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Poverty Incidence in India Since 1993: Another View

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Amaresh Dubey

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Abstract

Angus Deaton has recently revised the method of calculating poverty relevant Consumer Price Indexes from the Unit Values and Average Budget Shares that can be calculated from the Consumer Expenditures Surveys of the National Sample Survey (Deaton, 2008). He also changes the way he calculates urban poverty lines, and uses a different base year; both these changes alter the poverty counts that arise compared to his former method. He applies the new CPIs to the 55th and 61st Rounds (1999/00 and 2004/5 respectively) and concludes that poverty rose over this period. This is quite different to the trends suggested in other papers published in this journal (Himanshu, 2007; Dev and Ravi, 2007). Some of Deaton's changes are not novel in that they are similar to our earlier work (Dubey and Palmer-Jones, 2005c, b & c); other changes, and other aspects of his methods, are questionable. Perhaps the most significant problem is that Deaton seems to compare poverty counts using the Mixed Recall Period in the 55th Round with the Uniform Recall Period in the 61st Round. This clearly biases the trend against poverty reduction.

In this paper we draw attention to problems with Deaton's new work, rehearse and update our own calculations to the 61st Round, suggest what can reasonably be concluded from the trend in poverty using our calculations, and draw conclusions about the practices of poverty measurement in India. We find, using the MRP welfare aggregate, that poverty probably decreased significantly between the 50th and 55th Rounds and may have increased slightly between the 55th and 61st Rounds. But it is likely that we have overestimated the downwards trend in poverty to the 55th Round, so that there may well have been some money metric poverty reduction in both periods, perhaps more in the earlier than the later period. This does not support the idea that poverty reduction has disconnected from agricultural growth which shows a similar pattern. It is important not to rush to judgement using unreliable methods and flawed data, no matter how ingenious the manipulations to which they have been subject.

Introduction

Angus Deaton (2008) publishes new poverty lines and poverty estimates for rural India and major states using a set of Consumer Price Indexes (CPIs) calculated from Unit Values (UVs) and Average Budget Shares (AVBSs) of the 55th and 61st Round of the National Sample Survey (NSS) Consumer Expenditure Survey (CES) conducted in 1999-00 and 2004-5. These indexes are developments of and in some respects improvements on those he published earlier (Deaton and Tarrozi, 1999 (D&T); Deaton 2003a). He applies the new CPIs to the All India Rural and Urban Poverty Lines of the 55th Round (1999-2000) to state/sector Poverty Lines (PLs) for the this and the 61st Rounds. He then derives state-wise rural and urban poverty incidence, although only state poverty ratios are reported for the rural sector. He finds that the food components of the Official CPIs rise too slowly because they are too heavily weighted towards cereals, and the food component is too heavily weighted. Since,

compared to the indexes he calculates, cereal prices rose less rapidly than non-food items between the 55th and 61st Rounds and because the official indexes over-weight cereals and foods, the official indexes rise less rapidly than the relevant cost of living. As a result, he concludes that poverty increased rather than falling as shown by official figures produced by the Planning Commission (NSSR, 2006), "undoing three years of progress". In this paper we argue that while there may have been little decrease in money-metric poverty between the 55th and 61st Rounds of the NSS CES, but the conclusions arrived at in Deaton, 2008, are almost certainly wrong and the suggestion of a rise in money-metric poverty is highly misleading. Deaton's new (and old) poverty lines embody methodological lapses and an inconsistent approach to the Indian poverty calculations, so substantive conclusions drawn from them shouldbe treated with appropriate caution.

We identify seven significant issues with this work. Deaton changes his method of computing UVCPI PLs from that he (and Tarrozi) used earlier in three ways, and also changes one major assumption. Firstly, where earlier it was assumed that UV and non-UV items inflate at the same rates, he now acknowledges that this is not the case (more on this below). Now Deaton produces synthetic CPIs combining UV CPIs from CES data with CPIs of non-food items from the official CPIs for Agricultural Labourers (CPIAL) and for Industrial Workers (CPIIW) to get rural and urban CPIs respectively. He applies these synthetic CPIs to the Official rural and urban PLs for the 55th round thereby both using (the Official) PLs that by his earlier argument entail higher standards of living than used in his earlier work, and, thirdly, significantly altering the relationship between urban and rural poverty lines and poverty counts. In addition to these three changes there is one other change to his earlier work, and several other major problems. Thus, he rescinds the assumption that Engel curves (at least for food items) are stable[2] that he used in making adjustments to the 55th round expenditures for the changes to the consumption schedule in that Round. The further problems are discussed below.

Our first point is as follows; Deaton's new synthetic CPIs may be in some respects an improvement over both the official and D&T methodologies, but they are not novel. We addressed all these points in Dubey and Palmer-Jones, 2005a, b & c (hereafter DPJ).. Moreover, they are still unsatisfactory if only because the non-food items in the CPIAL/CPIIW are likely to be infected with the problems which warrant the use of UVCPIs in the first place[3]. While UV CPIs can point to the possibility of gross biases in the official indexes, what is actually needed is a critique of both the UV and non-UV items sub-indexes in the official CPIs, and the production of more

[2] Strictly, the earlier assumption was that the Engel relationship between "30-day" items and "7-day" items was stable (Deaton, 2003b).

[3] Also, Deaton's implementation now seems to calculate UVs only for food items and includes the "fuel and light" sub-indexes of these CPIs in his non-Food component, whereas earlier his UV CPIs included fuel and light items..

appropriate poverty relevant CPIs using standards fieldwork and data processing methods to overcome the flaws of the data and index number calculations of the official indexes (DPJ, 2005c)[4].

Secondly, Deaton changes the way he calculates urban PLs which alters them greatly relative to rural PLs. Instead of anchoring all PLs in a single all-India (rural) PL and using urban vs rural UVCPIs, as in the earlier work, he adopts the official all-India Rural and Urban PLs for the 55th Round as separate anchors for his new rural and urban PLs. One of the consequences of this is a significant modification to his assertion that OPLs exaggerate urban relative to rural poverty (D&T, 1999; Deaton, 2003a)[5]. DPJ use a different procedure to derive urban PLs involving adjusting for the different shares of non-UV items in urban compared to rural areas.

