding figure for the 50th round is 69206 households across nearly 7000 villages.² In both rounds, special efforts were made to canvass affluent households,

² In both rounds, well over 100,000 households were surveyed in both rural and urban areas.

typically believed to be under-represented in these consumer expenditure surveys. We also make use of net state domestic product figures made available to us from the National Accounts Statistics.

Notwithstanding some significant methodological differences in the measurement of consumer expenditure between the 55th round and the earlier large sample survey, some of which were noted earlier, the 50th and 55th rounds are considered broadly comparable given the focus of this study. For example, the change in the methodology regarding the change in reference period for the measurement of durable consumer goods may not be significant given the relative unimportance of durables in the poor household's basket of consumption; see, however, the contrary opinion expressed in Sen (2000). Note that though the 55th round reports expenditures on both 7-day and 30-day recall, we use only the latter for comparability with the earlier round. We need to however keep in mind that the 30-day estimate for poverty rate in 1999-2000 may not be fully comparable with the earlier estimate.

Since the poverty calculations were carried out for each State in rural India and at the all India level, we require the State specific and all India poverty lines in rural India for NSS rounds 50 (1993/94) and 55 (1999/2000). The former have been reported by Dubey and Gangopadhyay (1998, p. 56) and the latter in the Government of India (2001, Table 1) press release. To keep the calculations manageable, we excluded Union territories from our analysis. The list of 25 States, considered here, appears in Table 1. As already mentioned, the estimates of the equivalence scale parameters θ , ρ used in calculating the expenditure deflator, N^* , to arrive at the poverty rates, OPL1, were the State specific parameter estimates obtained and reported in our earlier study [Meenakshi and Ray (2001, Table 3)].

Table 1 presents the summary statistics in NSS Round 55 (1999/2000) of some of the principal variables of interest in this study.³ This table also contains the corresponding information on the SC/ST and Female headed households in each State. Household size and cereal share, in particular, vary considerably between States. The rich States of Punjab and Haryana have low average Cereal shares (0.12) while in the poorer States of Bihar and Orissa the average Cereal share rises to around 0.40. These figures are quite similar to the summary statistics from the NSS 50th round reported in Meenakshi and Ray (2001, Table 1). While, not surprisingly, the percentage of households who belong to SC/ST groups varies widely between the various States, it is interesting to note that this is also true of the female headed households. Kerala has the highest percentage of female headed households in the sample (24.42%) and Arunachal Pradesh the lowest (5.68%). In per capita terms, the female headed households enjoy, in most States, higher aggregate expenditure than the others. However, as we report later, this picture of relative affluence of such households changes drastically if we allow size economies of scale and non identical consumption needs between adults and children. The female headed households are smaller sized and have less children than others.

Table 2 presents the correlation estimates between the State wise mean values of the principal variables of interest. The table reports the rank correlation estimates at the all India level and, also, separately for the SC/ST and female headed households. Notwithstanding large fluctuations in the correlation magnitudes, there is general consensus on the qualitative results, namely, a significant positive correlation between household size and number of children and a negative correlation between cereal share and per capita total expenditure.

³ In this and the tables that follow, we use household-specific sampling weights (rather than per capita weights) in calculating averages, head count ratios, and so on.

4. Results

Table 3 provides evidence on the sensitivity of the headcount measures of household poverty to the alternative poverty measures by reporting them for each State in the NSS 55th round. The incorporation of adult/child relativities and economies of household size in the expenditure deflator leads to an increase in the headcount poverty rates in case of some, though not all, States, over the conventional measures based on per capita expenditure. The increase is quite large for the more populous States, for example, Bihar (51% to 61.8%), Madhya Pradesh (44.9% to 50.9%), Uttar Pradesh (37.1% to 41.3%) and West Bengal (33.5% to 35.7%). It is important to recognise, however, that the demographic adjustment leads to a reverse movement in the headcount poverty rates of several other States. However, the All India figures, reflecting the upward movement for the larger States, show a fairly significant increase in the poverty rates, thus, pointing to the importance of demographic adjustment in the poverty calculations. The cereal share based poverty estimates of the States are completely out of line with the poverty line based estimates. However, one ought to treat these estimates with caution since the budget share of cereals reflects, besides household welfare, sharp taste differences between the different regions in India – see Meenakshi and Ray (1999) for detailed evidence on such regional variation in consumer preferences. The relative poverty rates, implied by the use of two-thirds sample median as the poverty line, lead to a large fall in the poverty rates in case of several States (eg. Bihar, Uttar Pradesh and West Bengal) from the conventional measures (OPL1, OPL2), and this is reflected in the All India figures.

