

Poverty Has Declined in the 1990s: A Resolution of Comparability Problems in NSS Consumer Expenditure Data

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Poverty *Has* Declined in the 1990s

A Resolution of Comparability Problems in NSS Consumer Expenditure Data

In debates over Indian poverty trends in the 1990s, questions have been raised about the comparability of the quinquennial 50th and 55th rounds of the consumer expenditure survey (CES) carried out by the National Sample Survey Organisation in 1993-94 and 1999-2000.

These focus on possible interference between alternative reference periods used to elicit expenditure data from sampled households. This paper resolves these concerns, using comparable consumer expenditure data from the employment-unemployment survey (EUS) of the 55th round, as well as data from four experimental rounds of the CES, conducted between the quinquennial larger scale 50th and 55th rounds. It shows that the size distributions of consumer expenditure from the 55th round CES are comparable to ones from the 50th round – subject to appropriate recalculation – and that there is accordingly unambiguous evidence that poverty in India declined in the 1990s, in all dimensions. Indeed, the average annual rate of reduction in the last six years of the 1990s is shown to have been higher than that between 1982 and 1993.

K SUNDARAM, SURESH D TENDULKAR

I CES Comparability Problems, Solutions and Implications

In the recent debates about poverty trends in India across the 1990s (see for example, Sen (2000)), questions have been raised about the monthly per capita total consumer expenditures (PCTE) reported in the National Sample Surveys Organisations (NSSO) consumer-expenditure surveys (CES). The concerns focus on two issues of non-comparability between the quinquennial 50th and 55th rounds of the CES, collected in 1993-94 and 1999-2000 respectively. It has been argued that because of these problems, the 55th round survey for 1999-2000 might have overstated consumer expenditures. The present article provides a resolution of these problems. It shows that there is accordingly unambiguous evidence that poverty in India *did* decline in the 1990s – in all dimensions. Indeed, the average annual rate of reduction in the last six years of the decade is shown to have been higher than that recorded during the preceding 10½ years.

The primary and most widely debated problem is that information in the 55th round CES concerning household spending on a frequently purchased group of food items – comprising ‘food, paan, tobacco and intoxicants’ and henceforth referred

to as ‘the food group’¹ – was canvassed on two alternative reference or recall periods of 30 days and 7 days, among the *same* set of households, and recorded on the schedule of enquiry in blocks juxtaposed side-by-side. While only 30-day based reporting was published in the 55th round CES, critics maintain that this reporting may have been biased if households were first canvassed on the 7-day reference period, and subsequently extrapolated this to the 30-day entry by rough multiplicative adjustment. If this were indeed true, then there would be strong grounds to believe that the 55th round *overstated* consumer expenditures.

The second and less widely recognised problem is that in the 55th round, information on certain infrequently purchased items – namely ‘clothing’, ‘footwear’, ‘durables’, ‘education’ and ‘health care’ (institutional) – was collected only on a 365-day reference period. The published results for all remaining items were based on a 30-day reference period. Accordingly, in the published results the size-distributions of PCTE as per the NSS 55th round consumer expenditure survey for 1999-2000 are based on a mixed reference period (MRP). In contrast, the published size-distributions of PCTE from the NSS 50th round survey are based on data collected with a uniform reference period (URP) of

30-days for all items of expenditure. This was also true for the published results of all earlier quinquennial surveys in 1972-73, 1977-78, 1983 and 1987-88.

These comparability problems are not intractable, however. In Sections II through IV, we resolve the first one, showing that the size-distribution of consumer expenditure from the 55th round of CES is indeed based on an unbiased 30-day recall. To establish this we compare the CES results with consumer expenditure data from 55th round’s employment-unemployment survey (EUS), which was canvassed on an independent sample of households distinct from those in CES but from the same universe of population and used only 30-day recall period for items in the food group. It is then ascertained whether the observed differences between the CES and EUS could be attributed to the possible biases introduced in the CES estimates by canvassing the households expenditure on these items on two alternative recall periods. This is done by comparing the EUS-CES differential with the average difference in the estimates of consumer expenditure on these items emerging from *independent schedules* with 7- and 30-day recall periods canvassed on independent samples during the experimental annual CES surveys conducted from the 51st to the 54th rounds of NSS.

The reasoning behind this method is relatively straightforward. Unlike earlier quinquennial rounds, enquiries on both the 55th round CES and the EUS were canvassed on two *independent* samples of households drawn from *the same universe* of population. In addition, consumer expenditures in the EUS were canvassed with a 30-day reference period – except for clothing, footwear, durables, etc, canvassed on a 365-day recall. On this score, a size-distribution based on the EUS is therefore comparable to the published results of the 55th round CES.

In making this comparison between the estimates of consumer expenditure from the 55th round CES and EUS, note needs to be taken of the fact that the latter are based on a highly abridged recording schedule used by the EUS, which factor imparts a *downward* bias to its results.²

An independent estimate for the possible magnitude of difference that would be expected between a 7-day recall and a 30-day recall is provided by the four annual 'thin' rounds (51st to 54th) of CES, conducted in 1994-95, 1995-96, 1996-97 and January-June 1998. For the specified items, these canvassed both a 30-day reference period and a 7-day reference period on independent set of sample households in each round. A key finding of this exercise was that estimates based on 7-day recall were considerably higher than corresponding estimates based on 30-day recall over the four rounds. The difference, averaged over the four rounds, accordingly provides a benchmark for evaluating the observed differences between the EUS and CES.

Given the underestimation inherent in the EUS because of the use in the EUS of an abridged schedule, if the CES estimates on the 30-day recall had indeed been biased upwards by interference from the 7-day reference canvassing, then the CES estimates must exceed corresponding EUS estimates by a margin greater than the average 7- vs 30-day difference indicated by the annual rounds.

As set out in Section IV, this is not the case. Rather, it is shown that for as many as eight item groups out of nine distinguished in the EUS under the food group, the excess of CES estimates over the corresponding EUS estimates, as a percentage of the EUS estimate, is well-below the average 7-day/30-day difference derived from the four annual rounds. It is also shown that in all cases, differences are consistent with the expected effects of the use in the EUS of a highly abridged

schedule. This result is shown to hold not only at the aggregate level of the entire population, but also at the disaggregated level comprising fractile groups for the rural and urban populations, each taken separately. We accordingly draw the conclusion that the 55th round CES estimates on the 30-day recall have not been interfered with by the canvassing from the same households of consumer expenditures on these items also on the 7-day recall.

This, in turn, leads us to infer that the published results of the 55th round consumer expenditure survey are comparable to the size-distribution of the 50th round – once the latter has been recalculated on an MRP basis in order to resolve the second comparability problem noted above.

This recalculation of the 50th round size-distribution is discussed in Section V. In the 50th round, information about expenditures on 'clothing', 'footwear', 'durables', 'education' and '(institutional) health care' was elicited from surveyed households both on the basis of a 30-day reference periods and on the basis of a 365-day reference period. However, the latter data was recorded in a separate block. The published size-distribution of PCTE for this round is based on a uniform reference period of 30-days for all items, including those listed above.

However, it is possible to reconstruct from unit record data an alternative size-distribution. This is based on consumer expenditure from the 365-day reference period pertaining to the above listed items, and on the 30-day reference period pertaining to all other items. In both instances, the information is as reported by the surveyed households. We thus generate a size-distribution on a mixed reference period comparable to the 55th round consumer expenditure survey. Our presentation of these results in Section V is preceded by a brief discussion about the possibility of the reported expenditure on the 365-day recall being influenced by household responses to the 30-day recall in the 50th round.