Thirdly, in using the OPLs for the 55th Round rather than the Official Rural Poverty Line for the 43rd Round (OPL43r), Deaton shifts the location of PLs to steeper sections of the cumulative density function of household expenditure. This raises poverty counts and magnifies any differences in PLs that arise.

Fourthly, Deaton seemingly compares the consumption expenditures for the 55th round which were calculated using the Mixed Recall Period (MRP), with consumption expenditures based on the Uniform Recall Period (URP) in the 61st Round (see Tendulkar, Sundaram and Jain, 2003a & b, for an explanation). Our evidence for this is that only in this way can we obtain his empirical result of a significant rise in poverty. Since the MRP produces higher expenditures than the URP, his new results may exaggerate consumption and underestimate poverty in the 55th relative to the 61st Rounds.

A ramification of this is, fourthly, that his calculations of food and cereal shares in expenditure in the 55th round are unreliable because of upward biases in both reported food expenditures (the 7 day contamination problem) and the MRP estimate of monthly per capita expenditure (mpce). While the increase in food expenditure may be partly offset by the higher estimates of infrequent items of low expenditure households using 365 day recall we do not know which one dominates; it may be that the biases in the estimates of 30 day items were greater or less than the increase in the 365 day times included in the MRP estimates of MPCE. If the latter bias dominates, then food and cereal shares in the 55th would have been underestimated (see our estimates based on the MRP aggregate below).

[4] A further point is that Deaton reports using the non-Food sub-indexes of the CPIAL and CPIIW; in earlier work he calculated UV CPIs for food and fuel and light items in the CES. The official non-Food sub-indexes include a Fuel and Light sub-index in both the CPIAL and CPIIW.

[5] In fact, as DPJ point out, the correct interpretation of D&T is that OPLs exaggerate the difference between rural and urban PLs and poverty aggregates. Whether the urban PLs are too high or the rural PLs too low (by their method) depends on which anchor you use – rural or urban.

A fifth issue is a further change from his earlier work involving the comparison of the 55th with other rounds. Deaton (2003b, and Deaton and Dreze, 2002) uses a method that requires stability of the relationship between expenditure on items whose recall period was not different in the 55th Round ("30-day items") and expenditure on items contaminated by the inclusion of 7-day recall questions in that round. Using the estimated relationship between these variables in the 50th round he "corrects" expenditure on these items in the 55th. He drew on Tarrozi, 2004, to support the claim of stability. Now, Deaton accepts that Engel curves in the Indian CES data are not stable at least in recent thick Rounds. This method was criticised by Sen and Himanshu, 2004a & b, and by Popli, Palmer-Jones and Parikh, 2005, partly on the grounds that the 30-day item Engel curves were evidently not stable. Since Deaton now argues that the budget shares of food items have been declining, he is implying that he no longer accepts the validity of his method of correcting the 55th round expenditures. This does not remove bias in the data on consumption of food in the 55th Round.

The sixth point of criticism is that Deaton uses UVs and AVBSs based indexes for the whole population. Deaton finds significantly lower food and cereals shares in consumer expenditure than those used in the official indexes, and his food indexes rise faster than the food sub-group indexes of the official indexes. This reflects trends towards both higher shares of more expensive foods and higher UVs of individual food categories. However, at least in recent years, significantly fewer than 50% of the population are considered poor by the standards of the OPLs; hence, although (democratic) AVBSs of food items and of cereals for the whole population are lower (in more recent rounds) than in the official indexes, the appropriate weights to use are for the poorer groups. The lower quartiles show larger shares of consumption on food items (Table 1) and lower Unit Values of major staples (for rice see Table 2). Nevertheless, our indexes also suggest that the lower quartiles of the expenditure distribution experienced faster food price and general inflation than the official indexes between the 55th and 61st rounds (Table 3: see also Dubey and Palmer-Jones, 2007), rising at roughly the same rate as Deaton's new indexes. But, once we compare poverty using the MRP aggregate, using a consistent set of poverty lines anchored in the all-India Official Rural Poverty line of the 38th Round, there little solid evidence of a rise in money-metric poverty between these rounds (see below).

Table 1: All India Expenditure Shares by Quartile and Round, 55th & 61st.

			quartile30			
Round	Sector	Expenditure group	1	2	3	4
55th	rural	food & drink	0.647	0.630	0.610	0.528
		pan & intoxicants	0.029	0.030	0.029	0.027
		fuel & light	0.085	0.080	0.077	0.065
		clothing & bedding	0.072	0.071	0.069	0.062
		footwear	0.009	0.010	0.010	0.011
		education	0.011	0.013	0.017	0.023
		medical inst..	0.005	0.006	0.009	0.020
		medical non-inst.	0.028	0.035	0.041	0.060
		miscellaneous	0.089	0.095	0.103	0.129
		durables	0.024	0.030	0.035	0.074
	urban	food & drink	0.531	0.492	0.447	0.333
		pan & intoxicants	0.022	0.020	0.017	0.013
		fuel & light	0.077	0.073	0.067	0.058
		clothing & bedding	0.057	0.056	0.054	0.047
		footwear	0.009	0.010	0.010	0.009
		education	0.016	0.025	0.035	0.045
		medical inst..	0.005	0.009	0.009	0.015
		medical non-inst.	0.025	0.030	0.032	0.033
		miscellaneous	0.236	0.260	0.292	0.356
		durables	0.021	0.025	0.036	0.091
61st	rural	food & drink	0.650	0.620	0.581	0.465
		pan & intoxicants	0.030	0.030	0.028	0.023
		fuel & light	0.126	0.117	0.107	0.083
		clothing & bedding	0.034	0.052	0.076	0.129
		footwear	0.007	0.010	0.013	0.019
		education	0.012	0.016	0.021	0.034
		medical inst..	0.000	0.001	0.002	0.035
		medical non-inst.	0.029	0.036	0.045	0.058
		miscellaneous	0.111	0.117	0.126	0.153
		durables	0.000	0.000	0.000	0.001
	urban	food & drink	0.502	0.449	0.387	0.283
		pan & intoxicants	0.021	0.019	0.014	0.010
		fuel & light	0.110	0.102	0.090	0.068
		clothing & bedding	0.033	0.047	0.061	0.085
		footwear	0.007	0.009	0.010	0.014
		education	0.016	0.026	0.038	0.055
		medical inst..	0.001	0.001	0.003	0.019
		medical non-inst.	0.027	0.032	0.034	0.034
		miscellaneous	0.284	0.315	0.363	0.431
		durables	0.000	0.000	0.000	0.001

Sources: author's calculation from unit records of NSS CES. Average budget shares are democratic.