Table 4 presents the State wise estimates of the headcount poverty rates, using the alternative expenditure deflators, for the SC/ST and female headed households.⁴ While, in

⁴ Note that given the small percentage of such households in many states (see Table 1), the poverty and inequality calculations are often based on extremely small sample sizes, and should best be used as indicative of trends.

common with the results presented in Table 3, the use of equivalent scales as the expenditure deflator leads to an increase in the poverty rates in the large States such as Bihar, Uttar Pradesh and West Bengal, the increase is particularly marked and, for nearly all the States, in case of female headed households. This is reflected in a 50% increase in the household poverty rate of female headed households at the all India level. The smaller size of such households and the general absence of children in them prevents such households from exploiting the adult child relativities and economies of household size. Consequently, the poverty rate of female headed households increases, almost always and quite sharply, in the presence of household size and composition. A comparison of Tables 3 and 4 shows that both the disadvantaged household groups register higher poverty rates than the general population. Between these two groups, the SC/ST households register higher poverty rates than the female headed households on the basis of the per capita (ie., unadjusted) figures. However, the difference narrows and, in some cases, reverses its sign on the incorporation of adult/child relativities and economies of household size in the poverty calculations.

To highlight these contrasts, head count ratios for four states are compared graphically in Figure 1. The use of unadjusted head count ratios indicates that female-headed households have a lower incidence of poverty than all households, as one might expect given the higher per capita expenditures in female-headed households. However, when their smaller household size is taken into account, not only do relative differences shrink, but female headed households are seen to be considerably *worse-off* as compared to all households in states such as Madhya Pradesh and West Bengal. Similarly, while unadjusted head count ratios of poverty are higher among SC/ST than all households in most states, the magnitude of difference widens when size-and-composition adjusted figures are used.

Table 5 presents the Gini coefficients of expenditure inequality, for each State, in the 55th round, using the alternative expenditure deflators. Almost without exception, the incorporation of household composition differences and economies of household size leads to a decline in expenditure inequality. This is reflected in the decline in inequality at the All India level which contrasts with the rise in household poverty reported in Table 3 and 4. The female headed households exhibit higher inequality, and the SC/ST households record lower inequality than the rest of the population. The lack of employment opportunities explains the equalisation of incomes among the backward classes, even though it is accompanied by higher poverty rates in them than the other groups in society.

Tables 6, 7 provide evidence on the changes to poverty and inequality, respectively, during the reforms period by presenting the corresponding estimates in NSS round 50 and 55. The decline in household poverty between 1993/94 and 1999/2000 is true for nearly every State and for all household groups. However, as noted earlier, a part of this decline may well be merely statistical rather than real reflecting a change in the methodologies used between NSS rounds 50 and 55. The magnitude of the decline in poverty varies widely between the various States. It should be noted that the head count ratios based on two-thirds median income, as well as those based on the behaviorally-determined cereal shares BD1 and BD2, also indicate a decline in poverty, although the magnitude of decrease is not as great (results not presented for reasons of space). This is further evidence that the 1990s have been characterized by a decline in poverty.

However, notwithstanding the decade of reforms, the SC/ST and female headed households continue to register higher poverty rates than the general population. Consequently, in 1999/2000, these disadvantaged groups experienced high poverty levels that are comparable to

that experienced by the others at the beginning of the reforms period. Table 7 shows that the reforms period was characterised by a general decline in expenditure inequality for all the household groups. However, at the end of the '90s, female headed households continue to register sharply higher inequality than the other groups in society.

Finally, Table 8 presents estimates of poverty decomposition (η and ϕ) as proposed by Kakwani and Pernia (2000). In calculating these parameters, we use state-specific growth rates in real per capita state domestic product, so as to account for differential growth patterns among states. However, since these growth rates are not available separately for rural and urban areas, we use the aggregate net SDP growth rate per capita. The evidence indicates that growth between 1993/94 and 1999/2000 has been strictly pro-poor (with $\phi > 1$) in about half the states. Kakwani and Pernia propose a slight relaxation of the cut off used to determine whether growth has been pro-poor and suggest using $\phi > 0.66$ as being indicative of pro-poor growth. With this weaker criterion, about two-thirds of the states had pro-poor growth. At the all-India level, growth has pro-poor, irrespective of whether unadjusted or adjusted head count ratios are used as the poverty measure. It is important to note and stress, however, that, on the strict definition ($\phi \leq 1$), growth in the '90s has not been "pro-poor" in several of the larger States, eg, Karnataka, Madhya Pradesh, Uttar Pradesh and West Bengal.

5. Conclusions:

While our results point to a general decline in poverty and inequality in India in the '90s, it is important to note that economic growth during the period of reforms has not been "pro poor" in several States, including some of the most populous ones. Moreover, at the end of the '90s, several regions and groups continue to experience high levels of poverty and relative deprivation.