In Section VI, we finally present comparable estimates of headcount ratios and related measures of poverty, as well as estimates of the size of the poor population in the years 1993-94 and 1999-2000. Comparable URP-based estimates are also presented for the years 1983 and 1993-94. The overall picture is one of unambiguous improvement in the poverty situation in India over the 1990s, at the national level. Notably also, this is true in terms of headcount ratios, the number of poor, and

the depth and severity of poverty. It is also shown that in regard to virtually all measures of poverty, India's performance between 1994 and 2000 was significantly better than during the period 1983 to 1994. This was especially the case for the annual average reduction in the national poverty headcount ratio, as well as in the number of poor subsisting in the country.

II Possibilities for Bias in 55th CES Round

As mentioned earlier, concerns about the comparability of the 55th round CES with the 50th round have arisen primarily because in the former, two recall periods of 7 days and 30 days were canvassed on the same set of households, in blocks juxtaposed side-by-side for the same set of items – the food group. Accordingly, there is a possibility that reporting for one of two canvassed reference periods influenced and hence biased reporting for the other. Critics of the NSS 55th round maintain that reported 30-day estimates from CES have been biased upward and consequently overstate consumer expenditures in the food group.

Indeed, in the 55th round, respective monthly per capita expenditures on the food group from the 7- and 30-day reference periods converge to an unexpectedly high degree in comparison to the results from the set of four annual, 'thin' rounds CES conducted prior to the 55th round. In these rounds, the 7- and 30-day recall periods had been canvassed on two independent sets of sample households, and in the case of the shorter reference period, the estimates of monthly per capita expenditure were considerably higher than those based on corresponding and comparable 30-day-recall-based estimates [NSSO 2000a].

To illustrate, in the 55th round, the difference between the two estimates (on the 7-day relative to the 30-day recalls) of overall mean per capita expenditure on 'total food' was 6.5 per cent and 5.7 per cent for the all-India rural and urban populations, respectively. Over the four rounds of annual surveys, however, the corresponding differences averaged 30 per cent and 33 per cent [NSSO2000b].

Since the food group dominates the consumption basket of poor households, in the annual surveys, headcount ratios based on the size-distribution of PCTE from the 7-day-recall-based reporting were also about half the magnitude of those based

on the 30-day recall [Visaria 2000]. In the 55th round, the comparable differential considerably narrowed to 10-12 per cent.

The divergence between the 7- and 30-day results in the annual surveys was an expected consequence of two types of possible errors, recall error and telescoping error, which operate on the frequent and less salient expenditures in the food group, respectively. Whereas the former increases with a longer recall period, the latter increases with a shorter recall period. For this reason both phenomena skew results for the 7- and 30-day recalls in opposite directions [Deaton and Grosh 2000].

The narrowing differential in the 55th round may have arisen as follows: when confronted with having to report consumption for the same list of items, involving frequent and non-salient events on two alternative recall periods, the respondents would try to economise on their effort by adjusting their reporting for the second reference period on the basis of a rough extrapolation from the first one.

Accordingly, there are only two possible ways of explaining the narrow difference between the 7- and 30-day recalls in the 55th round CES. Possibility 1 (P1) is that the 7-day recall was the first to be canvassed, and that respondents subsequently reported the 30-day equivalent by making a rough multiplicative adjustment. P1 would clearly impart a *downward bias* in the estimated headcount ratio for 1999-2000 in comparison with the earlier rounds. Hence it would *overstate* the comparable extent of decline in poverty, as asserted by critics of the officially released poverty estimates. If P1 is true for a sizeable proportion of households, the results of the 55th round with respect to the specified items would therefore be non-comparable with respect to *all* previous NSS rounds.

The other possibility, (P2), is that respondents may have been asked first to recall consumption for the past 30 days, and subsequently reported their consumption during the previous 7 days by use of crude division.³ It can easily be seen that both P1 and P2 would produce the narrowed 7- vs 30-day differential observed in the 55th round CES. P1 would bias upwards reporting for the lower 30-day recall, whereas P2 would bias downward results for the higher 7-day recall. However, if P2 were true, the results of the 55th round would indeed turn out to be comparable to the 50th round – provided one adjusts the latter for the mixed reference period used in the 55th round, as discussed

further in Section IV. Whether P1 or P2 holds true is further examined in the following section.

III EUS as a Reference Point for CES

As noted in the introduction, a reference point for assessing bias in the CES is provided by the EUS also conducted in the 55th NSS round. This is because the EUS was canvassed on an independent sample drawn from the *same* universe of population as the CES, and also used reporting based only on a 30-day reference period for the food group [NSSO2001a]. On this score, a comparison of per capita consumer expenditures from the 55th round of CES and EUS could provide an indication of bias in the published CES estimates.

This comparison needs to take account of the fact that the EUS is likely to understate consumer expenditures compared with the CES. In the EUS, per capita consumer expenditure was merely a classificatory variable for tabulation of employment characteristics and not the main subject of enquiry. Therefore, consumer-expenditure details were canvassed with a considerably abridged schedule. International experience and a priori reasoning suggest that for a given recall period, a detailed listing of items helps reduce recall error. Conversely, an abridged listing leads to a greater recall lapse and hence to an understatement of consumer expenditure in comparison to reporting based on a more detailed listing [Deaton and Grosh 2000].

Whereas the CES enquiry canvassed a detailed schedule of 330-odd items spread over some 15 pages, the EUS enquiry canvassed a one-page schedule comprising only 33 items. According to the explanation provided on the relevant enquiry block, this part of the survey was deemed to serve as a 'worksheet for recording household consumer expenditure'. However, all the items would not have been affected by abridgment to the same degree. For a given recall period, understatement from recall lapse is expected to be the greater the more heterogeneous the basket contained in the abridged description. The recall lapse is affected by the diversity in consumer purchases and fluctuations in their consumption, as well as the concomitant frequency and salience of the respective consumption events in the respondent's memory.

So, given the impact of the abridgment effect, we can expect the 30-day CES estimates to be higher than the corresponding EUS estimates. If, in addition, P1 had indeed eventuated, as has been maintained by the critics, then the reported 30-day recall-based estimates from CES would also have been *pulled up* by the 7-day reporting, compared with what they would have been had the 30-day recall been canvassed independently. This would accentuate the EUS-CES difference beyond that arising from the use in the EUS of an abridged schedule. In order to test the possibility P1, relative differences in Tables 1 and 2 provide the excess of CES estimates over those from the EUS, as a percentage of the *latter*. Accordingly, the CES-EUS relative differences indicate the excess of allegedly *overstated* CES estimates in relation to expectedly *understated* EUS-based estimates.

Now, the central question is: how large should this excess be in order to validate P1? As noted earlier, the annual 51st to 54th 'thin sample' rounds of the NSS provide unbiased estimates of the order of magnitude of this excess. Accordingly, given the expected understatement in the EUS, if P1 holds, we expect the excess of CES over EUS to be *unequivocally* greater than 7-day-30 day average excess. If this does not hold, the only other possibility, P2, has to be true. If this is so, the CES has in fact captured the 30-day recall, rendering it comparable to all the earlier rounds of NSS as far as the food group is concerned.

