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Many economic and social indicators suggest that not only is the level of absolute poverty in India high, there has also been an adverse impact of neoliberal policies on poverty. And yet, the poverty estimates by the Planning Commission and many individual academics, both using a method that renders irrelevant the question of a nutrition norm, show low levels as well as decline in poverty over the 1990s and beyond. This article proves that both comparisons over time of the all-India and state-level estimates of poverty as well as any comparison at a point in time of poverty levels across states, obtained by this method, are invalid. Using a direct poverty estimation route of inspecting and calculating from current National Sample Survey data the percentage of persons not able to satisfy the nutrition norm in calories, the author finds that in 1999-2000 nearly half of the rural population who are actually poor have been excluded from the set of the officially poor. For 2004-05, while the official estimate of rural poverty is 28.3 per cent, the author's direct estimate of persons below the poverty line is 87 per cent. There is clear evidence of a large and growing divergence over time between the author's direct estimates of poverty and the official indirect estimates.

Utsa Patnaik

I Introduction

The question of poverty levels and trends has become particularly contentious during the last 15 years, owing to the repeated claims by the government, by a number of academics associated with the government and by economists associated with the World Bank, that a substantial decline in poverty in India – rural poverty in particular – has taken place in the 1990s, during the period of implementation of neoliberal economic policies and trade liberalisation. The Planning Commission claims that rural poverty has declined from 37.3 to 27.4 per cent of the population comparing the 50th round (1993-94) and the 55th round (1999-2000) National Sample Survey (NSS) data on consumer expenditure (though the latter figure has been recognised as an underestimate). The World Bank's *World Development Report, 2006* presents a figure of 30.2 per cent for the latter date. The 61st round 2004-05 data, stated to be comparable to the 50th round, has produced a recent official estimate of 28.5 per cent in rural poverty.

On the other hand, the available official data show that, over exactly the same period, a number of interrelated indicators of rural well-being have worsened: rural development expenditures have gone down as a share of national product and in real per head terms; all-India crop growth rates have halved in the 1990s compared to the 1980s and foodgrains output has become stagnant over the last five years; rural employment growth has dropped sharply and open unemployment has been growing fast. Bank credit to farmers has declined and higher dependence on private usurious credit combined with severe price declines for many crops has led large segments of farmers into a debt-trap. Foodgrains absorption per head has declined sharply to reach levels prevalent 50 years ago. Rising farm debts have led to loss of assets reflected in a rise in landlessness, and to the historically unprecedented situation of many thousands of farmer suicides in widely separated areas in different states (Andhra Pradesh, Karnataka, Vidarbha in Maharashtra, Punjab and Kerala) and these suicides are continuing. All these indicators of general depression, combined with acute distress in specific regions, are quite inconsistent with the claims of decline or constancy of poverty.

Since overwhelming evidence exists for the adverse trends in the rural economy, is it the case that the official method of poverty estimation is itself faulty and is failing to capture the actual trends in poverty? While up to the mid-1990s, poverty estimates were mainly of academic interest, from 1997 the food subsidy has been targeted and the population divided into "above poverty line" and "below poverty line". Lower-priced foodgrains from the public distribution system are available only to those identified as poor. How the poverty line expenditure is arrived at and how the poor are actually counted, has acquired an important policy dimension affecting the lives and welfare of millions of people in the country. If the counting is incorrect, it will lead to the implementation of wrong policy measures lowering mass welfare.

Poverty has many dimensions, and can be thought of as not merely material deprivation and a low standard of life, including poor health indicators, but also deprivation in relation to education and culture. One particular dimension of material deprivation had been correctly picked out as the most crucial one, namely, the ability to access a minimum nutrition level expressed in terms of a norm of daily energy intake in calories, required for working health. This index was simple though it captured poverty only partially, and it obtained widespread acceptance. It was suggested in Dandekar and Rath's pioneering 1971 paper and was taken up by the Planning Commission in India, which set up in 1979 a Task Force on Projection of Minimum Needs and Effective Consumption Demand. Its recommendation was based in turn on the Indian Council of Medical Research table of dietary intakes [Gopalan 1992, 1997], which was

applied to the population structure by age and gender. On average 2400 and 2100 calories per day per capita worked out as the required daily allowance (RDA) for energy intake, for rural and urban areas respectively, and all persons unable to access this through their actually observed expenditure were to be considered as poor.

This measure using a nutrition norm is an absolute measure of poverty as distinct from the relative measures used in many advanced countries – such as considering all those to be poor, who have less than half the average per head income in the economy [Anand 1983, 1997; Subramanian 1997]. With a relative measure of poverty, rise in inequality will imply rise in poverty. The absolute poverty measure adopted in India however requires stronger conditions for poverty to show a rise. Increase in the inequality of income and of expenditure could be quite consistent with poverty so defined, showing a decline. Only an absolute decline in expenditure for substantial sections of the population (not offset by rise for other sections), would lead to average poverty rising.

The purpose of this paper is to explore why the poverty estimates by the Indian Planning Commission and many individual academics following the same method, show low levels as well as decline in poverty over the 1990s, whereas all other economic and social indicators suggest that absolute poverty is high and there has been an adverse impact of neoliberal policies on poverty. For this purpose, we start by detailing the main content of neoliberal economic policies guided by the Bretton Woods Institutions (BWI) as they have affected rural activities.

II
Neoliberalism as an Economic Policy Package

Neoliberalism entails a strongly expenditure deflating policy package at the macroeconomic level, and India has been no exception. This proposition may seem strange since India has seen 6 to 7 per cent annual gross domestic product (GDP) growth rates. The overall growth rate can be misleading however, for it tells us nothing about the sectoral composition of growth or its distributional effects. It is perfectly possible for the material productive sectors to stagnate or decline while services, including financial services, are booming, and this has been the case with India's growth in the 1990s. More rapid structural shifts in the sectoral contribution to GDP have taken place than in any previous period; the manufacturing sector's share in GDP has stagnated in the last 15 years while its contribution to employment has declined. While the share of agricultural and allied activities in GDP has fallen sharply, the population dependent on this sector has declined little and faces falling per head real income.

Agriculture is always a "soft" target for the misguided expenditure deflating policies which continue to be urged by the BWI, no matter how high unemployment and hunger might be. The impact of deflationary policies has been especially severe in rural areas which, already subject to declining public investment, saw sharp reduction in public planned development expenditures. In rural development expenditures (RDE) I include the five plan heads of (a) agriculture, (b) rural development, (c) irrigation and flood control, (d) special areas programmes, and (e) village and small-scale industry. All these expenditures are vital for maintaining rural productivity and employment. The employment-generation programmes had assumed special importance from the drought year 1987 onwards. During the pre-reform Seventh Plan period, 3.8 per cent of net national product (NNP) was spent annually on RDE, with well-documented positive effects in raising non-farm employment and rural wages. From 1991, as contractionary Fund-guided policies started, the share of RDE was cut sharply to below 2.6 per cent of NNP by 1995-96 and fell further to 1.9 per cent by 2000-01. Using implicit GDP deflators, we find an absolute fall in real expenditure per head of rural population.