There exist distinctly disadvantaged social groups in the country—the scheduled caste/scheduled tribe and female headed households, who continue to fare worse than other households, despite an improvement in their standards of living as well. These disparities are highlighted when the distinct demographic composition of such households is taken into account. Indeed, in the case of female-headed households, it is only when their distinct demographic composition is taken into account, that the fact that they are worse off than other households becomes apparent in many states. The persistence of these disparities suggests that anti-poverty programmes should target these vulnerable households.

^a The figures denote sample means; the per capita total expenditure figures relate to expenditure over 30 days.

Table 1: Summary Statistics of Key Variables^a in NSS 55th Round (1999/2000)

State	Sample Size	All Households				SC/ST Households					Female Headed Households				
	No of Households	Per Capita Total Expenditure (RS)	Household Size	No. of Children Per Household	Cereal Share	% Living in SC/ST Households	Per Capita Total Expenditure (RS)	Household Size	No of Children per Household	Cereal Share	% Living in Female Headed Households	Per Capita Total Expenditure (RS)	Household Size	No of Children per Household	Cereal Share
Andhra Pradesh	5181	495.76	4.09	1.34	0.26	28.99	408.37	4.16	1.50	0.29	12.59	536.75	2.47	0.67	0.25
Arunachal Pradesh	827	761.99	4.98	1.97	0.26	73.21	786.68	5.20	2.04	0.26	5.68	854.62	3.70	1.41	0.23
Assam	3488	449.23	5.49	2.01	0.33	26.39	446.21	5.61	2.01	0.35	7.88	478.66	4.33	1.33	0.31
Bihar	7261	409.18	5.29	2.20	0.34	30.64	359.40	4.86	2.03	0.37	9.29	430.31	3.64	1.76	0.33
Goa	192	1005.19	4.79	1.06	0.17	1.99	1908.32	2.13	0.00	0.10	18.70	1142.77	3.69	0.73	0.17
Gujarat	2479	598.10	4.97	1.65	0.16	1.49	492.69	4.77	1.64	0.18	6.24	635.28	2.66	0.76	0.15
Haryana	1132	744052	5.56	2.10	0.12	24.39	654.47	5.60	2.17	0.15	8.24	952.20	4.03	1.65	0.11
Himachal Pradesh	1634	781.04	4.62	1.51	0.19	26.71	652.70	4.73	1.68	0.21	21.90	840.53	3.76	1.33	0.17
Jammu & Kashmir	1440	727.21	5.21	1.63	0.21	9.19	585.13	5.22	2.06	0.22	5.90	891.34	3.07	1.10	0.17
Karnataka	2750	537.54	4.89	1.61	0.21	28.37	445.94	4.71	1.72	0.21	12.99	516.61	3.47	0.88	0.22
Kerala	2604	848.36	4.56	1.18	0.16	11.70	675.23	4.50	1.11	0.18	24.42	859.41	4.23	1.20	0.16
Madhya Pradesh	5118	428.44	5.34	2.09	0.28	45.05	367.25	5.04	2.05	0.31	6.45	453.47	3.07	1.15	0.28
Maharashtra	4107	541.89	4.73	1.64	0.19	30.43	440.42	4.60	1.74	0.21	9.32	582.40	2.79	0.85	0.19
Manipur	726	554.58	5.20	1.72	0.40	51.38	540.78	5.06	1.59	0.41	10.09	549.03	4.30	1.24	0.39
Meghalaya	933	595.24	5.08	1.97	0.24	93.31	593.92	5.10	1.97	0.24	23.04	620.24	4.55	1.52	0.23
Mizoram	426	785.43	5.22	1.89	0.20	94.81	788.39	5.23	1.88	0.20	7.72	929.18	4.05	1.16	0.17
Nagaland	480	1015.23	5.03	1.64	0.23	92.75	1002.53	5.16	1.70	0.23	11.68	1052.26	3.46	0.91	0.23
Orissa	3381	393.85	4.63	1.54	0.39	49.37	337.90	4.41	1.56	0.42	9.49	419.04	3.10	1.09	0.37
Punjab	2138	788.30	5.45	1.79	0.11	41.19	632.97	5.22	1.95	0.13	8.10	893.31	4.21	1.54	0.11
Rajasthan	3229	596.53	5.72	2.34	0.19	37.56	535.47	5.50	2.38	0.21	7.82	614.06	3.79	1.74	0.18
Sikkim	1056	607.78	4.63	1.58	0.18	33.91	615.94	4.35	1.51	0.18	9.54	648.90	4.03	0.96	0.18
Tamil Nadu	4137	548.49	4.04	1.14	0.20	30.39	457.44	4.19	1.28	0.21	15.05	543.20	2.85	0.66	0.20
Tripura	1023	547.97	4.63	1.62	0.31	35.28	531.02	4.60	1.64	0.31	8.50	501.59	3.24	0.92	0.31
Uttar Pradesh	9313	505.53	5.73	2.44	0.23	27.92	431.39	5.35	2.35	0.26	9.16	498.34	4.12	2.03	0.24
West Bengal	4497	486.60	5.10	1.87	0.33	35.62	452.24	4.86	1.75	0.35	7.16	499.77	3.54	1.14	0.32

^a The figures denote sample means; the per capita total expenditure figures relate to expenditure over 30 days.