As a third possibility, it should be noted that in the case of some individual items in the EUS's abridged description, one may because of a high degree of understatement, expect the CES to overshoot the EUS by a margin greater than the 7-day-30 day excess, even if the CES reflects a 30-day recall. This is because the degree of understatement resulting from recall lapse in EUS is expected to be the greater the more heterogeneous the items being reported. Notably, of course, for items outside the 7-day-30 day controversy affecting the food group, CES-EUS differences would be *entirely* due to abridgment effect.

IV Comparing EUS and CES by Commodity Groups

In the light of the foregoing a priori considerations, we now undertake an empirical implementation of the suggested

test procedure to resolve the 7-day-30 day recall controversy. It is organised in two parts. The first compares the CES-EUS at the aggregate level of the total rural/urban population but separately across all the comparable commodity groups identified in the abridged EUS schedule. This information is collected in Tables 1R and 1U, for the rural and urban populations, respectively. The second part performs a similar comparison, but only for the contested commodity groups, and *at a disaggregated level*, dividing the population into 20 fractile groups of 5 per cent each. A CES-EUS comparison is given for each fractile group. The commodity group details in this part are confined only to those item groups affected by the 7-day-30 day controversy. The information is presented for rural and urban populations in Tables 2R and 2U.

Let us turn to an examination of Tables 1R and 1U. For as many as eight out of the nine items in the food group in both tables, the differences between CES and EUS estimates are well within the average 7-day-30-day norm suggested earlier in the paper from the 51st to 54th annual rounds. In fact, the estimates are amazingly close to each other, given the impact of the use of an abridged schedule in the EUS.

The only exception to the above result is the omnibus category of 'other food', comprising sugar, salt, spices and beverages, which shows the highest percentage excess within the food group. An excess of 54 per cent almost touches the 7-day-30-day norm for the rural population, whereas 67 per cent overshoots the 53 per cent norm for the urban population. This item group by itself accounts for nearly two thirds of the total difference (disregarding sign) between the CES and EUS in the total food category. In the rural and urban populations, it accounts for 61 per cent and nearly 64 per cent of this difference, respectively.

However, as cautioned earlier, it is reasonable to expect a sizeable difference between CES and EUS estimates in such a heterogeneous item group such as this one. Since it comprises the most diverse and varied bag of items in the food group, the impact of recall lapse arising from abridgement may be expected to be quantitatively the largest in its case. Given also that for all the remaining items in the food group, the CES-EUS differences are well below the average margin provided by the 7-day-30-day norm, it is most likely that

the high percentage excess in this category is attributable to understatement from abridgement, rather than the CES estimate being biased upwards by the 7-day reporting.⁴ The conclusion is thus inescapable: the relative differences between the CES and EUS reflect the abridgement effect rather than the problems imputed by the 7-day-30-day controversy.

In the light of this paper's methodology, it is also useful to review the relative differences between CES and EUS estimates for items outside the food group. Identical reference periods⁵ are used for these items in both the 55th round CES and EUS. Therefore, if CES estimates are higher, it is due entirely to the abridgement effect in the EUS.

Only for three item groups – 'entertainment', 'travel/conveyance' and the catch-all category of 'other miscellaneous goods and services' – do CES estimates exceed EUS estimates by more than 30 per cent. This does not account for items for which the EUS estimates actually exceed the CES estimates, namely, 'education', 'footwear'

and 'durable goods'. In both rural and urban India, the difference is more than 100 per cent in the cases of both 'entertainment' and 'other miscellaneous goods and services'. Each of these constitutes a heterogeneous basket where the abridgement effect is expected to be significant, as has been observed in similar cases all over the world.

Notably, the catch-all category of 'other miscellaneous goods and services' accounts for a major part of the compounded difference between CES and EUS estimates outside the food group: 40 per cent of the sum of absolute differences in rural India, and 36 per cent in urban India. To reiterate then: any observed excess of CES estimates over the EUS estimates in respect of all the items outside the food group are due entirely to the impact of abridgement in the EUS.

Critics of the 55th round might argue that the test for resolving the 7-day-30-day controversy, when implemented at the aggregate level for the entire population, may conceal uneven incidence of the recall

Table 3R: A Comparison of Estimates of Monthly Per Capita Expenditures (MPCE) from Consumer Expenditure Survey (CES) and Employment-Unemployment Survey (EUS)

(NSS 55th Round July 1999 to June 2000 for All-India Rural Population: By Item Group)

Item	CES	EUS	Diff	Diffre (Per Cent)	Avg Diff 7-Days vs 30-Days
All goods and services	486.16	443.11	43.05	9.71	
Cereals and substitutes	108.11	106.24	1.87	1.76	12.92
Pulses and products	19.14	18.19	0.95	5.22	48.18
Milk and milk products	42.56	37.47	5.09	13.58	19.62
Edible oil	18.16	18.05	0.11	0.61	22.83
Vegetables	29.98	29.75	0.23	0.77	55.25
Fruits (fresh + dry fruits)	8.36	6.65	1.72	25.71	60.27
Egg fish and meat	16.14	15.72	0.42	2.67	54.16
Other food (sugar, salt, spices and beverages)	46.36	30.04	16.32	54.32	54.57
Total food	288.81	262.11	26.7	10.19	30.01
Paan tobacco and intoxicants	13.96	12.11	1.85	15.28	43.13
Fuel and light	36.56	32.03	4.53	14.14	
Entertainment	2.02	1.02	1.00	98.03	
Non-institutional medical services	22.94	22.43	0.51	2.27	
Toilet articles	11.62	14.66	-3.04	-20.74	
Travel/conveyance	14.28	10.70	3.58	33.46	
Rent	1.89	1.95	-0.06	-3.08	
Other misc goods and services	26.65	12.69	13.96	110.01	
Education (tuition + newspapers + books, stationery, etc)	9.38	13.91	-4.53	-32.57	
Institutional medical services	6.66	6.32	0.34	5.38	
Cloth and clothing	33.28	32.68	0.60	1.84	
Footwear	5.37	5.39	-0.02	-0.37	
Durable goods	12.76	15.62	-2.86	-18.31	

Notes: 1 CES and EUS-Mean MPCE (Rs) from CES and EUS respectively.

2 Diff – difference (Rs) between CES and EUS.

3 Diffre – Diff as per cent of mean MPCE for respective item from EUS.

4 Avg Diff 7d-30d: Excess of estimated MPCE as per Schd. Type 2 (with 7-day reference period for food, paan, tobacco and intoxicants) over that based on Sch. Type 1 (with uniform reference period of 30-days) as a percentage of the estimates on the 30-day reference period, averaged over the four 'Annual' Rounds (1994-95, 1995-96, 1996-97 and January-June 1998).

Source: All EUS estimates represent the average of sub-sample estimates generated from unit record data. CES estimates are drawn from: GOI, NSS Report No 457 (55/100/3), Level and Pattern of Consumer Expenditure in India, 1999-2000, May 2001.

problem at the disaggregated level, affecting certain population groups. Indeed, if the 7-day recall had biased upward the 30-day estimate in CES at the lower end of the size distribution, this would *overstate* consumer expenditure for poorer groups, and hence lead to *understatement* in concomitant poverty indicators.

In order to evaluate this possibility, the percentage excess of CES estimates over EUS estimates are mapped across 20 5 per cent fractile groups in Tables 4R and 4U, representing rural and urban populations, respectively. As mentioned earlier, we apply this analysis only to those items which have been involved in the 7-day-30-day controversy, namely, food, beverages, paan, tobacco and intoxicants. The first line in both tables provides the respective norm for the 7-day-30-day difference derived from the annual 51st to the 54th round, as used also in Tables 1R and 1U for all-India rural and urban populations. These broad yardsticks continue to be used as the common standard of comparison because differentials derived from comparable 'thin samples' at the fractile-group level are expected to carry higher relative standard errors.