Table 2: Median Unit Values of Rice (code 102) 61st Round, by Expenditure Quartile

	Median Unit Values				
sector	all	Q1	Q2	Q3	Q4
Rural	10.65	9.84	10.33	10.86	11.82
Urban	13.93	11.74	12.90	14.38	17.37
Total	12.29	10.79	11.61	12.62	14.60

Source: author's calculation from the unit records. Extreme values have been weeded

Table 3: Inflation of UV items between 55th and 61st Rounds, Official Indexes and UVCPIs

group	(sub-)index	rural	urban
population	CPIAL/CPIIW	108.98	114.99
q1	uvcpis	113.57	117.15
q2	uvcpis	113.13	116.27
q3	uvcpis	111.03	117.3
q4	uvcpis	111.83	116.3
population	uvcpis	112.97	116.66

Note: the CPIAL and CPIIW indexes are for Food and Fuel and Light combined using the official weights.

The first two errors in computing PLs from UVCPIs described above were not made in our earlier work (DPJ) and the third is not made in our paper presented in Patna in July of 2007 (Dubey and Palmer-Jones, 2007), which we refrained from publishing because of problems in replicating the NSSO's calculation of the MRP consumption (now resolved). In rest of this paper we summarise our method of calculating synthetic PLs and criticisms of Deaton's new calculations. We also report new poverty estimates for three rounds of NSS CES surveys, 1993-94, 1999-2000 and 2004-05 using the official MRP consumption aggregate (mpce365 in the NSS dataset). Finally, we summarise implications of our calculations for trajectories of poverty in India, especially within the 1993/4 – 2004-5 period[6].

A point that we do not discuss in any detail is the perhaps surprising way that food and cereal consumption appear to be falling even for the poor while relative cereal and food prices have been falling. Since It may be that these are inferior categories of goods for which the income predominates over the substitution effect. However, in earlier work one of us has speculated changing shares of expenditure on food (and calories) especially for the poor, could be in part a data problem if food consumption is increasingly under-reported (Palmer-Jones and Sen, 2001); also, we have explored whether some combination of changes in demographic and occupational trends

[6] This period is taken by some to be one in which India's liberalisation can be assessed. It may be better to date liberalisation to earlier dates either in the early 1980s (Rodrik and Subramanian, 2005), or even the mid-1970s (Sen, 2007). Readers are referred to DPJ for our poverty estimates for the "thick" Rounds from the 38th to the 55th.

reducing food "requirements"; changes in tastes; and or changes in the "environment" which have been having the effect of improving the transformation of food into well-being could account for this phenomenon (DPJ, 2005b). While the former implies some of the rise in (food and cereal) consumption is not being recorded, the latter implies that money-metric poverty could be under-estimating rises in welfare. Changes in requirements and changes in tastes do not seem convincing explanations, and changes in the "environment" is largely unexplored. Further convincing research on these issues is surely warranted.

Calculation of Synthetic CPIs

Official Poverty Lines (OPL) in India used to calculate poverty are based on prices produced for the calculation of the CPIAL and CPIRL, and CPIIW, using the Laspeyres index number formula with weights that have been updated at long intervals. Since the Expert Group (Lakdawala Commission) report (GoI, 1993) these prices have been used with putatively poverty group relevant weights to update state/sector base PLs computed for 1973/4 by the Expert Group to produce updated OPLs which are used in Official Poverty Estimates. D&T and Deaton (2003a) pointed out that this method is unsatisfactory (motivated perhaps by Deaton's work on the Boskin Report in the USA (Deaton, 1998)) and observed that there were some obvious distortions in regard to inter-state comparisons of PLs in the rural sector (especially the anomaly of rural Andhra Pradesh as well as between the urban and rural sectors within the states. They supported these claims with new UVCPIs based on the UVs and (democratic) AVBSs that can be computed from the NSS CES.

In our published papers (DPJ, referred to above), we criticised some aspects of the D&T procedures for computing UVCPIs and PLs, and the domains to which they were applied. We produced synthetic CPIs combining UVCPIs with the non-UV item sub-group indexes[7] of the CPIAL and CPIIW. We computed the rural CPIs for NSS Regions[8] (see Table 4 for illustrative differences) and for towns of different size[9] within states in the urban sector (see Table 5) to examine spatial and temporal variations in money-metric poverty from the 38th to the 55th Round[10]. Readers are referred to DPJ for details of our methods and results.

[7] The sub-group indexes of the CPIIW change over time; we excluded the Food, and the Fuel and Light sub-indexes from the index we used in our synthesis.

[8] NSSR are groups of districts within states, which are sampling strata for the NSS CES.

[9] It would be desirable to produce UVCPIs for towns of different size within NSSR but sample sizes are too small. .

[10] We also published State/sector CPIs and PLs for purposes of comparison.