Table 2: Correlation Between the State Mean Values of the Variables in 55th Round

	All Households			
	Per Capita Total Expenditure	Household Size	No of Children	Cereal Share
Per Capita Total Expenditure	1.00	-0.0225	-0.3561	-0.6010
Household Size		1.00	0.8479 ^a	-0.0090
No of Children			1.00	0.1745
Cereal Share				1.00
	SC/ST Households			
Per Capita Total Expenditure	1.00	-0.6220 ^a	-0.6856 ^a	-0.5213 ^a
Household Size		1.00	0.9300 ^a	0.2421
No of Children			1.00	0.2638
Cereal Share				1.00
	Female Headed Households			
Per Capita Total Expenditure	1.00	0.2372	-0.0624	-0.6741 ^a
Household Size		1.00	0.6440 ^a	-0.0463
No of Children			1.00	0.0111
Cereal Share				1.00

^a Statistically significant at 5% level.

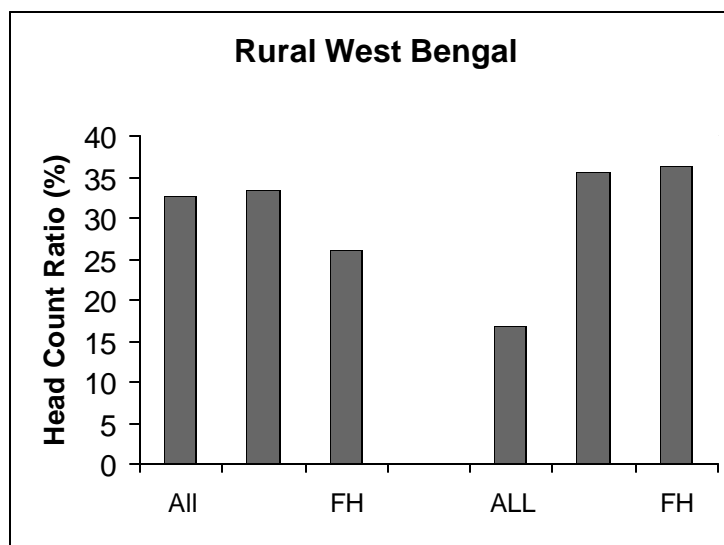
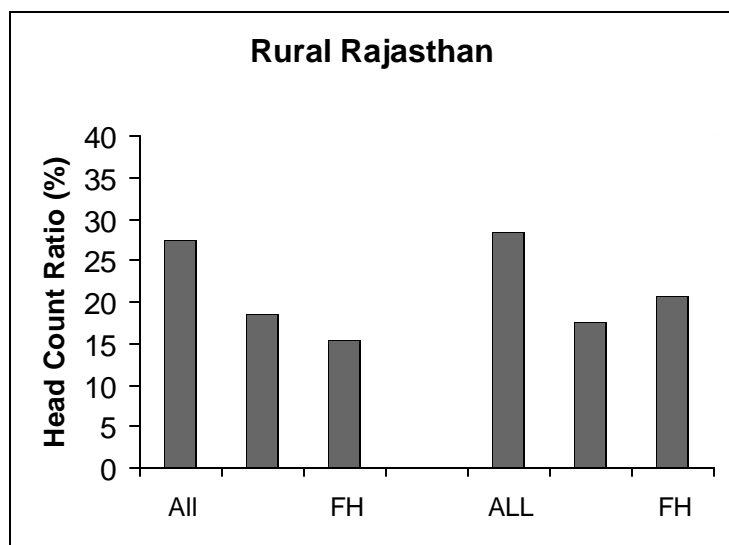
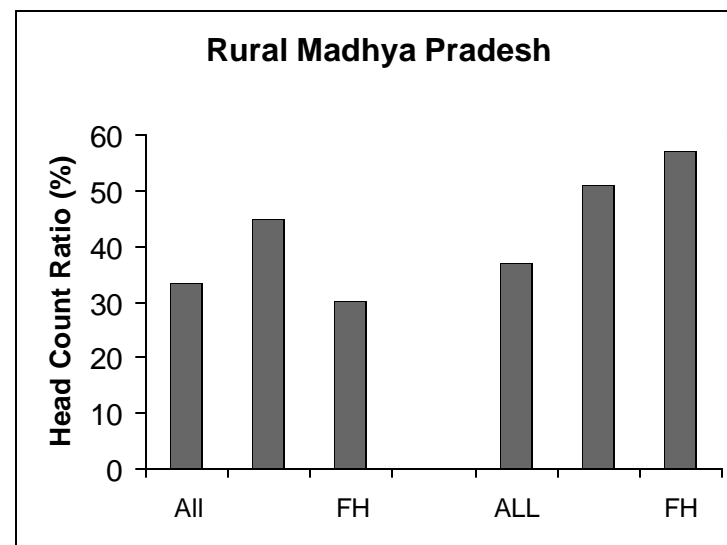
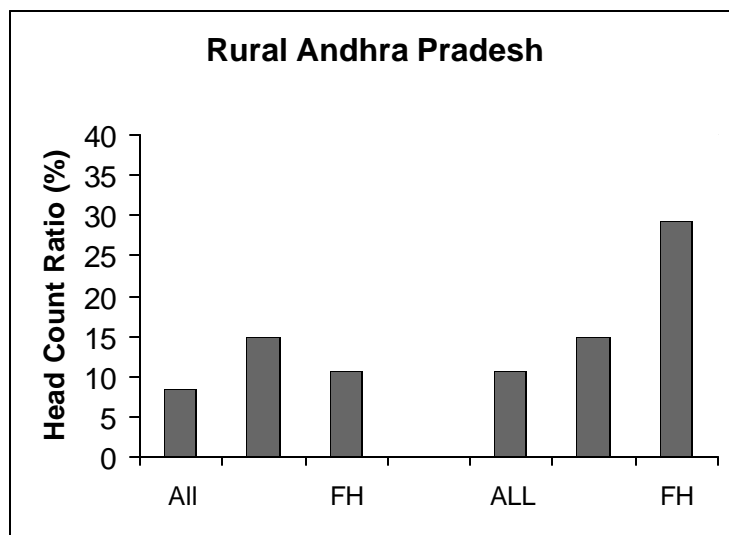
Table 3: Head Count Poverty Rates in 55th Round for All Households