Remarkably, in both Table 4R and Table 4U, CES-EUS differences for all but one of the item groups lie well below the yardsticks provided by the 51st through 54th rounds. The exception is provided by the same group that stood out in Tables 3R and 3U – namely 'other food'. The reason is also the same: this is an aggregate of heterogeneous items, for which the abridgement effect is very pronounced. However, it is remarkable that for the bottom 40 per cent of the rural population, even this 'mixed bag' of items registers relative CES-EUS differences that are well below their respective yardsticks.

Further to this analysis, it may be added that we also carried out CES-EUS comparisons at the disaggregated level for both urban and rural populations in 15 major states, and arrived at similar results.

What we have therefore, shown is that the observed differences between the CES estimates and EUS estimates overwhelmingly reflect the impact of the abridged schedule in the EUS. These differences in turn are too small to support the hypothesis that the CES estimates on the 30-day reference period have been artificially inflated because households extrapolated their 30-day reporting from a 7-day recall. Therefore, the narrowed

differential between the 7- and 30-day recall-based estimates in the 55th round CES that we observed in Section II has to be due to possibility P2, which as outlined in this section, proposes that the households predominantly recorded expenditures on the 30-day recall and subsequently adjusted their 7-day estimates accordingly.

If the above evidence and arguments are accepted, then the hypothesis that in respect of food, paan, tobacco and intoxicants, the households preponderantly first recorded their expenditures with the 7-day recall period, and then adjusted their responses for the 30-day recall period, stands rejected. Consequently, the CES results are comparable to the results from our alternative, MRP-based size-distributions based on the unit record data for the 50th round. The CES estimates based on the 30-day recall are therefore comparable with the results of the 50th round, once we correct for the problem of mixed reference periods pertaining to this round. This

issue is discussed further in the following section.

V Correcting for Mixed Reference Periods in 50th Round

As mentioned in the introductory section, in the CES for the 1993-94 50th round, information on clothing, footwear, durables, education and health (institutional) was collected from each sample household for two alternative reference periods of 30 days and 365 days. These are infrequently purchased items on which independent sets information can be plausibly elicited from the same households without imparting mutual bias. Notably, for all the remaining items in the 50th round, a *uniform* 30-day recall was used. We can thus compute two alternative size distributions for the 50th round – one based on a uniform reference period (URP) of 30 days, and another based on a mixed reference period (MRP) of 365 days for

Table 3U: A Comparison of Estimates of Monthly Per Capita Expenditures (MPCE) from Consumer Expenditure Survey (CES) and Employment-Unemployment Survey (EUS)

(NSS 55th Round July 1999 to June 2000 for All India Rural Population: By Item Group)

Item	CES	EUS	Diff	Diffre	Avg Diff 7 Days vs 30 Days
All goods and services	854.92	762.93	91.99	12.06	
Cereals and substitutes	106.02	102.34	3.68	3.60	15.94
Pulses and products	25.20	24.22	0.98	4.05	42.08
Milk and milk products	74.17	66.91	7.26	10.85	12.24
Edible oil	26.81	27.02	-0.24	-0.78	22.30
Vegetables	43.90	47.86	-3.96	-8.27	52.48
Fruits (fresh + dry fruits)	20.68	17.26	3.42	19.81	69.28
Egg fish and meat	26.78	25.90	0.91	3.40	50.44
Other food (sugar, salt, spices and beverages)	87.39	52.26	35.13	67.22	53.42
Total food	410.95	363.77	47.18	12.96	32.91
Paan tobacco and intoxicants	16.22	13.79	2.43	17.62	41.50
Fuel and light	66.26	58.79	7.47	12.71	
Entertainment	9.88	4.87	5.01	102.87	
Non-institutional medical services	30.95	29.57	1.38	4.67	
Toilet articles	26.34	25.41	0.93	3.66	
Travel/conveyance	47.19	30.14	17.05	56.57	
Rent	38.16	38.58	-0.42	-1.09	
Other misc goods and services	67.02	33.06	33.96	102.72	
Education (tuition + newspapers + books, stationary, etc)	37.06	55.83	-18.77	-33.62	
Institutional medical services	12.33	11.60	0.68	6.29	
Cloth and clothing	51.76	50.33	1.43	2.84	
Footwear	10.05	10.22	-0.17	-1.66	
Durable goods	30.85	36.98	-6.13	-16.58	

Notes: 1 CES and EUS-Mean MPCE (Rs) from CES and EUS respectively.

2 Diff – difference (Rs) between CES and EUS.

3 Diffre – Diff as per cent of mean MPCE for respective item from EUS.

4 Avg Diff 7d-30d: Excess of estimated MPCE as per Schd. Type 2 (with 7-day reference period for food, paan, tobacco and intoxicants) over that based on Sch. Type 1 (with uniform reference period of 30-days) as a percentage of the estimates on the 30-day reference period, averaged over the four 'Annual' Rounds (1994-95, 1995-96, 1996-97 and January-June 1998).

Source: All EUS estimates represent the average of sub-sample estimates generated from unit record data. CES estimates are drawn from: GOI, *NSS Report No 457 (55/100/3), Level and Pattern of Consumer Expenditure in India, 1999-2000, May 2001.*

Table 4R: Percentage Excess of CES Estimates over EUS Estimates of MPCE in Food, Paan, Tobacco and Intoxicants in 1999-2000 – All-India: Rural Population for 5 Per Cent Fractile Groups
(Per Cent)

Fractile Group (1)	Cereals and Substitutes (2)	Pulses and Products (3)	Milk and Milk Products (4)	Edible Oils (5)	Vegetables (6)	Fruits and Nuts (7)	Eggs, Fish and Meat (8)	Other Food (9)	Total Food (10)	Paan, Tobacco and Intoxicants (11)
A All-India Avg Diff										
7- vs 30-days (per cent)	12.9	48.2	19.6	22.8	55.3	60.3	54.2	54.6	30.0	43.1
B Excess of CES over EUS										
(per cent) All Fractile Groups	1.8	5.2	13.6	0.6	0.8	25.7	2.8	54.3	10.2	15.3
B.1 0-5	5.6	-7.1	-14.1	-2.5	12.7	30.7	-11.8	34.8	6.2	14.3
B.2 5-10	3.4	-2.3	-2.8	-2.3	13.6	17.2	-17.8	42.7	6.2	15.6
B.3 10-15	3.8	1.2	-2.3	-0.7	10.6	-1.7	-8.2	45.3	7.0	9.1
B.4 15-20	3.0	-0.5	7.1	-2.8	6.6	3.4	-4.5	41.0	6.3	13.4
B.5 20-25	0.7	2.3	15.0	0.0	6.9	13.8	-4.0	46.2	6.9	6.8
B.6 25-30	1.8	3.6	9.3	-2.9	2.0	19.2	-7.6	46.3	6.4	18.4
B.7 30-35	0.5	5.3	11.1	1.4	7.0	6.7	-4.0	49.8	7.4	17.4
B.8 35-40	0.9	2.7	15.9	0.1	8.2	16.5	6.0	49.9	8.8	12.4
B.9 40-45	2.3	5.8	11.0	-2.3	5.5	12.7	-2.4	53.2	8.7	14.1
B.10 45-50	0.3	3.9	12.1	1.6	4.0	17.2	3.7	54.4	8.5	17.3
B.11 50-55	0.5	6.9	14.6	2.7	6.1	29.5	2.7	49.3	9.4	12.7
B.12 55-60	-0.4	8.3	11.1	2.9	0.6	34.8	16.1	56.2	9.6	9.8
B.13 60-65	-0.4	5.4	14.1	3.2	1.8	20.9	-2.7	59.3	9.3	6.6
B.14 65-70	2.2	4.6	16.7	4.0	-0.5	21.5	5.2	55.6	11.1	14.4
B.15 70-75	1.0	7.5	13.7	1.8	1.5	21.0	4.2	51.6	10.2	9.7
B.16 75-80	2.4	5.3	12.0	1.4	-1.5	25.1	6.7	54.9	10.8	13.2
B.17 80-85	1.8	6.9	21.0	-0.7	-3.2	26.9	-4.4	57.7	11.9	5.6
B.18 85-90	0.1	6.7	16.7	2.1	-4.9	28.8	11.6	51.3	11.5	12.1
B.19 90-95	5.0	12.4	13.7	1.6	-7.6	32.5	13.4	52.9	13.7	19.7
B.20 95-100	4.3	8.5	15.5	0.9	-7.0	39.3	8.8	67.9	17.4	38.2