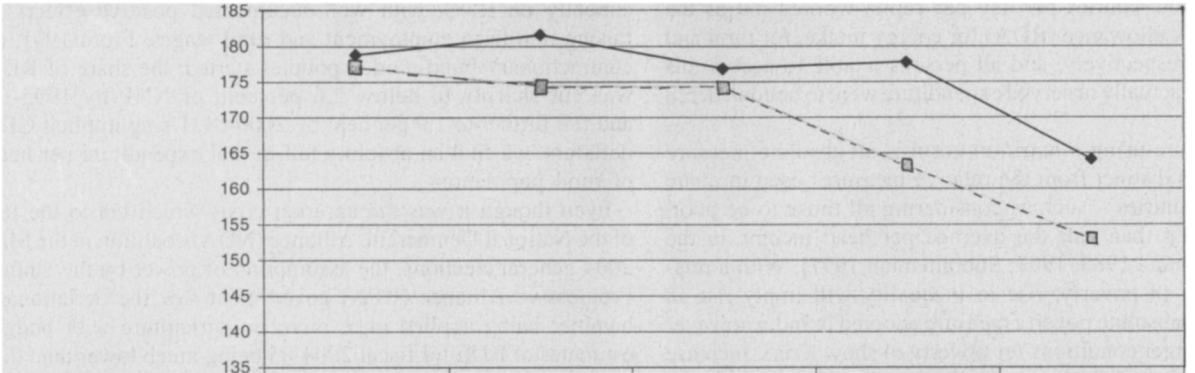
Even though it was the agrarian crisis which led to the fall of the National Democratic Alliance (NDA) coalition in the May 2004 general elections, the assumption of power by the United Progressive Alliance (UPA) government saw the deflationary hammer being applied once more on agriculture with budget estimates of RDE for fiscal 2004-05 being much lower than that of preceding years, and with a cut by one-third in funding for the employment generation schemes. The revised estimates for 2004-05 show a slight rise in RDE to 2.3 per cent of NNP, far short of the required doubling necessary to make an impact on rural depression. The simultaneous notifying of the Fiscal Responsibility and Budgetary Management Act, 2004 underscored the strongly deflationist stance of the new government even in the face of rising unemployment. The gross fiscal deficit as a per cent of GDP has been brought down from 6.1 in 2000-01 to 4.1 by 2005-06; it was slated to be further lowered to 3.8 in 2006-07 but has been actually lowered to 3.7.

This harsh contractionary fiscal policy has had nothing to do with any objective resource constraint – indeed with strong income shifts towards the already well-to-do, tax receipts have been buoyant and the tax-GDP ratio has been rising – but has simply reflected the government's acceptance of the deflationary dogmas of financial interests and in particular of the BWI, which advise expenditure reduction no matter how high unemployment might be, and thereby greatly worsen the problems of unemployment and income loss, since the expenditure cuts have multiplier effects in reducing incomes and employment further. Indeed, these expenditure – reduction prescriptions are based precisely on the untenable premise of full employment, for without this premise the pre-Keynesian proposition cannot be maintained that there is a fixed savings pool in the economy such that increase in public expenditure will "crowd out" private investment directly or via a rise in the interest rate.

These views have been extensively critiqued [Baker, Epstein and Pollin 1998]. P Patnaik (2000) presented a critique of the "reduce the fiscal deficit" doctrine of the BWI and the theoretical premise of full employment on which it is based, and U Patnaik (2003) contained a discussion of the impact on the peasantry, of balanced-budget doctrines of the Great Depression years and the present identical deflationary stance of the international financial institutions. I have elsewhere argued that this revenant pre-Keynesian theory represents the logical fallacy known as the "converse fallacy of accident", in which from a specific assumption (full employment) a general inference (expenditure deflation) is improperly drawn.[1]

Total capital formation in agriculture continues to stagnate in real terms, since sharply reducing public investment is not being compensated by rising private investment. There is no economic rationale for believing that "public investment crowds out private investment", which is the common deflationist argument for reducing the state's role in rural development. Precisely the contrary has been shown to hold for certain types of investment essential for an irrigation-dependent agriculture like India's.

Chart 1: Annual Per Capita Output and Availability of Foodgrains in Kilograms, Triennial Average Ending in Specified Years



	1991-92	1994-95	1997-98	2000-01	2002-03
Per capita Output, Kg	178.8	181.6	176.8	177.7	164.1
Per capita Availability, Kg	177	174.3	174.2	163.2	153

Note: Availability is 0.875 times gross output plus net imports minus net addition to public stocks.

Private tube-well investment is profitable where the water table remains high owing to seepage from state-built canal irrigation systems, and where community integrated watershed management is encouraged with state help. The cutback of public investment and in RDE has led to a halving of the crop output growth rate in the 1990s, and a collapse of employment growth. Both foodgrains and all-crop growth rates nearly halved in the 1990s compared to the pre-reform 1980s, and fell below the population growth rate leading to declining per capita output, for the first time since the mid-1960s agricultural crisis, which however had been short-lived, whereas per head agricultural output continues to fall even after a decade.

The position has since worsened further: the peak-to-peak foodgrains output has become completely stagnant over the last six years at 112 million tonnes, and per head output is falling faster. With increasing use of land for non-agricultural purposes, gross sown area has remained static since 1991. It is only through yield rise that output growth can be maintained, but yield growth is declining. The agricultural universities had played a major role in developing and disseminating new crop varieties, and the cut in research funding in these universities, by affecting the search for better rain-fed crop varieties, has also contributed to yield growth deceleration.

Falling agricultural growth has produced fast growing open unemployment combined with a fall in number of days employed. Assuming constant labour coefficients, a near halving of employment growth was to be expected, given the near-halving of crop output growth, but the actual job losses have been greater since mechanisation and use of chemical weedicides has additionally reduced labour coefficients. The work participation rate has declined, and open unemployment has been growing at over 5 per cent annually. The elasticity of employment with respect to output, which was 0.5 during 1983 to 1993-94, fell to zero during 1993-94 to 1999-2000. The 61st round data relating to 2004-05, shows no improvement: the rural unemployment rate for men is stagnant and for females it has risen, but the participation rate shows a slight rise (NSS Report 515).