State	Based on Official Poverty Line (OPL)		Cereal Ratio ^a		Relative Poverty Based on 2/3 of Sample Median
	Adjusted (OPL 1)	Unadjusted (OPL 2)	BD 1 (0.35)	BD 2 (0.40)	
Andhra Pradesh	10.8	8.4	19.0	10.0	12.7
Arunachal Pradesh	15.2	17.4	21.3	12.1	13.0
Assam	38.6	35.2	40.5	24.4	12.4
Bihar	44.6	38.9	44.6	29.0	10.8
Goa	0.0	0.0	7.8	1.3	19.8
Gujarat	10.1	9.8	2.8	2.0	15.1
Haryana	6.3	6.8	0.3	0.2	17.2
Himachal Pradesh	4.8	6.1	3.4	2.0	16.5
Jammu & Kashmir	2.1	2.9	1.7	0.3	9.9
Karnataka	14.0	13.9	7.2	4.4	13.9
Kerala	6.7	7.2	1.9	1.5	17.8
Madhya Pradesh	37.1	33.3	26.8	17.4	14.1
Maharashtra	20.0	19.4	6.2	4.2	17.2
Manipur	18.1	12.9	64.4	46.3	7.0
Meghalaya	4.4	4.7	3.6	0.7	5.2
Mizoram	3.6	2.6	4.1	0.3	13.7
Nagaland	0.6	0.2	7.7	3.3	8.8
Orissa	47.5	44.5	64.1	49.4	14.4
Punjab	3.7	4.7	0.5	0.5	14.4
Rajasthan	10.2	11.1	2.7	1.3	12.0
Sikkim	21.2	16.4	7.8	6.8	12.3
Tamil Nadu	18.3	16.8	5.5	2.9	16.8
Tripura	15.2	15.5	27.4	12.7	10.8
Uttar Pradesh	29.0	26.6	12.5	6.1	14.6
West Bengal	28.4	27.5	41.1	25.0	14.4
All India	24.5	22.5	20.2	12.7	16.5