Table 4: UVCPIs of NSSR by States, 61st Round, Rural Sector

	region						
sector and States	1	2	3	4	5	6	7
Rural							
AndhraPradesh	104.7	99.0	95.2	95.9			
Assam	110.4	109.1	107.8				
Bihar	95.3	97.7	98.1				
Gujarat	113.8	114.9	114.1	108.1	119.0		
Haryana	110.9	102.4					
HimachalPradesh	107.2						
J&K	109.8	100.2					
Karnataka	107.5	93.4	97.3	100.0			
Kerala	103.4	113.5					
MadhyaPradesh	93.6	85.8	93.3	104.6	90.3	95.7	97.1
Maharashtra	111.9	112.9	110.7	96.9	101.9	94.9	
Orissa	90.4	87.6	89.1				
Punjab	108.2	102.5					
Rajasthan	101.8	103.1	100.8	102.1			
TamilNadu	105.2	104.0	106.0	105.2			
UttarPradesh	102.9	97.9	89.6	90.7	89.6		
WestBengal	104.2	98.4	106.1	94.8			
Delhi	117.7						
Urban							
AndhraPradesh	96.3	96.0	88.1	90.5			
Assam	107.5	105.2	96.2				
Bihar	90.0	89.2	86.7				
Gujarat	114.6	112.3	114.2	106.9	103.8		
Haryana	105.7	94.2					
HimachalPradesh	96.1						
J&K	94.8	98.1					
Karnataka	101.7	91.3	101.5	92.3			
Kerala	87.7	97.8					
MadhyaPradesh	89.2	86.8	92.5	100.4	92.1	88.6	90.5
Maharashtra	117.2	103.3	102.3	89.5	95.1	93.8	
Orissa	83.5	83.6	86.6				
Punjab	101.8	96.7					
Rajasthan	94.8	98.5	95.9	95.4			
TamilNadu	100.3	93.9	92.5	96.4			
UttarPradesh	94.2	94.1	93.3	89.8	85.0		
WestBengal	98.8	91.7	102.4	86.6			
Delhi	105.0						

61st Round

Table 5: All India UV CPIs by Town Size: 38th – 61st Round

	town size			
round	<50,000	50,000-200,000	200,000-1,000,000	>=1,000,00
38	97.64	100.58	104.2	102.6
43	97.22	100.57	103.72	103.54
55	97.65	101.36	102.06	105.58
61	96.38	97.84	99.97	102.38

Sources: as Table 1

Note: The UV CPI is calculated between all towns of a given size and the all India urban domain.

From UVCPIs to Poverty Lines

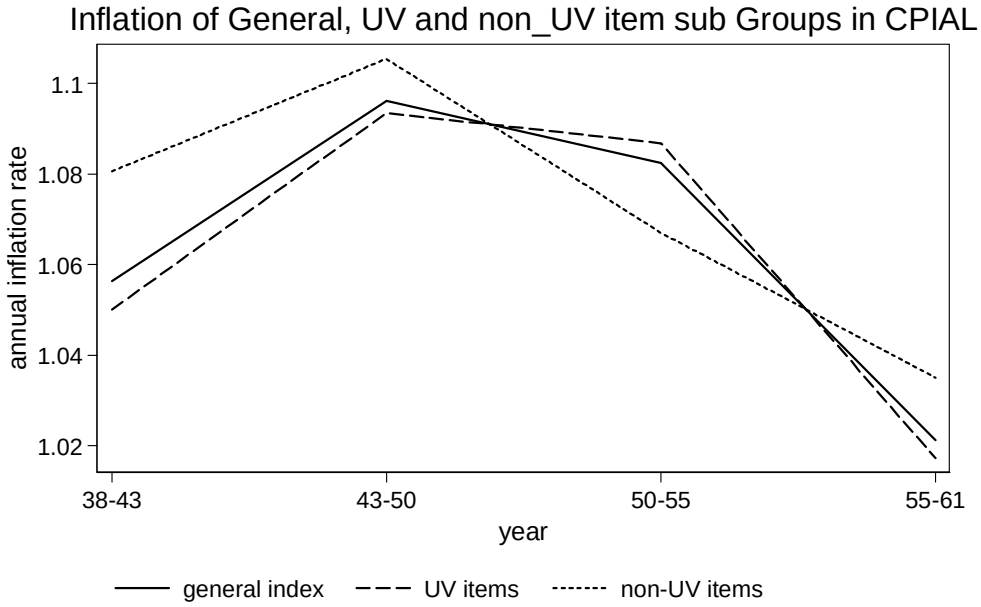
We used these UV and non-UV sub-index based CPIs to compute rural and urban PLs from a single all India base PL (actually the All India Official Rural PL for the 38th Round: OPL38r), adjusting for differences in the shares on non-UV items indifferent domains (see DPJ for details); thus, our method recognises the much greater share of non-UV items in urban expenditure compared to rural, which is ignored in D&T. But this is reflected in Deaton, 2008, by the arbitrary procedure of adopting the OPL55r and OPL55u as anchors for his rural and urban PLs. Our approach produces urban PLs that are significantly greater than those produced by D&T but generally somewhat less than the OPLs. The method has the virtue of consistency, but may still be considered deficient for a number of reasons. Firstly, the absence of reliable urban vs. rural CPIs for non-UV items (in part because the non-UV sub-indexes are based on long out date base weights); secondly because of the arbitrary treatment of the non-UV shares[11]; and thirdly, because it ignores the role of "environmental goods" in the transformation of consumption into well-being, or standard of living, across domains. Where domains differ significantly (spatially or over time) in variables excluded from the CES the conventional "cost of goods" index approach to Cost of Living indexes is clearly deficient (Pollak, 1981; ILO, 2004; DPJ, 2005b; see Subramaniam, 2005, for a similar argument). Our PLs and poverty counts are updated to the 61st Round in Palmer-Jones and Dubey, 2007, and, with caveats,

[11] Our procedure adjusts for the differences in budget shares of non-UV items between domains in the base year only. We do this by multiplying the base domain CPI by the ratio of base to current domain UV budget shares (as well as the relevant CPI between the two domains). Because some items for which UVs can be calculated are weeded out we use budget shares before weeding; these are only slightly different from the budget shares used in the UVCPI calculation. The assumption is that UVs of these items are more similar to other UVs in their domain than to the non-UV item index used in the synthetic CPIs. One could argue along the lines given for the method of computing Cost of Basic Needs PLs by various authors associated with the World Bank (Ravallion, 1998; Lanjouw, 1999; World Bank, 2002b), that the non-UV shares reflect expenditure on basic needs other than food and fuel and light, at expenditure levels at which households can command the real value of a bundle of food goods which satisfied their normative calorie requirements in the base year (Ravallion, 1998).

summary results are presented here. In comparisons using the 55th Round we use the MRP welfare aggregate in all domains rather that trying to adjust the URP aggregates.