I have earlier written extensively on the fact that annual foodgrains availability per head of total population, has fallen steeply from 177 kg in the early 1990s, to only 153 kg by 2003-04, with over four-fifths of the fall coming after 1998. This level prevailed 50 years ago, in the early 1950s, and is lower than the 157 kg average during 1937-41. Forty years of successful effort to raise availability has been wiped out in a mere dozen years of economic reforms. The average Indian family today is absorbing 115 kg less per year of foodgrains than in 1991; average calorie intake has fallen from already low levels, and since data show that urban calorie intake has risen, it is rural absorption which has fallen much more than the average.

This steep fall in foodgrains availability per head (Chart 1), is a highly abnormal trend which is not expected when per capita income is rising, since the income elasticity of demand for animal products, which is indirect use of foodgrains as animal feed, is around 1.6 for developing countries. Foodgrains availability has to meet not only direct consumption but all forms of use like animal feed, processed foods, and commercial use. Hence economies with rising per head income show rising availability, with an increasing share for indirect uses. The steep fall in per capita absorption in India is consistent only with worsening income distribution of a particular type, an absolute decline in incomes and purchasing power for a major part of the population, outweighing rise for the minority with fast rising incomes. The interested reader is referred to my earlier papers for a more detailed analysis, which locates the reasons for the decline in the severe loss of purchasing power inherent in the unemployment-raising and demand-deflating policies noted briefly above, combined with exposure of our farmers to global price declines after 1996 as trade restrictions were removed [Patnaik, U 1996, 2003, 2003a, 2004, 2005]. These were also added to by the attempt to cut the food subsidy by raising issue prices to final buyers, more than procurement prices to farmers, which simply resulted in pricing out the poor from the public distribution system (PDS), and the final blow was the misguided "targeting" of the PDS from 1997 under which access to cheap food was no longer universal and demand-driven but restricted to those arbitrarily defined as "poor" by the government. The result was a massive fall in grain sales from the ration shops, from 21 million tonnes in 1991 to only 13 million tonnes by 2001 while normally sales should have been rising as the population grew [Swaminathan 2002].

Expenditure trends from the thin-sample rounds of NSS confirmed this analysis. The lowest 40 per cent of persons ranked by expenditure levels had absolutely lower per capita total real expenditure by 2001-02 compared to 1995-96 while the next 40 per cent had stagnant real expenditure [Sen and Himanshu 2004]. In fact, the income situation is worse than expenditure because asset adjustments have been taking place to maintain consumption flow.

The direct intake part of grain availability also declined in the 1990s in all states except Kerala, West Bengal and rural Orissa. Gopalan (1992:191) has pointed out that ".... If the habitual cereal-legume dietaries of poor Asian population groups were consumed at levels adequate to meet the full caloric needs (and here we are talking of caloric needs as conforming to present international recommended mean levels of intake, and not of M-2SD levels),[2] then protein needs would be automatically met". The National Nutrition Monitoring Bureau had informed us that "the NNMB has consistently confirmed in successive surveys that the main bottleneck in the dietaries of even the poorest Indians is energy and not protein as was hitherto believed... *the data also indicate that the measurement of consumption of cereals can be used as a proxy for total energy intake. This observation is of considerable significance as it helps to determine rapid, though approximate, estimates of energy intake at the household level*"[3] (emphasis added). The "foodgrains" in this paper comprise cereals plus pulses. It is this strong link which enables us to say that the observed direct foodgrains intake decline given the overall availability decline (which proves that indirect intake is not compensating) means serious nutritional decline and rise in poverty, which controverts the official view.

To sum up, macroeconomic policies of expenditure deflation is the key to understanding the agrarian depression, and the resulting loss of purchasing power or, in Keynesian terms, a severe squeeze on aggregate effective demand of the majority of the population, the key to understanding why such abnormal levels of public foodgrains stocks of 64 million tonnes, 40 million tonnes in excess of buffer norms, had built up by July 2002. These stocks were coming out of more and more empty stomachs.

The government and the majority of economists put forward a totally incorrect analysis of the rising stocks and resulting falling availability. They closed their eyes to the declining purchasing power brought about by public expenditure-deflating policies and instead they put the blame on allegedly "too high" minimum support price (MSP) which they claimed gave the "wrong signals" to the farmers who therefore produced more than the market required, and they advocated reduction of MSP. This fallacious argument ignored the fact that foodgrains growth rates had virtually halved, and this should have led to compensating imports (to the tune of 21 million tonnes by 2001) had demand been maintained at the 1998 level. The freeze on procurement price which followed, when input prices and credit costs have been rising, generalised deflation further to more farmers and both compounded the problem of deficient demand and sent strong signals for cutting back output. Rather than restoring lost purchasing power and boosting aggregate demand by using up stocks for food-for-work programmes, the government exported 22 million tonnes of grains at a highly subsidised price during 2002 and 2003 [Bhalla 2005], which was mainly used as animal feed abroad.

With its obtuse attack on the viability of farmers, the government has succeeded in taking India back to stagnant foodgrains output – the peak-to-peak growth rate during the six years after 1998-99 has collapsed to zero. Nothing less than a colonial style famine will, it seems, satisfy those whose objective seems to be to turn Indian agriculture once more into a mere supply source for advanced country supermarkets and for retail outlets serving local elites, at the expense of increasing hunger for millions of its own citizens.

III
Divergence between Direct and Official Indirect Poverty Estimates

Poverty studies in India since the 1970s, have been based on the use of a "poverty line" expenditure level, defined as that particular observed level of expenditure per capita per month on

Table 1: Distribution of Persons by Monthly Per Capita Expenditure (MPCE) Groups, Average Expenditure and Average Calorie Intake per diem, 1999-2000, All-India