Notes: 1 Avg Diff 7-vs 30-days (per cent): Ratio of 7-day-recall based estimate to corresponding 30-day recall based estimate expressed as a percentage and averaged over 51st to 54th rounds of NSS.

2 CES: Consumer Expenditure Survey.

3 EUS: Employment-Unemployment Survey.

4 0-5 denotes bottom 5 per cent, 5-10, the next 5 per cent of the population and so on.

Sources: 1 SSO (2000a) for the first row. 2 Our calculations based on unit level record for the 55th round of NSS.

Table 4U: Percentage Excess of CES Estimates over EUS Estimates of MPCE in Food, Paan, Tobacco and Intoxicants in 1999-2000 – All-India: Rural Population for 5 Per Cent Fractile Groups
(Per Cent)

Fractile Group (1)	Cereals and Substitutes (2)	Pulses and Products (3)	Milk and Milk Products (4)	Edible Oils (5)	Vegetables (6)	Fruits and Nuts (7)	Eggs, Fish and Meat (8)	Other Food (9)	Total Food (10)	Paan, Tobacco and Intoxicants (11)
A All-India Avg Diff										
7-vs 30-days (per cent)	15.9	42.1	12.2	22.3	52.5	69.3	50.4	53.4	32.9	41.5
B Excess of CES over EUS										
(per cent) All Fractile Groups	3.6	4.1	10.9	-0.8	-8.3	19.8	3.4	67.22	13.0	17.6
B.1 0-5	9.9	3.2	5.3	-3.3	1.8	-6.9	-14.1	60.8	10.9	9.3
B.2 5-10	5.7	1.7	7.9	-0.7	3.2	1.7	2.3	56.9	10.3	8.2
B.3 10-15	6.9	1.7	3.1	0.1	1.2	20.8	4.3	56.4	10.9	0.7
B.4 15-20	2.1	4.2	7.2	0.6	-1.6	20.9	-3.3	64.4	9.5	2.5
B.5 20-25	4.3	2.2	5.8	-0.3	-3.9	15.5	0.6	57.9	9.3	9.1
B.6 25-30	2.2	9.1	4.5	2.8	-0.7	12.7	1.8	58.7	9.8	13.5
B.7 30-35	5.0	2.8	2.9	2.4	-3.4	8.8	-0.6	60.1	9.8	28.4
B.8 35-40	4.6	4.3	3.4	-1.5	-5.7	10.5	1.0	62.7	9.6	24.4
B.9 40-45	8.1	9.8	4.4	-1.1	-5.0	13.2	3.7	58.6	11.3	3.5
B.10 45-50	7.0	3.2	7.6	0.1	-4.1	12.3	8.0	58.0	11.6	16.9
B.11 50-55	4.2	7.0	16.1	0.2	-5.0	17.3	-2.4	67.7	13.0	9.2
B.12 55-60	6.3	4.3	11.1	0.7	-7.6	24.2	9.0	65.0	13.2	9.8
B.13 60-65	2.6	6.2	15.2	1.7	-7.1	22.0	3.0	61.6	12.2	4.6
B.14 65-70	-0.3	4.4	17.3	2.1	-9.5	24.1	-5.8	65.9	11.7	4.4
B.15 70-75	-0.5	4.6	11.9	1.4	-14.6	25.7	7.4	69.7	11.9	24.3
B.16 75-80	4.0	5.4	15.5	-1.7	-12.6	18.1	-0.4	55.8	12.0	1.5
B.17 80-85	3.0	5.9	11.3	0.3	-10.8	19.2	6.1	65.7	13.5	16.9
B.18 85-90	4.9	0.6	9.7	-2.7	-12.0	16.4	9.7	67.1	13.9	28.6
B.19 90-95	-0.3	5.2	15.6	Neg	-12.7	30.2	2.0	61.4	14.6	18.1
B.20 95-100	-2.5	9.7	9.1	-10.1	-18.2	20.4	12.1	65.2	14.3	57.2

Notes: 1 Avg Diff 7-vs 30-days (per cent): Ratio of 7-day-recall based estimate to corresponding 30-day recall based estimate expressed as a percentage and averaged over 51st to 54th rounds of NSS.

2 CES: Consumer Expenditure Survey.

3 EUS: Employment-Unemployment Survey.

4 0-5 denotes bottom 5 per cent, 5-10, the next 5 per cent of the population and so on.

Sources: 1 SSO (2000a) for the first row. 2 Our calculations based on unit level record for the 55th round of NSS.

above-mentioned items, and 30 days for the remaining items. This is important for establishing comparability between the 50th round and the 55th round, in view of the shift to MRP in the latter.

Before we report the results of our exercise, it is useful to raise the question of whether canvassing two alternative recall periods in the case of the 50th round raises possible problems of the first recall influencing the reporting for the second, of the kind discussed in the previous sections. In the 50th round CES, the items of concern would then be: (a) clothing, (b) footwear, (c) durables, (d) education and (e) institutional health expenditures. As noted above, information on these items was collected in the 50th round on two alternative recall periods of 30 days and 365 days, from the same set of sample households. In the schedules of enquiry, the blocks relating to (a) to (c) were placed one after the other, with the 30-day recall coming first, whereas for (d) and (e), they were side-by-side. *Prima facie*, it cannot be completely ruled out that this might pose problems.

In our judgment, however, their incidence is likely to be minimal, for the following reasons. First, expenditures on (a) to (e) relate to events that are relatively less frequent and more salient in the respondent's memory than those in food group. Accordingly, expenditures over the last 30 days can be more easily distinguished from those in the last 365 days. This is not the case with the items in the food group. Purchases of these food items are likely to have been more frequent and less memorable, providing greater incentive to minimise on the effort required to accurately recall expenditures. Second, it is deemed significant that there was some previous experience in the use of this survey method. Information on items (a) to (c) had been being collected from the same set of households, eliciting information on the basis of the same two alternative recall periods, for the three quinquennial rounds preceding the 50th round. In addition, field officials were explicitly instructed to check the recorded entries against the two recall periods, presumably to keep some check on the investigators.

Tables 3 and 4 present the size distributions of total household consumer expenditure according to 5 per cent fractile groups for the rural and urban populations, respectively. The households are ranked according to the size of per capita total consumer expenditure (PCTE).