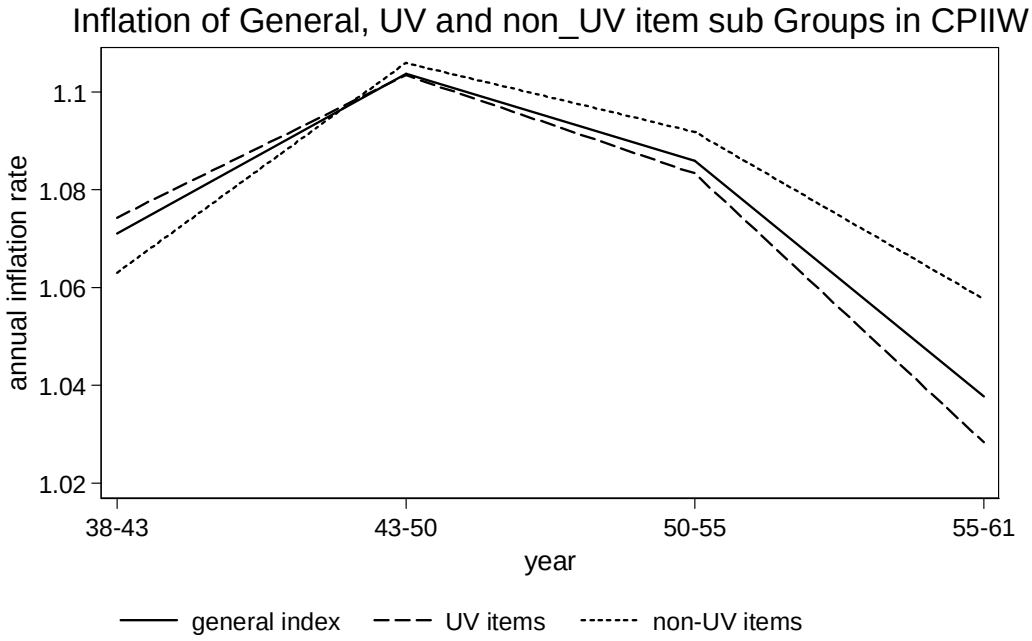
While acknowledging the important points made by D&T, and Deaton (2003a&b), DPJ argued, among other things, that the assumption made by D&T and Deaton (2003a&b) of the same inflation rate for UV and non-UV items was demonstrably not plausible using the sub-indexes of the CPIAL and CPIIW as evidence. We used the non-UV sub-group indexes of the CPIAL and CPIIW as readily available if still flawed remedies. Figures 1 and 2, show how non-UV items (i.e. not Food and Fuel and Light items) have recently risen faster than the UV items (details of our calculations are given in DPJ, 2005b). We also showed (see above) that UVCPIs computed for different expenditure groups differ significantly[12] controverting the claim that UVs are not quality imbued (D&T, and Deaton 2003a, 2008).

Figure 1: Inflation of UV and non-UV Sub-Groups during 38th to 61st rounds: CPIAL



[12] This point has been forcefully argued by Minhas et al (1988) which was duly recognised by the Expert Group (1993).The need for more appropriate weights was also emphasised in Dubey and Gangopadhyay (1998).

Figure 2: Inflation of UV and non-UV Sub-Groups during 38th to 61st rounds: CPIIW



As noted above, we also show that UVCPIs differ significantly by expenditure groups, between NSSRs within states, and between towns of different size. However, to maintain comparability with other authors, and because we lack non-UV CPIs for different expenditure groups[13], we used synthetic CPIs for the whole population (with democratic weights) [14] in our published PLs, and our poverty calculations reported here are based on PLs for NSSR and towns of different size within states (see Table 6 for the All India results; State, NSSR and town size PLs are available from the corresponding author)[15].

[13] Though it could be maintained that the non-UV subgroup indexes of the CPIAL and CPIIW are based on prices and weights (if rather dated) which were relevant to the poorer classes.

[14] Since poverty varies between domains we would use UVCPIs for different expenditure groups in different domains; e.g., where poverty rates are around 50% of the population we could use the CPIs for the middle quartiles or Q2, and where it is below 30% we could use the UVCPI for Q1. This would vary over time as poverty changes.

[15] Ideally we would use indexes for town sizes within NSSR, but for many NSSR there are not enough cases to compute reliable UVs and AVBSs. Nevertheless, what evidence we have shows that town size UV CPIs vary with the UVCPIs of the rural NSSR within which they fall.

Table 6: All India Rural and Urban Poverty Lines, 38th-61st Rounds (Rpspcpm)_

sector	expenditure group	round				
		38	43	50	55	61
rural	Population	89.50	119.06	173.94	264.19	338.20
	q1	85.78	114.25	163.09	253.87	316.95
	q2	88.63	117.75	176.12	268.18	337.31
	q3	90.77	120.20	177.77	272.69	342.16
	q4	95.73	130.43	182.31	285.67	373.30
urban	Population	109.06	146.29	266.26	403.60	470.65
	q1	104.88	137.90	240.54	365.24	426.51
	q2	106.03	140.69	252.01	387.45	445.71
	q3	109.01	148.03	264.95	409.69	475.39
	q4	123.61	167.86	305.24	478.99	557.64

Sources: as Table 1

Deaton, 2008, argues that the official CPIs underestimate the rise PLs because they have an undue share of food items and a high share of cereals among the food items, which fail to reflect the rising share of non-food items and falling share of cereals in average household consumption. These criticisms of official CPIs remain true even for UV CPIs of the lower quartiles; and there is also a trend to higher UVs among the cereals. The question, however, is whether these patterns should be reflected in PLs which correspond to a common standard of living. When food prices are lower relatively, which they clearly were between the 55th and 61st rounds, one might expect utility compensated substitution effects to lead to some rise in the quality and quantity of staples consumed, and it is rather surprising that quantities of staples and calories fall in the absence of either changes in tastes or in the "environmental" goods referred to a above. However, we note continuing unresolved debates about consumption elasticities for calories which has not moved on much from the work of Bouis and Haddad, 1993. The widely noted decline in calorie consumption at common "real" standards of living is clearly unexpected for a number of authors (Meenakshi and Vishwanath, 2003; Patnaik. 2004; Ray and Lancaster, 2005). The possibility that demographic and occupational patterns have changed so that fewer calories are required (higher dependency ratios and less energy intensive occupations) cannot be entirely discounted as explanations for shifts from low to high quality calories and from food to non-food items; however, this should be demonstrated rather than asserted. Our rough and ready calculations using a version of the factorial method (FAO/WHO/UNU, 1985) of computing calorie requirements, similar to that used by the Technical Committee for the official PL calculations (GoI, 1979; 1993), does not suggest that this explains the apparent fall in calories consumed.