Monthly Per Capita Expenditure (Rs) (1)	Average MPCE (Rs) (2)	Calorie Intake Per Diem Per Capita (3)	Per Cent of Persons (4)	Cumulative Per Cent of Persons (5)
Rural				
Below 225	191	1383	5.1	5.1
225-255	242	1609	5.0	10.1
255-300	279	1733	10.1	20.2
300-340	321	1868	10.0	30.2
340-380	361	1957	10.3	40.5
380-420	400	2054	9.7	50.2
420-470	445	2173	10.2	60.4
470-525	497	2289	9.3	69.7
525-615	567	2403	10.3	80.0
615-775	686	2581	9.9	89.9
775-950	851	2735	5.0	94.9
950 and more	1344	3178	5.0	99.9
All	486	2149	99.9	
Summary				
Rs 470-525 and less; 2289 calories and less – 69.7 per cent				
Rs 525-615; 2403 calories – 10.3 per cent				
Rs 615-775 and more; 2581calories and more – 19.9 per cent				
Urban				
Below 300	255.8	1398	5.0	5.0
300-350	327.1	1654	5.1	10.1
350-425	389.1	1729	9.6	19.7
425-500	463.9	1912	10.1	29.8
500-575	537.2	1968	9.9	39.7
575-665	618.6	2091	10.0	49.7
665-775	718.7	2187	10.1	59.8
775-915	840.5	2297	10.0	69.8
915-1120	1009.7	2467	10.0	79.8
1120-1500	1286.2	2536	10.1	89.9
1500-1925	1692.2	2736	5.0	94.9
1925 and more	3074.3	2938	5.0	99.9
All	854.9	2156	99.9	
Summary				
Rs 500-575 and less; 1968 calories and less – 39.7 per cent				
Rs 575-665; 2091 calories – 10 per cent				
Rs 665-775 and more; 2187 calories and more – 50.2 per cent				

Source: National Sample Survey Organisation (55th Round, 1999-2000) Report No 471, *Nutritional Intake in India*, see p 22 for average calorie intake and average MPCE by expenditure groups. Report No 454, *Household Consumer Expenditure in India – Key Results*, see pp 17-20 for the distribution of persons and average MPCE by expenditure groups. Distribution and average MPCE are the same for both reports. 30-day recall throughout.

Chart 2a: Per Cent of Persons below Specified MPCE Levels, All-India Rural, 55th Round 1999-2000

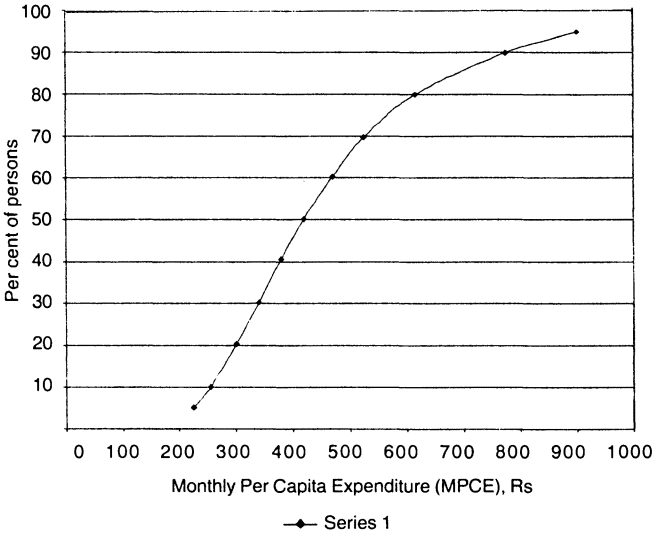
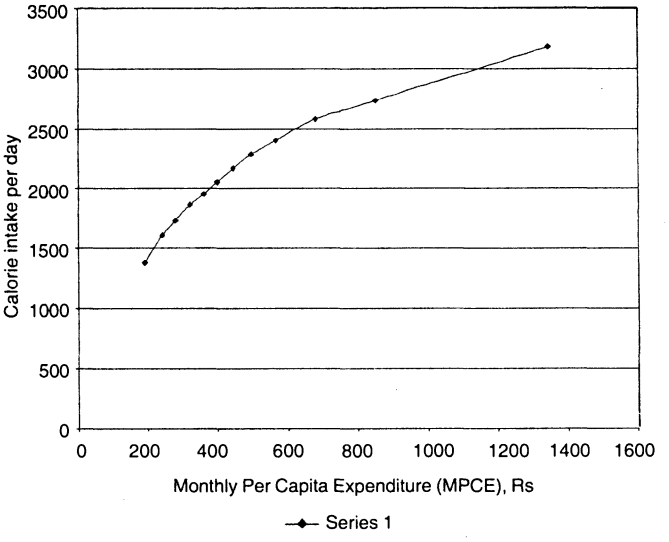


Chart 2b: Per Capita Daily Calorie Intake by MPCE, All-India Rural, 55th Round 1999-2000



all goods and services, whose food expenditure component provided a daily rural energy intake of 2400 calories per capita and an urban intake of 2100 calories per capita. While Dandekar and Rath (1971) had adopted a uniform nutrition norm of 2250 calories per head, the 1979 Task Force thought a uniform norm was inadequate, and adopted different norms for rural and urban areas. Using the census data projected to 1982, the population was divided into 16 groups defined by age, sex and activity, with energy intakes varying from 300 calories for children below 1 year to 3600 calories for a young man doing heavy work. The average norm was derived on the basis of this profile, and came to 2435 and 2095 calories per person, rural and urban, rounded down to 2400 and 2100 calories per person, rural and urban. Rural energy norms emerged as higher owing to the unskilled physical labour that more rural workers perform compared to a higher proportion doing lighter work in urban areas. Observed actual calorie intake in rural India was also higher than intake in urban India from the 1950s until the 1990s, after which with rural intake decline and urban intake rise, the position has been reversed by 1999-2000.

The NSS reports present the distribution of persons and average expenditure on food and non-food, by monthly per capita expenditure groups, and they also present the calorie intake per capita per diem by expenditure groups, though the latter tabulations are released after a time lag. The quantities of food items actually purchased by sample households are noted as are farm-produced food items retained for consumption by farmers. These are valued at prevailing prices, and added to expenditure on non-food items to give the total monthly per capita expenditure. The different food items have specified calorie equivalents per kilogram, from which the calorie intake per day is derived. Thus the very derivation of per capita expenditure on food is from exactly the same data set on physical quantities, which gives the per capita calorie intake. There is a tight direct association between monthly per capita expenditure and daily per capita calorie intake (Chart 3). The relation is non-linear as expected, with higher than unit elasticity of calorie intake with respect to expenditure at low spending levels.

That particular total monthly per capita expenditure whose food expenditure part met the calorie norms, was identified from the 28th round NSS data relating to 1973-74, and this expenditure was defined as the poverty line expenditure. (However, there is doubt whether the 1973-74 poverty estimates are consistent with the declared norms, a matter discussed later.) Based on expenditure economists talk of "income poverty," but this is imprecise, for we have no information on income, only on expenditure. It is possible that observed expenditure at or below the poverty line, is higher than income and is met through borrowing or asset-depletion by some households. Conversely for those spending well above the poverty line, income exceeds spending giving rising savings. The latest complete large-sample published data still remains the 55th round, 1999-2000, from which the relevant information for all-India is given in Table 1. Some of the 61st round data for 2004-05 have been recently released, but not the energy intake levels. Table 1 differs from other papers because it combines, from two different reports of the 55th round, the distribution of persons by expenditure classes and their average expenditure, with information on the average calorie intake of the same distribution of persons by the same expenditure classes.