**Table 4: Head Count Poverty Rates in 55th Round
for SC/ST and Female Headed Households**

State	SC/ST		Female Headed Households	
	Adjusted (OPL1)	Unadjusted (OPL2)	Adjusted (OPL1)	Unadjusted (OPL2)
Andhra Pradesh	14.9	14.9	29.2	10.7
Arunachal Pradesh	15.7	19.0	4.7	15.0
Assam	38.4	36.6	49.4	33.1
Bihar	61.8	51.5	57.1	36.6
Goa	0.0	0.0	0.0	0.0
Gujarat	17.9	17.8	18.6	7.2
Haryana	15.3	15.3	3.1	5.1
Himachal Pradesh	5.6	8.9	4.0	5.3
Jammu & Kashmir	9.2	10.7	3.1	2.6
Karnataka	20.8	21.2	24.7	15.3
Kerala	13.0	13.2	13.5	11.1
Madhya Pradesh	50.9	44.9	57.2	30.2
Maharashtra	32.7	32.4	27.7	12.5
Manipur	26.6	17.7	31.3	14.7
Meghalaya	4.2	4.5	4.4	4.4
Mizoram	3.5	2.7	8.8	0.0
Nagaland	0.4	0.0	3.9	1.8
Orissa	63.1	57.9	48.5	39.5
Punjab	7.4	9.3	4.8	5.1
Rajasthan	17.7	18.6	20.8	15.5
Sikkim	17.2	13.0	19.8	14.1
Tamil Nadu	24.7	27.5	39.9	17.5
Tripura	18.7	18.0	40.5	28.8
Uttar Pradesh	41.3	37.1	39.9	27.5
West Bengal	35.7	33.5	36.30	26.0
All India	35.8	33.1	30.10	20.40

Figure 1: Comparison of Adjusted and Unadjusted Head Count Ratios by Social Group, 55th Round 1999/2000, Selected States



**Table 5: Gini Inequality Estimates in Round 55
Under Alternative Expenditure Deflators**

State	All Households		SC/ST		Female Headed Households	
	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted
Andhra Pradesh	0.231	0.259	0.204	0.218	0.271	0.298
Arunachal Pradesh	0.290	0.342	0.305	0.3563	0.268	0.365
Assam	0.195	0.209	0.190	0.198	0.217	0.235
Bihar	0.204	0.221	0.170	0.203	0.219	0.240
Goa	0.249	0.301	0.042	0.132	0.270	0.366
Gujarat	0.226	0.251	0.202	0.236	0.232	0.259
Haryana	0.242	0.255	0.206	0.217	0.285	0.312
Himachal Pradesh	0.233	0.275	0.200	0.232	0.233	0.262
Jammu & Kashmir	0.190	0.205	0.196	0.202	0.199	0.225
Karnataka	0.234	0.257	0.188	0.214	0.220	0.231
Kerala	0.281	0.307	0.231	0.259	0.335	0.356
Madhya Pradesh	0.240	0.258	0.205	0.224	0.248	0.260
Maharashtra	0.252	0.283	0.230	0.262	0.250	0.257
Manipur	0.199	0.198	0.218	0.215	0.199	0.209
Meghalaya	0.147	0.168	0.145	0.165	0.123	0.153
Mizoram	0.184	0.225	0.187	0.223	0.164	0.220
Nagaland	0.190	0.206	0.188	0.196	0.179	0.189
Orissa	0.241	0.258	0.213	0.235	0.255	0.245
Punjab	0.241	0.257	0.194	0.223	0.260	0.74
Rajasthan	0.203	0.232	0.201	0.238	0.244	0.258
Sikkim	0.332	0.260	0.337	0.249	0.350	0.271
Tamil Nadu	0.276	0.289	0.244	0.268	0.302	0.295
Tripura	0.184	0.198	0.187	0.200	0.181	0.197
Uttar Pradesh	0.243	0.267	0.218	0.240	0.246	0.266
West Bengal	0.215	0.239	0.216	0.234	0.230	0.236
All India	0.250	0.279	0.229	0.252	0.281	0.298

**Table 6: Comparison of Household Poverty^a Between
Round 50 (1993/94) and Round 55 (1999/2000)**

State	All Households		SC/ST		Female Headed Households	
	Round 50	Round 55	Round 50	Round 55	Round 50	Round 55
Andhra Pradesh	30.0	10.8	43.8	14.9	56.4	29.2
Arunachal Pradesh	45.1	15.2	47.5	15.7	76.9	4.7
Assam	58.8	38.6	58.9	38.4	76.0	49.4
Bihar	65.4	44.6	79.3	61.8	74.9	57.1
Goa	7.4	0.0	0.0	0.0	15.5	0.0
Gujarat	27.1	10.1	37.3	17.9	35.9	18.6
Haryana	24.8	6.3	40.9	15.3	17.7	3.1
Himachal Pradesh	27.4	4.8	39.4	5.6	21.3	4.0
Jammu & Kashmir	13.9	2.1	18.1	9.2	12.0	3.1
Karnataka	33.1	14.0	46.4	20.8	44.6	24.7
Kerala	28.6	6.7	44.1	13.0	33.1	13.5
Madhya Pradesh	36.8	37.1	48.2	50.9	55.5	57.2
Maharashtra	50.9	20.0	65.0	32.7	56.8	27.7
Manipur	33.6	18.1	43.2	26.6	40.9	31.3
Meghalaya	27.8	4.4	28.1	4.2	12.7	4.4
Mizoram	9.9	3.6	10.1	3.5	7.9	8.8
Nagaland	3.5	0.6	3.7	0.4	7.2	3.9
Orissa	55.1	47.5	66.3	63.1	53.7	48.5
Punjab	13.0	3.7	22.8	7.	13.3	4.8
Rajasthan	24.0	10.2	38.7	17.7	33.2	20.8
Sikkim	36.8	21.2	42.3	17.2	38.6	19.8
Tamil Nadu	42.2	18.3	54.8	24.7	62.1	39.9
Tripura	30.7	15.2	40.4	18.7	58.5	40.5
Uttar Pradesh	41.4	29.0	57.9	41.3	53.4	39.9
West Bengal	52.1	28.4	62.6	35.7	68.0	36.30
All India	41.8	24.5	54.6	35.80	52.9	30.10