It may be noted that a shift from 30-day recall to 365-day recall in respect of clothing, footwear, durables, education and institutional health expenditure leads to a *higher* mean PCTE for fractile groups in

the bottom 65 per cent and 70 per cent of the rural and urban populations, respectively. In other words, for these sections of the population, mean per capita monthly expenditure on the above-

Table 1: NSS 50th Round – A Comparison of Size Distribution by 5 Per Cent Fractile Groups between Uniform and Mixed Reference Periods, All-India: Rural Population

Fractile Group (Per Cent)	Cumulative of Population	Average Pcte URP	Cum Per Cent CE by 3-Day	Average Pcte MRP	Cum Per Cent CE by 365-Day
0-5	5	107.0568	1.90	112.7227	2.06
5-10	10	137.1109	4.34	143.0156	4.67
10-15	15	153.0963	7.06	159.3483	7.57
15-20	20	166.5078	10.01	172.9196	10.73
20-25	25	177.76	13.17	184.027	14.08
25-30	30	188.8394	16.52	195.3137	17.65
30-35	35	199.6443	20.07	205.8051	21.40
35-40	40	210.4275	23.81	216.2759	25.35
40-45	45	222.3902	27.76	226.9396	29.49
45-50	50	234.1682	31.92	238.813	33.84
50-55	55	246.9086	36.30	249.7347	38.40
55-60	60	260.3121	40.92	262.1496	43.18
60-65	65	275.3872	45.82	275.946	48.22
65-70	70	291.8567	51.00	291.2501	53.53
70-75	75	311.81	56.54	308.7733	59.16
75-80	80	336.4533	62.51	329.4956	65.17
80-85	85	368.4131	69.06	356.125	71.67
85-90	90	414.0056	76.41	392.2514	78.83
90-95	95	489.056	85.10	454.0539	87.11
95-100	100	839.2015	100.00	706.6327	100.00
0-100		281.5203		274.0796	

Notes: URP: uniform (30 day) reference period for all items of consumer expenditure.
MRP: mixed reference period: 365 days for clothing, footwear, education and health (institutional) and 30 days for all the remaining items.
CE: Aggregate Consumer Expenditure.
Pcte: Per capita total consumer expenditure.

Source: Estimates by authors from the unit level records of the 50th round.

Table 2: NSS 50th Round: A Comparison of Size Distribution by 5 Per Cent Fractile Groups between Uniform and Mixed Reference Periods, All-India: Urban Population

Fractile Group (Per Cent)	Cumulative Per Cent of Population	Average Pcte URP	Cum Per Cent CE by 30-Day	Average Pcte MRP	Cum Per Cent CE by 365-Day
0-5	5	133.0799	1.45	138.8078	1.54
5-10	10	175.8905	3.37	182.1801	3.57
10-15	15	201.9348	5.58	208.7717	5.89
15-20	20	222.8357	8.01	230.1181	8.45
20-25	25	242.3559	10.65	250.4214	11.23
25-30	30	261.9733	13.51	269.9378	14.23
30-35	35	281.1159	16.58	289.2902	17.45
35-40	40	302.5225	19.88	309.525	20.89
40-45	45	323.6575	23.42	330.4057	24.56
45-50	50	346.5325	27.20	353.895	28.50
50-55	55	370.3242	31.24	376.1983	32.68
55-60	60	397.9061	35.58	402.1393	37.15
60-65	65	430.2546	40.28	433.106	41.96
65-70	70	467.1801	45.38	467.8879	47.17
70-75	75	513.6512	50.99	511.4624	52.85
75-80	80	569.3199	57.20	564.5064	59.13
80-85	85	641.3186	64.20	631.2962	66.15
85-90	90	742.1016	72.30	725.5948	74.21
90-95	95	911.4375	82.25	887.1303	84.07
95-100	100	1626.268	100.00	1432.519	100.00
0-100		458.083		449.7597	

Notes: URP: uniform (30 day) reference period for all items of consumer expenditure.
MRP: mixed reference period: 365 days for clothing, footwear, education and health (institutional) and 30 days for all the remaining items.
CE: Aggregate Consumer Expenditure.
Pcte: Per capita total consumer expenditure.

Source: Estimates by authors from the unit level records of 50th round.

Chart 1: All-India: Rural Lorenz Curve (NSS 50th Round)

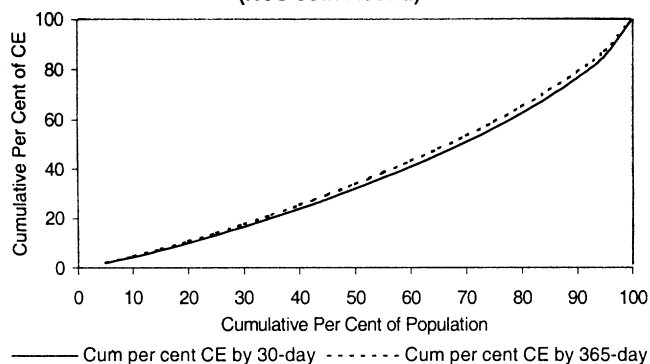
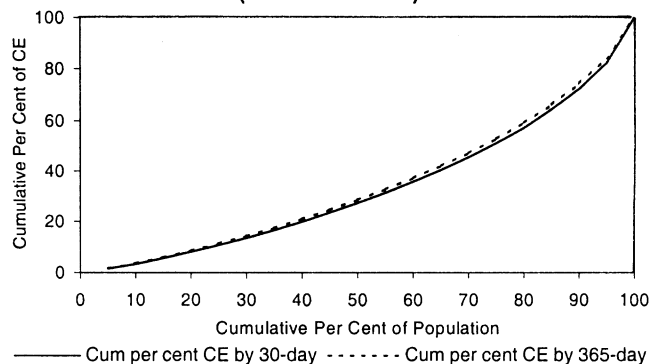


Chart 2: All-India: Urban Lorenz Curve (NSS 50th Round)



mentioned items was *higher* on the basis of 365-day recall than it was for the preceding 30-day recall. In contrast, for the top 35 per cent and 30 per cent of the respective rural and urban populations, mean monthly per capita household expenditure on these items was *lower* in this instance. Consequently, the overall, mean PCTE turns out to be *lower* by 2.6 per cent and 1.8 per cent for the respective rural and urban populations.

The corresponding Lorenz curves (LC's) presented in Chart 1 for the rural population and in Chart 2 for the urban population, show that the LC based on a mixed reference period (MRP) lies *uniformly* inside the LC based on 30-day uniform reference period (URP). Consequently, the summary measure of relative inequality based on the LC, namely the Gini coefficient, is distinctly lower when it is based on an MRP than on a URP. The respective coefficients for rural and urban populations are 0.2379 and 0.3189 for the MRP, and 0.2678 and 0.3409 for the URP.

Since the reported PCTE for the bottom fractile groups is higher under MRP than that under URP, the headcount ratio based on MRP, as presented in the following section, is expected to be *lower* than that based on URP.

VI Comparable Headcount Ratios and Related Measures of Poverty

In the previous sections we discussed the problems of comparability pertaining to consumer expenditure surveys from the 50th and 55th rounds of the NSS, which have been highlighted during recent debates about poverty trends in the 1990s in India. Our empirical analysis, based partly on the published results, and partly on the unit-level records of the 50th and the

55th rounds of NSS, have established the following:

- First, the published size distributions of the first five quinquennial rounds, including the 50th round in 1993-94, are based on a uniform, 30-day reference period (URP) and headcount ratios calculated from them are comparable.