Thereby a good idea of the magnitude of headcount poverty can be obtained easily by the non-specialist without making any calculations at all, simply by inspecting Table 1. Looking at the first, third and the fifth columns, 69.7 per cent or say seven-tenths of the rural population of India, spending less than Rs 525 per month per person, was below the average calorie level of 2403 (near-identical to the 2400 norm), which was obtained only by the next higher spending group of Rs 525-615. Since the lower part of this latter group, roughly half the 10.3 per cent of persons in this group or about 5 per cent, also obtained below 2400 calories, the actual total percentage of persons in poverty is about three-quarters. On plotting the data on graphs we obtain 74.5 per cent as the exact figure. Yet, the official Planning Commission figure of rural poverty from the same data is only 27.4 per cent!

The difference between percentage of population in poverty obtained by direct inspection, 74.5 per cent and the figure as given by the Planning Commission, 27.4 per cent is very large. Nearly half of the rural population – 47.1 per cent or 370 million people – who are actually poor, are being excluded from the set

Chart 3a: Per Cent of Persons below Specified MPCE Levels, All-India Urban, 55th Round 1999-2000

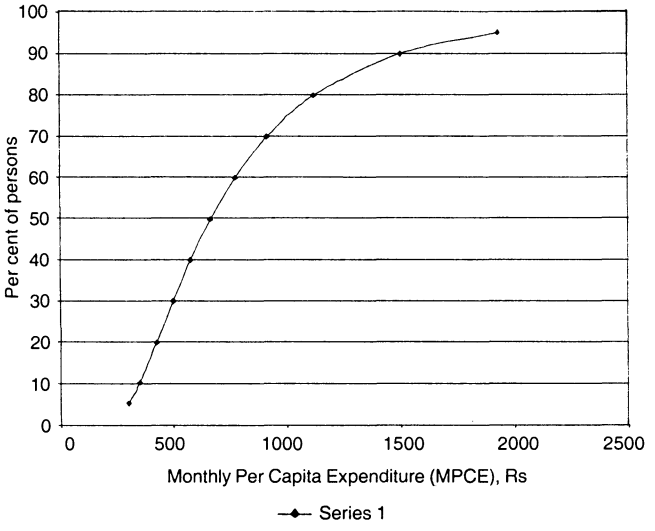
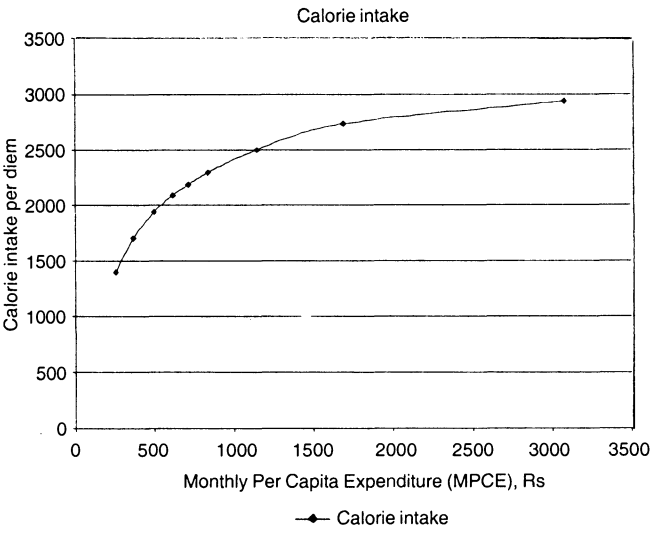


Chart 3b: Per Capita Daily Calorie Intake by MPCE, All-India Urban, 55th Round 1999-2000



of the officially poor. Again, we see that nearly 40 per cent of the urban population spending below Rs 575 per capita per month obtained less than 2091 calories (very close to the 2100 norm) which was obtained only by the next higher spending group. Since the lower half of this latter group also obtained less than 2100 calories, on plotting the graphs, the exact percentage in poverty is 45 per cent. Yet the Planning Commission figure for urban poverty for the same year using the same data is only about half of this at 23.5 per cent.

We only need to plot two simple graphs to see what is going on. First, (a) the ogive, or the cumulative distribution of persons plotted against the upper-end value of each expenditure class – this tells us what percentage of persons is below any given expenditure level (col 5 against col 1) shown as Chart 2a and 3a relating to rural and urban India. Second, (b) the per capita calorie intake plotted against the per capita expenditure (col 3 against col 2) shown as Charts 2b and 3b relating to rural and urban India – this enables us to read off the calorie intake at any given expenditure level. Consider the three variables: (1) the poverty line expenditure, or any other expenditure level, (2) the estimated percentage of the population below the poverty line, or below any other expenditure level, and (3) the calorie norm, or any specified calorie intake. If we know the value of any one of the three variables, the corresponding values of the other two can be read off from the graphs. The relation shown in Chart 2b and 3b can be also plotted respectively on Charts 2a and 3a by taking the calorie intake values along the right hand Y axis, since the X axis is common to both.

The official rural poverty line of Rs 328 for 1999-2000 yields the poverty percentage of 27.4 using the ogive in Chart 2a. We find, using Chart 2b, that only 1890 calories could be obtained at this expenditure, over 500 calories per day less than the norm. The true poverty line expenditure at which 2400 calories could be accessed is Rs 565, and as high as 74.5 per cent of persons spent less than this amount – the correct estimate of poverty for 1999-2000. Similarly from Chart 3a we see that Rs 454, the official urban poverty line allowed only 1875 calories to be accessed. In order to access 2100 calories (the RDA) the urban consumer needed to spend Rs 625, and 45 per cent of persons were below this level.[4]

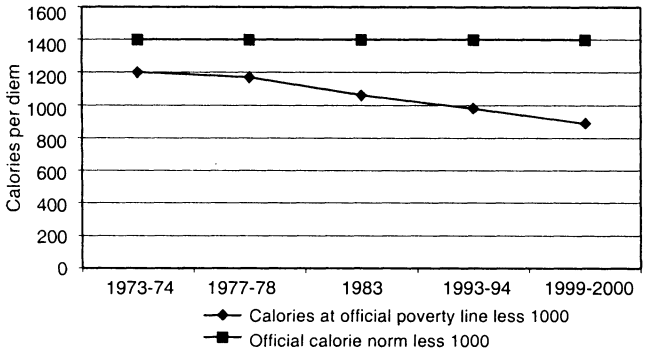
Why does the official poverty line come to less than three-fifths of the actual cost of accessing the nutrition norm and in what sense therefore is it any longer a "poverty line" at all? It is this unrealistic official "poverty line" – below Rs 11 per day for all goods and services – which results in the low poverty estimate, excluding 47 per cent of the rural population who are actually poor. Clearly the reason is that the Planning Commission has not been applying its own original nutrition norm to the available current data on nutrition by expenditure groups after the initial 1973-04 estimate, which was its first and only direct estimate, but has been simply bringing forward the rural poverty line for that year by using the Consumer Price Index for Agricultural Labourers (CPIAL).