Poverty Lines in Theory and Practice.

The discussion above clearly indicates that there are serious outstanding issues in the construction of price indexes to be used for poverty calculations, and in the construction of poverty lines. It is arguable that these are so severe that money-metric welfare comparisons across domains that differ significantly, is inherently unsatisfactory. Some would replace these methods with food or nutrient consumption anchors, because this would be consistent with the original Food Energy Intake (FEI) anchors (Patnaik. 2004; Ray and Lancaster, 2005). However, this method seems ignorant of elementary consumer theory which allows even the poor to substitute among goods (or characteristics such as calories) in response to relative price changes (and we would argue in response to differences in the "environment" in the sense used above). Further, not only do calorie based methods such as the Food Energy Intake (FEI) and Direct Calorie Intake (DCI) methods violate evidence of substitutability, but so also does the widely canvassed Cost of Basic Needs (CBN) method of establishing poverty lines espoused by the World Bank (see also World Bank, 2005; UNSTATS, 2005; see also Tarp et al. 2002). This similarly requires the assumption of zero utility compensated substitution between food (or calories) and other goods to be consistent with this elementary theory (Ravallion, 1998). However, this assumption is inconsistent with much evidence.

Poverty Incidence in India since 1993-94

Various claims have been made about trends in poverty since "liberalisation" and within the post liberalisation period (Himanshu, 2007; Dev and Ravi, 2007; Deaton, 2008), in this section of this paper we report our PLs and poverty counts from the 50th to the 61st rounds based on the relatively consistent Mixed Recall Period consumption aggregate. Himanshu, and Dev and Ravi argued that there was significant poverty reduction between the comparable 50th and 61st rounds; using different methods they both claim there was little poverty reduction between the 50th and 55th Round but significant reduction thereafter, while Deaton argues that poverty increased between the 55th and 61st Rounds, which suggests that what poverty reduction there was between the 50th and 61st must have occurred in the earlier period. Our poverty ratios are reported in Table 7; together with those we derive using the Official and our replication of Deaton's earlier method.

Table 7: All India Poverty Head Counts by Author, Recall Period and Round: 38th – 61st, All India

	Poverty Line and Welfare Composite							
	OPL		Deaton		Deaton & adj. budget shares		UV & non_UV & adj budget shares	
round	mrp	urp	mrp	urp	mrp	urp	mrp	urp
38	0.43	0.45	0.39	0.41	0.41	0.44	0.42	0.44
43	0.36	0.4	0.31	0.35	0.34	0.38	0.34	0.38
50	0.31	0.36	0.23	0.28	0.26	0.32	0.27	0.32
55	0.27	0.27	0.19	0.19	0.22	0.22	0.22	0.22
61	0.22	0.28	0.16	0.21	0.19	0.25	0.23	0.28

Sources: as Table 1; our calculations using published OPLs and our replications of D&T's method.
Notes: urp – Uniform Recall Period; mrp Mixed Recall period

In order to contextualise our findings, we point out here that much of the interest in poverty counting in India in recent years has centred on the conflicting views of the extent of progress in poverty reduction since the change in policy towards liberalisation putatively located in the early 1990s[16]. For this purpose the comparison of poverty in the 55th round relative to the 50th, and the 50th with the earlier 38th and 43rd rounds was to be decisive. Unfortunately, the 55th round results were contested, even before they arrived (Sen, 2000), on the grounds that the survey methodology, in particular the recall periods, were likely to have resulted in data that over-estimated the fall in poverty by raising reported consumption (much of this debate is summarised in the not entirely aptly named "Great Indian Poverty Debate" (Deaton and Kozel, 2005a, 2005b; Reddy, 2007). Deaton, 2003a, presented a method of adjusting estimates of consumption in the 55th Round based on an estimated relationship estimated with 50th Round data; his method assumes stability in this relationship between this and the 55th Round. Sen and Himanshu, 2004a & b, disputed Deaton's method, in large part on the grounds that the stability assumption was not warranted; Sen and Himanshu in the end used the MRP data from both these Rounds, to compare poverty in 1999/00 with 1993/4, suggesting perhaps that the MRP is as good as it gets; they conclude that poverty had not fallen post-reform to anything like the extent of its fall between the earlier rounds. Popli, Palmer-Jones, and Parikh (this journal, 2005) also contested Deaton's method of accommodating the distortions due to the use of 7 day recall, and concluded that it was most unlikely that there was any reputable way to recover what expenditure would have been in the 55th round had the survey schedule not been altered by data manipulation.

Since the botched 55th Round of the quinquennial CES surveys, poverty analysts eagerly awaited availability of the next "thick" CES in the form of the 61st Round conducted in 2004-5. This survey was to be comparable with the earlier thick rounds up to the 50th, thereby avoiding the debacle of the 55th.

[16] Though many people have pointed out the in fact the earlier central planning approach was progressively abandoned from the early 1980s (Panagariya, 2004).

Himanshu (2007) and by Dev and Ravi (2007), report poverty ratios calculated using the official PLs and set them in the context of the preceding four "thick" Rounds (38th, 43rd, 50th & 55th). Both papers are concerned to assess whether poverty fell in the post reform period (which they put as after the 1993/4 50th Round[17]) and in particular whether it fell faster in the second compared to the first "post reform" period (i.e. between 1993/4 and 1999/00 compared to 1999/00 and 2004/5). In order to compare trends in the 1990s with those after the 55th Round, Himanshu, 2007, uses the data produced by the truncated consumption schedules of the Employment and Unemployment Surveys (EUS)[18], while Dev and Ravi, 2007, use the published Mixed Recall Period data from the 61st round which they claim is "approximately" comparable between the 50th, 55th and 61st rounds. Deaton, 2008, seems to have compared the MRP consumption aggregate in the 55th Round with the URP aggregate in the 61st.