- Second, the published size-distributions of the 50th round for 1993-94 and the 55th round for 1999-2000 are not directly comparable because of differences in the recall periods, namely, URP in the 50th round and a mixed reference period (MRP) in the 55th round.

- Third, as regards the 7-day-30-day controversy besetting the CES in the 55th round, evidence presented in Sections II through IV suggests that the size-distribution of the CES is comparable to the MRP-based size distribution of the 50th round.

- Fourth, the size-distribution of the 50th round can be recast for MRP, and we have recalculated it with MRP in Section V, to make it directly comparable to the 55th round.

These points enable us to calculate comparable poverty indicators in order to assess India's much-debated aggregate poverty outcomes over the 1980s and 1990s. To this end, we use five summary indicators that capture different dimensions of absolute deprivation.

The first and generally most widely used indicator is the headcount ratio (HCR), which specifies the proportion of the population that lives at or below an exogenously defined poverty line. However, it ignores the size of the poverty gap, i.e., how far below the poverty line is the PCTE of poor households. It also does not reflect relative inequality among the poor.

The second indicator is a poverty gap index (PGI), which sums up the poverty gaps of poor households and normalises the resulting aggregate (weighted) poverty

gap. This is done by reference to the maximum possible poverty gap for the entire poor and non-poor population, derived from the product of the poverty line and the total population. Accordingly, given two populations with the same level of HCR, the one with higher PGI will have a larger concentration of the poor population living farther away from the poverty line. Hence it is taken to describe the depth of poverty.

The third and fourth poverty indicators are the squared poverty gap (SPG, denoted as FGT* in subsequent discussion) and the Sen Index (SI) [Sen1976]. In addition to the headcount ratio and the poverty gap, these indicators take into account the relative inequality among the poor. However, SPG and SI differ from each other in terms of the underlying summary measure of relative inequality. SPG incorporates a squared coefficient of variation, whereas the SI uses the Gini coefficient among the poor population. Because of their sensitivity to relative inequality, the SPG and SI are used as measures of the severity of poverty. Indeed, because they incorporate as component measures both the HCR and the poverty gap, as well as the measure of relative inequality among the poor, these indicators are by far the most comprehensive measures of absolute deprivation. Accordingly, given the same HCR and PGI for two populations, the one with higher SPG and SI reflects a greater severity of poverty.

We may add that HCR, PGI and SPG, or FGT* belong to the class of decomposable poverty indicators suggested by Foster et al (1984).

The fifth and final indicator of poverty used in this paper is the size of the poor population – variously described also as the 'absolute headcount', 'the numerical magnitude', or simply 'the number of poor people'. It is given by multiplication of

the sample survey-based estimated headcount ratio (HCR) and the estimated total population at the midpoint of the survey period. The qualifying adjective 'estimated' is to be underlined because both components of the product are estimated independently of each other and are *not* based on direct observations: HCR is based on the estimated size distribution of PCTE among the universe of all households, which is in turn based on an appropriately selected sample of households. Similarly, 'total population at the midpoint of the survey period' is an interpolated, or projected figure. Consequently, the size of the poor population is to be regarded as a probabilistic estimate of the aggregate macro-level order of magnitude of the poor population.

Three comments are warranted on the interpretation of the last indicator. First, it does *not* permit physical *identification* of poor persons or households at the micro-level. This would require a complete census. Second, a *change* in the size of the poor population during the time between two surveys merely indicates the net change in the estimated number of poor people between the midpoints of the two survey periods from all sources. Third, this *change* in size has two components: (a) change due to changes in the HCR between two time-points, which is then applied to the base-year population; (b) change in the total population between two time-points, which is applied to the HCR in the terminal year. Notice that (b) is always positive while (a) will be negative in cases where the headcount ratio declines. Either component may dominate the other.

The five summary indicators of poverty are presented in Table 5. They are shown for the rural, urban and total population at the all-India level, mapped across three time points: 1983, 1993-94 and 1999-2000. The choice of years is governed by a specific set of considerations. The idea is to monitor descriptively the progress in poverty reduction over the last two decades and in the process also bring out differences in the *level comparability* of HCR, arising from uniform and mixed reference periods. To represent the decade of the 1980s, we could have chosen to compare the 43rd round for 1987-88, with the 38th round for 1983. However, poverty – in particular rural poverty – is known to be affected by abnormal agricultural harvests and 1987-88 was a meteorological drought year. Hence it was excluded.

Table 5 provides two estimates for 1993-94, one based on uniform reference periods (URP) and another based on mixed reference periods (MRP). The estimates based on URP are comparable to the 1983 estimates, whereas those based on MRP are comparable to the estimates for 1999-2000.

To contextualise this exercise, and to provide a point of reference for the changes in poverty over the 1990s, let us first consider briefly the changes in poverty over the 10½ years between July 1, 1983 and January 1, 1994. In both rural and urban India, and hence, also at the all-India level, there is a clear reduction in the headcount ratio, poverty-gap index, FGT*, and Sen Index. In rural India, the annual average decline in the headcount ratio over the 10½-year period was a little under 0.9 percentage points. In urban India, the corresponding number was 0.7 percentage points per year. For rural and urban areas taken together, the average decline in HCR was close to, but below 0.9 percentage points per annum.

In terms of the number of people living below the poverty line, or, the poor population, there is a clear rural-urban contrast. While in rural India, the size of the poor population *declined* by a little under 6.7 million over the 10½-year period – translating into an annual average decline of 0.64 million – in urban India, the number of poor people *increased* by 6.9 million

between July 1, 1983 and January 1, 1994, despite the corresponding reduction in headcount ratio. Consequently, for both rural and urban areas taken together, the number of poor people in India increased marginally by 0.17 million.

However, the rise in population of the poor in urban India, which more than offset the decline in the size of the poor population in rural India, has to be seen in the context of a rapid growth in urban population, from 171.5 million to 235.0 million. This corresponds to a growth rate of over 3 per cent per annum.

We may caution also that the entire increase in urban population cannot be attributed to rural-urban migration. A rise in the urban population also takes place because of (a) natural population growth in areas which remain classified as urban across survey years; (b) because a population that in the base year was classified as inhabiting rural areas, were subsequently re-classified as urban in the terminal year; and (c) because of inter-censal growth of this population.