Thus an indirect method of price index adjustment to a base year poverty line has been followed, without any reference to the current cost of obtaining the nutrition norm, even though information on this was regularly available from the five yearly surveys. This amounts to computing a Laspeyres index in which the quantities consumed in that base year are held unchanged over time, adjustment being made only for price change. At this poverty line however, the current consumption basket is such that the nutrition norm can no longer be accessed. The crucial fact which is not mentioned to the public is that at the poverty line of Rs 328 for all-India, food giving only 1890 calories daily could be purchased, over 500 calories below the RDA.

Further, while for all states the official poverty line has been too low and the corresponding nutritional intake well below the RDA, for a number of states the use of state-specific price indices has meant that their official poverty lines have been pushed down so far below the average all-India level, that by the 55th round the rural consumer could access only 1440 calories to 1600 calories, or a deficit of between 800 calories to nearly 1000 calories per diem from the nutrition norm. These official "poverty lines" have become a travesty of the very idea of poverty line and the corresponding poverty estimates – the percentage of persons below these lines – have lost all meaning.

Rohini Nayyar (1991), in her careful doctoral study, discussing poverty estimates for the 1960s and 1970s, and Jaya Mehta and Shanta Venkatraman (2000) discussing the 50th round, 1993-94, had already drawn attention to the inability of the price-adjusted

Chart 4a: Declining Calorie Intake at Official All-India Rural Poverty Lines , 1973-74 to 1999-2000



Notes: A constant 1000 calories have been deducted from both sets in lieu of starting the Y-axis values from 1000. See text for argument that actual energy norm applied for initial official poverty line is likely to have been 2200 calories.

Source: Table 2 line 6.

poverty lines to capture the current cost of reaching the nutrition norm. The fact is also well known to the Planning Commission and to all the individual estimators following the same method (whose papers were published in *EPW*, January 25-31, 2003 and later published in Deaton and Kozel 2005). What these latter economists still do not seem to understand, is that the methodological basis of their estimates is thereby rendered incorrect, and the inference they draw regarding change in poverty over time or relative poverty across states, has no logical validity. We propose to show in this paper, the all-India and state estimates of poverty obtained by the Planning Commission and by individual academics who follow the same method, cannot be validly compared over time and statements about rise or decline in poverty cannot be made. Nor at any given point of time, can the states be compared with respect to their extent of poverty.

The gap between the official poverty lines and the actual cost of accessing the nutrition norm, was small to begin with but has been widening fast as the base year of the fixed consumption basket, gets further back in time. The poverty lines derived by bringing forward the 1973-74 rural poverty line of Rs 49 using the CPIAL, came to Rs 56 in 1977-78, Rs 86 in 1983, Rs 206 in 1993-94 and Rs 328 in 1999-2000, summarised in line 4 of Table 2. The official poverty line for 2004-05 is Rs 356.3. The NSS consumption data have been rendered irrelevant for deriving the official poverty lines. All that is used is the base year direct poverty line and the price index.

These independently derived poverty lines, have been applied to the ogives from the NSS surveys, to arrive at the poverty percentages, shown in line 5 of Table 7. They were 53.1 in 1977-78, 45.7 in 1983, 37.3 in 1993-94, 27.4 in 1999-2000 and 29.5 (20.5) in 2004-05, the last estimates being mine from Appendix ogives. These alternative estimates emerge from the 61st round, 2004-05 from the uniform recall and mixed recall data. At the official poverty lines giving these poverty ratios, the maximum calorie intake accessible per diem was 2170 in 1977-78 (230 calories below RDA), 2060 in 1983 (340 calories below RDA), 1990 in 1993-94 (410 calories below RDA) and 1890 in 1999-2000 (510 calories below RDA). The calorie level accessible at the 61st round, 2004-05 poverty line is 1820, or a deficit of 580 calories from RDA. Line 7 of Table 2 shows the steadily increasing deficit from energy intake RDA at the official poverty lines for successive large-sample years and the same has been shown in Chart 4a.

With the nutritional intake accessible at the price-adjusted official poverty line steadily falling over the successive estimates, the poor are being counted not as all those below an invariant nutrition standard but as all those below a standard which is being continuously lowered over time. This very important fact, although it is well known to the estimators, is never mentioned by them in their papers. The price index adjustment to a base year basket obviously has not only failed to capture the actual current cost of accessing minimum nutrition at each point of time, additionally the extent of failure has been increasing fast over time.

It is not just the case that the particular price index being used is the problem and there exists some "ideal price index" which can capture the changing actual cost of accessing the required energy intake. Angus Deaton's exercise with alternative price indices produced even lower poverty estimates than the official one [Deaton 2003b]. The structural changes in the economy are such that no price index applied to an invariant consumption basket relating to 1973-74, can possibly capture the altered set of choices that consumers face over time.

The question is, why use at all, an indirect method of price index adjustment to the cost of accessing an increasingly distant base year consumption basket, with all its attendant problems, when current data are available which permit the direct estimate of the poverty line every five years. (At most, the price-index adjustment should be confined to the intra-quinquennial period and thus the base year for the consumption basket should not

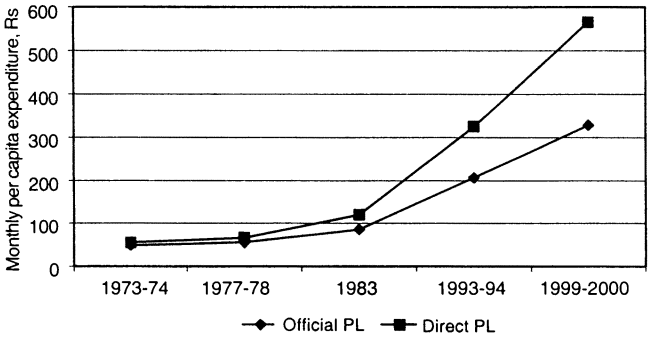
Table 2: The Rural Poor as Per Cent of Rural Population in India

Round No	28 1973-74	32 1977-78	38 1983	50 1993-94	55 1999-2000	61 2004-05
Direct method						
1 MPCE giving 2400 kcal, Rs (poverty line)	56*	67	120	325	565	790
2 Per cent below poverty line	72*	65.5	70	74.5	74.5 (77.5)	87.0
Indirect method						
4 Price adjusted poverty line, Rs official	49*	56	86	206	328	356
5 Per cent of officially 'poor'	56.4	53.1	45.7	37.3	27.4 (30.4)	28.3
6 Calorie intake at poverty line	2200*	2170	2060	1980	1890	1820
7 Deviation from RDA of 2400 kcal	-200	-230	-340	-420	-510	-580
9 Modified price-adjusted poverty line, Rs, taking base year MPCE 2400 kcal	56	64	98	235	374	414
10 Per cent which should be officially 'poor'	72	63	54	49.2	39	41.5

Note: * See text discussion that 2200 calories was the actual norm accessible with Rs 49, the 2400 calorie norm required Rs 56 as the poverty line, and about 72 per cent of persons was below this.