Clearly, even setting aside all our reservations about money-metric methods, none of these procedures is credible as an assessment of trends in poverty post reform. In the case of Dev and Ravi (and Himanshu) the use of OPLs is an obvious deficiency. Himanshu's use of the putatively comparable EUS consumption data is flawed because there is no separate EUS consumption survey for the 50th round; both Himanshu and Dev and Ravi use OPLs) [19]. Deaton, 2008, does not go back to the 50th Round but compares poverty computed using the MRP consumption aggregate in the 55th Round with the URP consumption aggregate in the 61st (using his own, flawed, synthetic PLs – flawed because they are anchored in the unexplained use of separate All India 55th Round OPLs for the Rural and Urban anchors for his PLs, and for other reasons given above[20]).

None of the "thick" CES are strictly comparable (for either URP or MRP calculations, and this extends to the 61st Round (the authors can provide further details on request, but see Palmer-Jones and Dubey, 2007, Table 14; see also Bhalla and Das, 2004)).

[17] This is of course not an appropriate timing either taking 1991 as the date of reforms, or the earlier period of "reforms by stealth" initiated in the early 1980s (Panagaryia, 2004; Bhagwati, 1993).

[18] Of course these is no separate EUS consumption survey for the 50th Round, since separation only occurred in the 55th Round. See Tendulkar, Sundaram and jJain, 2003a,, and Sen and Himanshu, 2004a&b for extensive discussions of the EUS and CES consumption. estimates

[19] Further problems arise from the way Himanshu, and in places Dev and Ravi compute the rates of decline in poverty. Himanshu uses the nominal percentage point definition which has no reasonable meaning even though quite commonly used in poverty comparisons. It ignores the increasing difficulty of reducing poverty as poverty declines. Dev and Ravi use different methods to compute the rate of change, not always the preferred (percentage) method; appendix Table 1 shows the problems that arise.

[20] Also, it is not clear whether Deaton has included Fuel and Light items in his UV CPIs, or in the non-Food CPI part of his calculation. One would assume that Deaton would prefer to use UVs where possible.

Some of the differences may appear slight, but they are differences all the same. One could argue that the schedules should indeed change as consumption patterns change, and, indeed, that different schedules are required in different domains to reflect differences in consumption patterns[21]. But this would require a more thorough redesign of the CES together with overhaul of the data and computation of official CPIs, which we advocate in preference to further econometric ingenuity (DPJ, 2005c).

Nevertheless our preliminary results including the 61st round may be of some interest, if only from a precautionary point of view. The results presented in our paper at the Patna workshop, were based on states and metropolitan and "other" towns as domains, and used the official MRP consumption figures. Here our NSSR and town size poverty estimates use our (arbitratily) consistent, synthetic CPI PLs anchored (arbitrarily) in the All India Rural OPL of the 38th round (Table 7). The use of the MRP welfare aggregate suggests we should accept that the OPLs and those anchored on them, reflect a lower level of welfare by this metric, so that a higher base PL might be used to maintain comparability with the welfare level as original conceived. We have not pursued this idea here.

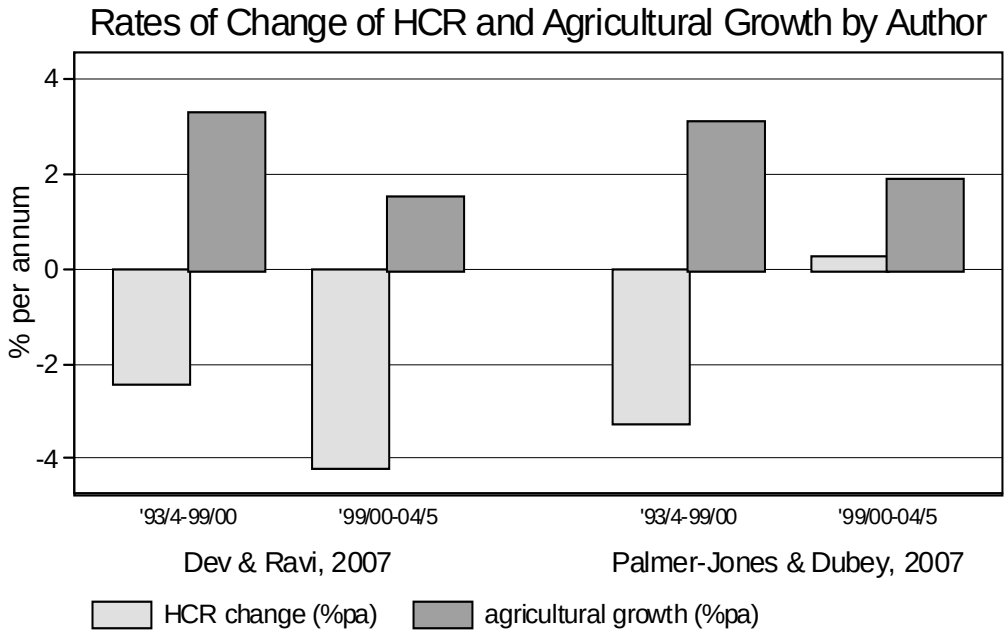
Table 7 shows that, using the MRP estimate of consumption, poverty falls in the first post liberalisation period but rises slightly in the second; however this pattern cannot be relied upon because of lingering doubts about the comparability of the 55th Round. It is likely that the 55th round exaggerates consumption; hence any valid adjustment would reduce poverty reduction in the first period and raise it in the second. Indeed it is very likely that it would cause there to be at least some poverty reduction in the second period, although other desirable changes to our way of calculating PLs might offset this (e.g. using poverty group relevant UV CPIs instead of those for the entire population since the former show more inflation in the second period) . But in any case, consistent use of the MRP welfare aggregate contradicts both "a loss of 3 years of poverty reduction" (Deaton, 2008), and a simplistic claim of a disconnection of money-metric poverty reduction and agricultural growth as suggested by Dev and Ravi, 2007. Figure 3 shows our estimates of poverty reduction and agricultural growth in the two sub-periods[22]. This corroborates in a rough way data from the NFHS of 1992-3, 1998-9 and 2004-5 which also show improvements for some indicators of well-being in each sub-period (Dubey and Palmer-Jones, 2007), and controverts trends shown by food calories or other nutrient poverty metrics[23]

[21] Thus tapioca is an important staple in Kerala that is consumed in two forms – dry and fresh. However it appears in only one form in the CES schedule used in all areas, contributing perhaps to low estimated calorie consumption in that state.