VII Poverty Trends in India in 1990s

So, what has been the record on poverty over the 1990s in India? To start with, notice that a shift from URP to MRP for 1993-94 results in a two percentage point

Table 5: Alternative Measures of Poverty in India: All-India Rural, Urban All-Areas: 1983-1999-2000

Segment/Measure	Measures on URP		Measures on MRP	
	1983	1993-94	1993-94	1999-2000
All-India rural				
Head count ratio (per cent)	49.02	39.66	37.85	28.93
Poverty-gap index	0.1386	0.0928	0.0825	0.0579
FGT*	0.0545	0.0315	0.0267	0.0173
Sen index	0.1882	0.1278	0.1145	0.0806
Number of poor ('000)	268,062	261,369	249,441	210,498
All-India urban				
Head count ratio (per cent)	38.33	30.89	28.80	23.09
Poverty-gap index	0.0995	0.0749	0.0672	0.0504
FGT*	0.0366	0.0265	0.0232	0.0160
Sen index	0.1362	0.1034	0.0932	0.0695
Number of poor ('000)	65,720	72,586	67,675	63,827
All-India all areas				
Head count ratio (per cent)	46.47	37.35	35.47	27.32
Poverty-gap index	0.1293	0.0881	0.0785	0.0558
FGT*	0.0502	0.0302	0.0257	0.0170
Sen index	0.1758	0.1214	0.1089	0.0775
Number of poor ('000)	333,782	333,955	317,116	274,325
Memorandum item				
Total (all areas) population (000)	718,300	894,006	894,006	1004,086
Share of urban population (per cent)	23.87	26.28	26.28	27.53

Sources: Estimates HCR, PGI, FGT* and SI for 1983 are drawn from, Tendulkar et al (1993), Parallel estimates for 1993-94 with uniform and mixed reference periods and with mixed reference period for 1999-2000 have been estimated from unit record data for the 50th rounds of consumer expenditure survey.

decline in headcount ratio. Accordingly, an uncorrected and hence inappropriate comparison based on the published results (URP for 1993-94 and MRP for 1999-2000) would *overstate* the decline over the six years by the same magnitude. However, using comparable MRP-based measures, we find that *all* the measures of poverty, including the size of the poor population, show a clear and sharp decline in both rural and urban areas and, therefore, also at the level of the country as a whole.

Consider first the rural population. At the all-India level, over the six-year period from January 1, 1994 to January 1, 2000, the headcount ratio declined by close to 9 percentage points, translating to an annual average decline of a shade under 1.5 percentage points. This is significantly higher than the annual average decline in HCR, of 0.9 percentage points, between 1983 and 1994. In terms of the number of poor people in rural India, the 1990s witnessed a decline of over 39 million people – i.e., an annual average decline of 6.5 million, 10 times that witnessed between July 1, 1983 and January 1, 1994.

As noted above, PGI, FGT*, and Sen-Indices also record declines.

If anything, the contrast between the two periods is sharper in the case of urban India. Aided in part by a slowing-down of the rate of growth of the urban population – from 3 to 2.7 per cent per annum – a 5.7 percentage point decline in HCR, corresponding to an annual average decline of 0.95 per cent, translates into a decline in the number of urban poor by a little over 3.8 million, between January 1, 1994 and January 1, 2000. As noted earlier, the period between 1983 and 1989 witnessed an increase in the number of urban poor by close to 7 million.

In terms of the depth and severity measures of poverty, measured by PGI and FGT*, as well as Sen Index, the performance is better for the 1990s in urban India. Taking the country as a whole, i.e., the rural and urban populations considered together, the headcount ratio declined by over 8 percentage points, an annual average decline of 1.4 percentage points in the six years between the 50th and 55th rounds of the consumer expenditure survey. PGI,

Sen Index and FGT* also record declines: while PGI and Sen-Index were in 2000 about 29 per cent lower than their corresponding values for 1994, FGT* in 2000 was lower by a little over 34 per cent. More significantly, during the 1990s, the number of poor declined by over 43 million at the all-India level, corresponding to a 13 per cent national decline. This trend was observed despite an increase in the total population by over 12 per cent. This is in clear and sharp contrast to the rise, albeit marginal, in the total number of poor between 1983 and 1994. Clearly, at the all-India level the overall performance in all dimensions of poverty has been far better between 1994 and 2000 than in the preceding 10½ years.

It may be worth emphasising again, that in the foregoing discussion we have consciously focused entirely on resolving the problems of non-comparability between the 50th and 55th round of NSS on the basis of *objective* evidence. On this basis we conclude that there was greater point-to-point average annual reduction in poverty during the last six years of the 1990s

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than in the preceding 10½-year period. It is reassuring to note that the order of magnitude of percentage point decline between 1993-94 and 1999-2000 emerging from our exercises is corroborated by Deaton (2001) who employs a different and interesting statistical technique to resolve the non-comparability problems.

In the paper, we deliberately avoided bringing in a discussion of the possible factors explaining the decline in poverty. In this vein, we would like to caution that the average annual percentage point decline is not expected to be spread evenly over the intervening years. In an earlier paper, one of us had brought out the complexity of causal mechanisms impacting poverty on the basis of poverty calculations from 1970-71 to 1993-94 [Tendulkar 1998]. It was argued that a poverty outcome in a given year is a combined consequence of (a) the impact of economic reforms and reform-related factors; (b) the impact of other secular factors operating since pre-reform years; and (c) the impact of year-specific abnormal factors, such as drought.

Writing as we are in the shadow of a major drought, we would like to sound a note of caution against being overwhelmed by the adverse impact on poverty registered by abnormal year-specific exogenous factors like drought, in order to conclude an assessment on the failure of economic reforms. We would like to emphasise that the expected favourable effects of economic reforms and reform-related factors on poverty operate through their impact on raising the long-term growth path of the economy. Higher growth rates, in turn, generate sustainable productive employment opportunities which provide the only enduring solution to poverty-eradication [Sundaram and Tendulkar 2000].

This is not to minimise the gravity of the impact of drought on affected households. For them, it is a matter of life and death. The right policy response is to mount a massive public works programme coupled with highly subsidised, if not free, supply of grains, stocks of which are currently overflowing in the government granaries. In an earlier paper [Tendulkar et al 1993] we had shown how the massive public works programmes in Gujarat and Rajasthan had sharply mitigated the impact of the 1987-88 drought on poverty. Again however, what would not be the right response is to conclude on the basis of a possible rise in poverty as a result of the drought, that economic reforms have failed or – even

more illogically – that economic reforms have actually caused the rise in poverty, and that the ongoing process of reforms should therefore be abandoned. **EW**

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Notes

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- 1 We will use 'food group' to denote food, beverages, paan, tobacco and intoxicants whereas 'total food' is used to denote the total for food and beverages only and excludes paan, tobacco and intoxicants.
- 2 As discussed further on in the paper, per capita consumer expenditure was merely a classificatory variable for tabulation of employment characteristics in the EUS, and not the main subject of enquiry. Therefore, consumer-expenditure details were canvassed with a considerably abridged schedule. The implications of abridgement are set out at the beginning of Section IV.
- 3 The initial instructions to NSS field staff did not explicitly mention the sequence in which information from respondents was to be elicited for the two recall periods. However, nearly one-and-a-half months after the field work was launched for the 55th round, a letter was sent by the sampling design and research division of NSSO, dated August 19, 1999, asking the investigators to elicit information first for the 30-day recall for all items of the food group and then seek the same (again from the beginning) for the last 7 days. Which sequence was in fact followed, however, remains an open question. We bypass this aspect of the issue by directly examining the outcome through a comparison of the CES estimates of monthly per capita expenditure on the specified items with the EUS-based estimates of MPCE canvassed with a single 30-day reference – albeit with an abridged schedule.
- 4 The only item-group where the percentage difference between the CES and the EUS estimates, though less than the difference between the 7- and 30-day estimates, is somewhat close to the latter, is milk and milk products. This too is a somewhat heterogeneous item-group that accounted for less than 5 per cent of total consumption for the lowest 30 per cent of the rural population in 1993-94. For urban India, the corresponding proportion was a little over

7 per cent [Sundaram and Tendulkar 2001].

- 5 This is strictly not true in respect to two items forming a part of the category education. Unlike in the CES, two components, namely, tuition fees and, newspapers, magazines, etc, have a 30-day reference period in the EUS, whereas they – along with school books and other educational articles – are all canvassed with a 365-day reference period in the CES. This could be a factor in explaining why the EUS estimates exceed the CES estimates.

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