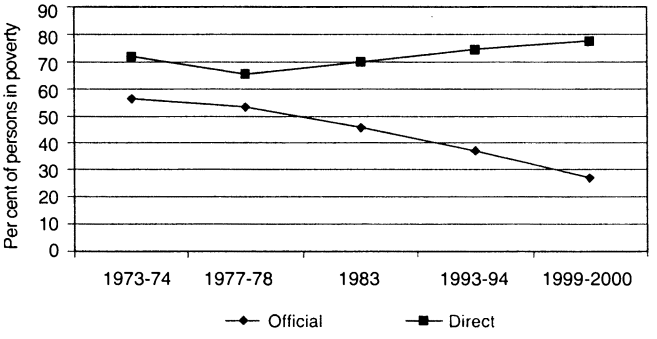
Source: Planning Commission for indirect estimates line 3 onwards. For direct estimates, by constructing Charts 2 and 3 for each large sample round for which calorie data were available, from NSS reports.

Chart 4b: Official and Directly Observed Poverty Line, All-India Rural



Source: Table 7, lines 1 and 4.

Chart 4c: Official and Directly Estimated Poverty Percentages Derived by Applying the Respective Poverty Lines, All-India Rural



Source: Table 7, lines 2 and 5.

be more than four to five years at most, before the next large sample data set become available.)

This lowering of the nutrition standard over time, inherent in the official method, is the real reason for the poverty "decline" claimed both in official poverty estimates, as well as in the individual estimates published in the *EPW*, January 25-31, 2003 issue – which quite clearly is a spurious decline, for no valid comparison over time is possible when the standard is being lowered (or altered in any way). To give an analogy, suppose we are watching an Olympic high jump event not directly but mediated through television, where the camera focuses only on the successive jumps. At the first try the jumper just barely clears the bar, at the second try she clears the bar by three inches and at the third try she clears the bar by six inches. It is claimed that the performance has improved greatly over the successive tries and everyone believes the claim. However without anyone's knowledge, the bar has been lowered by six inches for the second try compared to the first and again by six inches for the third try compared to the second. The actual situation is that the performance has worsened and the jumper is jumping three inches lower at the second attempt and six inches lower at the third attempt compared to the first attempt. Obviously the claim of "improvement" is spurious and moreover it involves suppression of information since the fact of the lowering of the bar is kept carefully hidden from the public.

The "bar" has been lowered by about 100 calories per diem for all-India, for every successive five-yearly estimate since 1977-78 and by year 2000 it was about 500 calories per diem lower than RDA on average (Chart 4a). For some states however it had been lowered by 250 calories only and for others by as much as 960 calories per diem, owing to state-specific price indices being applied (Table 5).

Official and individual claims of poverty reduction in the 1990s are spurious and arise from this clandestine lowering of the consumption standard, a lowering which is inherent in the official estimation method itself, which has de-linked estimation from the nutrition norm after 1973-74. The term "clandestine" is used advisedly because unfortunately, neither the Planning Commission economists nor a single one of the other academics presenting their poverty estimate using the official price adjustment method, have considered it necessary to mention the crucial fact of the lowered calorie intake corresponding to their own poverty estimates for different points of time, when publishing their papers, although they are well aware of it since exactly the same data set they are using for expenditure, also give the calorie intakes. As already mentioned, the data on physical quantities of foods, gives the calorie intakes on applying the standard table of calories per kilogram for different foods; and these same physical quantities are valued and aggregated to give the food expenditure, which is added to other spending to give the total expenditure.

It is not proper academic procedure to use data selectively – to use the expenditure data while ignoring and never mentioning the *necessarily associated* energy intake, as is being done by these estimators. Their poverty numbers would certainly have been questioned much earlier if this information was known to the educated public. The Planning Commission has never officially given up the nutrition norms on the basis of which rural and urban poverty was defined. The majority of economists in India believe that these norms are still being followed. The reality is however that the actual estimation procedure has meant giving up not just these particular nutrition norms, but has meant giving up any nutrition norm whatsoever. The question of nutrition has been rendered irrelevant in the official method.

There is not even any lower bound which is set to the fall in the energy intake corresponding to official poverty lines – for

Table 3: Monthly Per Capita Expenditure in Rupees in 61st Round, 2004-05 Compared to 50th Round, 1993-94 by Groups of Persons, All-India Rural

Per cent of Persons, 2004-05	Average MPCE, Actual 2004-05 (U-30)	(2) Deflated by Index to 1993-94	Actual MPCE, 1993-94 (U 30)	MPCE on Food, Actual 2004-05	MPCE on Food, Actual 1993-94	(6) Adjusted by Index to 2004-05
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lowest 30.3	289.90	131.1	150.0	191.49	108.73	240.3
Next 19.6	408.98	185.0	211.0	259.53	149.47	330.3
Next 30.5	552.94	250.2	285.3	295.75	192.34	425.1
Next 14.7	853.04	386.0	432.0	446.26	260.05	574.7
Top 4.9	1956.57	885.3	872.0	659.13	370.49	818.8
100	558.78	252.8	281.0	307.60	177.77	392.8

Note: U-30 is uniform 30-day recall for all goods.

Source: NSS Report No 508, 61st Round, *Level and Pattern of Consumer Expenditure in India, 2004-05* (A-12, A-240) and Reports Nos 401, 402, 50th Round.

as many as seven states it has already fallen to 1450 to 1720 calories by the 55th round (Table 5), and single-digit poverty levels are being claimed for some, although in reality poverty is very high. By the 61st round for many states calorie intake accessible at official poverty lines will be between 1300 and 1400, over 1000 calories below RDA. Thus a completely different measure entailing a different definition of "poverty" is being used, compared to that adhered to theoretically. This definition will logically lead to further absurd claims of great "success" in poverty reduction when the official estimates for most states in India reach single-digit levels as they will soon do. The real reason would be that the poverty line is far too low for anyone except the poorest of the poor tribal people and some unfortunate destitutes and beggars, to survive below it.