^aThe inequality estimates are “adjusted”, ie., based on per adult equivalent expenditure figures.

Table 7: Comparison of Gini Inequality^a Between Round 50 (1993/94) and Round 55 (1999/2000)

State	All Households		SC/ST		Female Headed Households	
	Round 50	Round 55	Round 50	Round 55	Round 50	Round 55
Andhra Pradesh	0.290	0.231	0.264	0.204	0.302	0.271
Arunachal Pradesh	0.304	0.290	0.302	0.305	0.281	0.268
Assam	0.177	0.195	0.147	0.190	0.233	0.217
Bihar	0.227	0.204	0.216	0.170	0.250	0.219
Goa	0.311	0.249	0.213	0.042	0.288	0.270
Gujarat	0.224	0.226	0.198	0.202	0.206	0.232
Haryana	0.312	0.242	0.258	0.206	0.332	0.285
Himachal Pradesh	0.282	0.233	0.250	0.200	0.297	0.233
Jammu & Kashmir	0.239	0.190	0.211	0.196	0.226	0.199
Karnataka	0.257	0.234	0.229	0.188	0.238	0.220
Kerala	0.291	0.281	0.212	0.231	0.334	0.335
Madhya Pradesh	0.281	0.240	0.232	0.205	0.291	0.248
Maharashtra	0.297	0.252	0.257	0.230	0.289	0.250
Manipur	0.160	0.199	0.169	0.218	0.189	0.199
Meghalaya	0.244	0.147	0.243	0.145	0.165	0.123
Mizoram	0.166	0.184	0.167	0.187	0.172	0.164
Nagaland	0.150	0.190	0.152	0.188	0.141	0.179
Orissa	0.244	0.241	0.218	0.213	0.244	0.255
Punjab	0.276	0.241	0.258	0.194	0.402	0.260
Rajasthan	0.260	0.203	0.282	0.201	0.279	0.244
Sikkim	0.322	0.332	0.360	0.337	0.336	0.350
Tamil Nadu	0.308	0.276	0.250	0.244	0.332	0.302
Tripura	0.240	0.184	0.242	0.187	0.251	0.181
Uttar Pradesh	0.283	0.243	0.259	0.218	0.329	0.246
West Bengal	0.249	0.215	0.200	0.216	0.279	0.230
All India	0.282	0.250	0.252	0.229	0.312	0.281

^aThe inequality estimates are “adjusted”, ie., based on per adult equivalent expenditure figures.

**Table 8: Poverty Decomposition between
Round 50 (1993/94) and Round 55 (1999/2000)**

State	Based on Unadjusted Poverty Calculations		Based on Size-Composition Adjusted Poverty Calculations	
	h	f	h	f
Andhra Pradesh	-4.3	1.2	-4.0	1.2
Arunachal Pradesh	-11.2	3.7	-12.7	5.0
Assam	-9.7	3.8	-10.0	3.8
Bihar	-3.6	2.0	-3.1	2.0
Goa	-18.6	6.6	b	b
Gujarat	-2.9	0.8	-2.9	0.7
Haryana	-6.0	1.7	-6.2	1.7
Himachal Pradesh	-4.5	1.3	-5.1	1.4
Jammu & Kashmir	-9.8	2.0	-11.7	2.4
Karnataka	-2.3	0.8	-2.3	0.8
Kerala	-4.7	1.7	-4.9	1.7
Madhya Pradesh	0.1	0.0	0.1	0.0
Maharashtra	-4.0	2.1	-4.3	2.0
Manipur	-3.9	0.7	-2.9	0.6
Meghalaya	-7.2	1.8	-7.3	1.6
Mizoram	-5.5	1.0	-4.5	0.9
Nagaland	a	a	a	a
Orissa	-1.4	0.6	-1.3	0.6
Punjab	-6.3	1.3	-7.3	1.6
Rajasthan	-2.4	0.7	-2.9	0.7
Sikkim	-1.9	0.5	-1.7	0.5
Tamil Nadu	-2.2	0.8	-2.2	0.9
Tripura	-1.7	0.5	-1.9	0.6
Uttar Pradesh	-1.7	0.7	-1.7	0.8
West Bengal	-1.6	0.5	-1.7	0.6
All India	-2.4	1.0	-2.4	1.0

Notes: a: Poverty declined in Nagaland, although there was no appreciable change in the income growth rate.
b: There was no poverty in Goa using the adjusted head count ratio in 1999/2000.