[22] Using apparently the same sources we have slightly different rates of agricultural growth with rather less in the first and more in the second period than reported by Dev and Ravi (their Table 7).

[23] We have entires sets of FEI, DCI, and CBN (various flavours) poverty estimates which of course confirm that calorie based poverty does not fall, and indeed increases over the periods ov concern,

Figure 3: Changes in HCR Poverty and Rates of Agricultural Growth, 1993/4 – 1999-00 and 1999/00 – 2004/5



Sources: Change in HCR explained in text; agricultural growth rates ar D&R, Table 7 and Economic Survey, 2005-6 Table 1.3a
PJ & D figures are for UV & non-UV CPI budget share adjusted Indexes at State and Sector levels

Conclusions and Policy Implications

Evidence of spatial and social patterns and temporal trends in poverty in India have played a large role in debates about policy both in India and in development studies more generally because of the supposed quality of data and rigour of methodological procedures (as well as it's significance for estimates of global trends in poverty because of the sheer numbers of poor in India). It is clear from the work of Deaton and Tarrozi in particular, and our work earlier work and that reported here, that this prominence relies on shaky foundations, which have not yet been shored up.

We are confident that the methods we use, and those used by Deaton, 2008, are not robust, because they neglect changes in the "environment", understood as both the natural and built environment, and the availability of public and common pool goods, and other problems in making Cost of Living comparisons across very different time/space domains[24]. This means that expenditures deflated by our synthetic CPIs, are unlikely to correspond to equivalent standards of living in the

This occurs because of the decline in estimated calorie consumption at all estimates of the real expenditure at which households on average consume their (constant) calorie norms.

[24] New goods, changes in the quality of goods, and changes in tastes are further problems; some of these issues are discussed in DPJ; see also ILO, 2004.

different domains. We also, in our papers referred to above, and for not dissimilar reasons, reject the use of calorie norm based poverty calculations, including the CBN methods promulgated by the World Bank (2002; 2005) and the UNSTATS (2005).

In recent years there has been much if perhaps not "great" (see Reddy, 2006; Breman, 2007) debate about these methods, and to a lesser extent about the data. We argue in this paper that neither the money-metric methods, nor the data, can be relied upon to produce measures of ill-being by a common yardstick rather than one in which the yardstick differs between different spatial, social and temporal domains, and thus provides no basis for the evaluation of either causes or remedies.

The methods used to produce poverty lines by the Planning Commission, the alternatives suggested by Deaton and Tarrozi, and those promulgated elsewhere by poverty experts associated with the World Bank, have no satisfactory theoretical basis unless applied to domains which are more similar than is likely to be the within in India, or in the same domain over times of significant change[25]. We certainly do not think they warrant the claim that there was a significant rise in poverty between the 55th and 61st Rounds; nor do they provide a basis for arguing that poverty reduction has become disconnected from agricultural growth, although the work that provides the support for this argument needs to be reconsidered in the light of our criticisms of official poverty lines and counts based on them[26] (e.g. Palmer-Jones and Sen, 2003, as well as Datt and Ravallion, 1998)..

What is required, we argue, is a thorough re-thinking of debates about patterns and trends in and policy towards ill-being, rejecting the notion that money-metric poverty can provide comparable estimates of well-being, and developing new survey instruments that are better able to provide evidence on multiple aspects of well-being. We suggest that in conjunction with modernized methods of producing reliable consumption data, poverty relevant surveys should include anthropometry of all of the population, and information of local prices, infrastructure and environment are a minimum informational base with which to remedy the current confusion. Perhaps the NSSO can learn some things from the designs of the Living Standards Measurement Surveys (Grosh and Glewwe, 2000), as long as execution is of appropriately resourced and supervised. It is also desirable that participation in these debates is as widely based as possible, and not confined to privileged cliques. It is surely a serious indictment of poverty experts who engage in this type of business that it can be found so wanting, especially in the spending of so much effort

[25] We should point out at this point that policy debates with regard to the deprived in developed countries is conducted in very different terms to those in developing countries reasons that cannot be reduced to the difference between absolute and relative concepts of poverty (see Lister, 2004; Citro and Michael, 1995; Ireland, 2004).

[26] Or Deaton's; e.g Kijima dn Lanjouw, 2003.

manipulating data[27] rather than being concerned with the timely scope, quality, and availability, of raw data.

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[27] see DPJ, 2005c for some further reflections along these lines.

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Appendix

Appendix Table 1: Change in HCR between 38th & 50th and 50th & 61st Rounds; Various Authors using Published Group Data

	Himanshu[1] $100*\frac{(x_t - x_1)}{t}$		Dev & Ravi[2] $100*\frac{(x_t - x_1)}{x_1}\Big/t$		RPJ[3] $100*\left(\frac{x_t}{x_1}\right)^{\left(\frac{1}{t}\right)}-1$	
	1983-1993/4	1993/4-2004/5	1983-1993/4	1993/4-2004/5	1983-1993/4	1993/4-2004/5
Rural	0.88	0.77	1.77	1.97	1.97	2.39
			(1.90)	(2.17)	(1.94)	(2.20)
Urban	1.05	0.61	2.19	1.83	2.39	2.17
			(2.40)	(1.96)	(2.46)	(2.02)
Total	0.92[4]	0.73[4]	1.89	1.96	2.02	2.36
					(2.08)	(2.18)

Note: 1. x_t is the HCR in time t

2. figures in brackets are calculated with Himanshu's poverty estimates

3. using figures from NSS, 2006 (sectors weighted by population); figures in brackets are calculated from Dev & Ravi.

4. Himanshu does not publish figures for All India; I have weighted their rural and urban figures using the rural and urban population from the preceding census as weights.