References

- Bhalla, S. (2000), "World Bank – We Have a Poverty Problem", *Economic Times*, January 18.
- Buhmann, B., Rainwater, L., Schmaus, G. and T. Smeeding (1988), "Equivalence Scales, Well-Being, Inequality and Poverty: Sensitivity Across Ten Countries Using the Luxembourg Income Study (LIS) Database", *Review of Income and Wealth*, 94, 115-142.
- Coulter, F.A.E., Cowell, F.A. and S.P. Jenkins (1992), "Equivalence Scale Relativities and the Extent of Inequality and Poverty", *Economic Journal*, 102, 1067-1082.
- Datt, G. and M. Ravallion (1992), "Growth and Redistribution Components of Changes in Poverty Measures", *Journal of Development Economics*, 38, 275-295.
- Datt, G. and M. Ravallion (1998), "Why Have Some Indian States Done Better than Others in Reducing Rural Poverty?", *Economica*, 65, 17-38.
- Dreze, J. and P.V. Srinivasan (1996), *Poverty in India: Regional Estimates, 1987-88*", Discussion Paper No. 70, London School of Economics – STICERD, February.
- Dreze, J. and P.V. Srinivasan (1997), "Widowhood and Poverty in Rural India: Some Influences from Household Survey Data", *Journal of Development Economics*, 54(2), 217-234.
- Dubey, A. and S. Gangopadhyay (1998), *Counting the Poor: Where Are the Poor in India?*, Sarvekshara, Analytical Report No. 1, Department of Statistics, Government of India.
- Government of India (2001), *Poverty Estimates for 1999-2000*, New Delhi, February 22.
- Jain, L.R. and S.D. Tendulkar (1990), *Role of Growth and Distribution in the Observed Change of Headcount Ratio – Measure of Poverty: A Decomposition Exercise for India*, Technical Report No. 9004 (Indian Statistical Institute, New Delhi).
- Jha, R. (2000), *Reducing Poverty and Inequality in India: Has Liberalisation Helped?*, Indian Gandhi Institute of Development Research, Mumbai.
- Kakwani, N. and E.N. Pernia (2000), "What is Pro-Poor Growth?", *Asian Development Review*, 18(1), 1-16.
- Lal, D., Natarajan, I. and R. Mohan (2000), *Economic Reforms and Poverty Alleviation – A Tale of Two Surveys*, NCAER, New Delhi.
- Lancaster, G., Ray, R., and R. Valenzuela (1999), "A Cross Country Study of Household Poverty and Inequality on Unit Record Household Budget Data", *Economic Development and Cultural Change*, 48(1), 177-208.
- Meenakshi, J.V. and R. Ray (1999), "Regional Differences in India's Food Expenditure Pattern: A Complete Demand Systems Approach", *Journal of International Development*, 11, 47-74.
- Meenakshi, J.V. and R. Ray (2001), "Impact of Family Size and Composition on Poverty in Rural India", forthcoming in *Journal of Policy Modeling*.
- National Sample Survey Organisation, Government of India (1996), *Level and Pattern of Consumer Expenditure, NSS 50th round, July 1993 – June 94*, Report no. 402.

- National Sample Survey Organisation, Government of India (2001), *Level and Pattern of Consumer Expenditure in India, NSS 55th round, July 1999 – June 2000*, Report no. 457.
- NSSO Expert Group on Non-Sampling Errors (2001), “Results of a Pilot Survey on Suitability of Different Reference Periods for Measuring Household Consumption” mimeo.
- Palmer-Jones, R. and K. Sen (2001), “On India’s Poverty Puzzles and Statistics of Poverty”, *Economic and Political Weekly*, 36(3), 211-217.
- Rao, V.V. (1981), “Measurement of Deprivation and Poverty Based on the Proportion Spent on Food”, *World Development*, 9(4), 337-353.
- Ravallion, M. (2001), “Should Poverty Measures Be Anchored to the National Accounts?”, *Economic and Political Weekly*, 35, 3245-3252.
- Sen, A. (1996), “Economic Reforms, Employment and Poverty: Trends and Options”, *Economic and Political Weekly*, 31, 2459-78.
- Sen, A. (2000), “Estimates of Consumer Expenditure and its Distribution: Statistical Priorities After NSS 55th Round”, *Economic and Political Weekly* 35, 4499-4518.