The logically correct method of comparison is to count the poor below a temporally and spatially unchanged consumption norm, for then the same definition of poverty line is applied for successive estimates and for different states. A simple and transparent measure of changing poverty depth is to take lower-than-RDA energy cut-offs (say, 2100 and 1800 calories) and note the percentage below these levels, keeping the levels unchanged over time. I have applied this direct method to obtain the poverty percentages for all large sample rounds (all-India rural, Table 2 line 1) while Table 5 gives the state estimates for the 50th and 55th rounds. We find that actual rural poverty is very high, it has not declined but on the contrary has risen in 10 out of 15 states, and the depth of poverty has increased during the 1990s in nine states.

Many authors have pointed out that the estimation basis for the initial official poverty lines was itself opaque. The relevant nutritional data for 1973-74 were never published and the estimate was based on a limited nine-month sample [Mehta and Venkatraman 2000; Rath 2003]. Plotting the NSS data for 1970-71, for which calorie intakes were derived in R Nayyar (1991), we find that 72 per cent and 54 per cent of the population was below 2400 and 2200 calories. This suggests that the official 1973-74 estimate of 56.4 per cent in poverty is not of the right order of magnitude to correspond to the official norm of 2400 calories RDA. The period 1970-71 to 1973-74 was of rapid food price inflation which gave rise to widespread unrest and to the price rise resistance movement led by Jaiprakash Narayan. Inflation did not moderate until the draconian laws of the Emergency period. It is impossible that using the 2400 norm the poverty percentage could have declined to such a large extent over a mere three years of rapid inflation, from 72 per cent in 1970-71 to 56 per cent by 1973-74.

The official 56.4 per cent figure for 1973-74 is however entirely consistent with a 2200 calorie norm. Our hypothesis is that the initial official estimate itself was fudged, perhaps because 72 per cent or more of the population in poverty yielded by the RDA, appeared far too "alarming". This would explain the non-transparency – probably quite deliberate – of the basis of the estimate, that other writers have noted. Another quick check: in 1970-71, the expenditure enabling a rural person to access 2400 calories was Rs 40, and since the CPIAL rose by 40 per cent it should have been Rs 56 at least by 1973-74 and not Rs 49, the official figure. The same argument applies to the urban poverty line, which should have been higher than stated.

Table 2, line 9, gives the price-index adjusted poverty lines appropriate for a 2400 calorie norm in the base year which cost Rs 56, and line 10 gives the derived poverty percentages. The difference by 2004-05 is quite large – the poverty line should have been Rs 414 and the poverty percentage 41.5 and not 29.5, even using the faulty official method, if the RDA had been actually applied in the base year.

IV
Cumulatively Increasing Underestimation over Time

If the official procedure has always led to spurious poverty reduction, why has the extent of such reduction been much greater in more recent years during the 1990s, compared to earlier decades? From Table 2, during the decade 1973 to 1983 there was a decline by about 10 points from 56 to 46; over the next decade to 1993-94 there was a decline by 9 points to 37, but over a mere six years from 1993-94 to 1999-2000, the decline was by 10 points to 27. It is the large decline by 10 points over only six years in the 1990s, which made people sit up and take notice of poverty estimates. Urban official poverty percentages too are lower by a massive 15 points during the dozen years 1987-88 to 1999-2000 compared to much smaller official declines in the 15 years preceding 1987-88.

We get the answer to larger spurious declines over time, if we remember, first that the distribution of persons by expenditure is skewed, with two-thirds spending less than the mean expenditure in both rural and urban India (which is reflected both in the slope of the ogives and the non-linear relation of calorie intake to spending). Both curves rise steeply as we go from very low to medium levels of MPCE, then rise less steeply and thereafter level off at high spending levels. Second, the official method has been underestimating the poverty line in six separate and sequential five-yearly episodes of price adjustment over 31 years, resulting in a cumulative large deficit from the true poverty line. The initial official poverty lines in the 1970s were not too distant from the correct poverty lines required to access the nutrition norm, but became cumulatively distant from the true poverty line over time, intersecting the ogive at its lower and increasingly steeper segments, and this led to larger spurious poverty decline.

To illustrate: looking at the slope of the 1999-2000 rural ogive in Chart 2a at the correct poverty line of Rs 565 at which 2400 calories could be accessed, Rs 50, say, of underestimation of the poverty line or PL from this point to Rs 515 reduces the poverty percentage only by 5 to 6 points. But at an official PL of say, Rs 450 which is already substantially lower than the true one, (the actual case by the late 1980s) Rs 50 underestimation to Rs 400, leads to a 10 to11 points decline in the percentage of persons below this line given the steeper segment of the curve.

If the official PL is already at a severely underestimated level of Rs 380, an additional Rs 50 decline to Rs 330 (actually the official PL for 1999-2000), leads to a massive 15 points decline in poverty, because we are almost at the extreme left hand end of the distribution by now where the ogive is steepest. There is a sharper drop in the percentage of people still surviving at such low expenditure and calorie intake levels.

This argument using a single ogive to talk of change over time, of course assumes that the ogives when drawn in terms of real expenditure are not shifting over time. But even if conditions are actually getting worse, the real ogives are shifting leftwards

and actual poverty is rising, provided these leftward shifts are still small, clearly we would still get an overall net decline in official poverty percentages every five years owing to the cumulatively larger underestimation bias in the latter's poverty lines. This is what we do observe up to the 55th round, 1999-2000. The real ogives have been shifting leftwards and actual poverty has been rising slowly since 1977-78 to 1999-2000 (Chart 4c), but the cumulatively larger underestimation bias in the official poverty lines has led to the actual rise being more than outweighed, and to a greater extent each time, thus showing up as spurious poverty decline.

The official poverty line for 2004-05 is Rs 356 and the poverty ratio is 28.3. The official poverty percentage has not ceased to be spurious; that it does not show a further large decline as earlier, I would argue is because there has been a very much larger leftward shift than ever before, in the rural ogive during the five years after 2000, as agrarian depression has intensified and real income decline (owing to unemployment) has become more pervasive, engulfing larger groups of people – an adverse shift so large, that it has neutralised the built-in large underestimation bias in the official procedure.

This is supported by the nutrition data which have been recently released. The direct estimate of the poverty line required to access 2400 calories in 2004-05 is Rs 795 and an all-time record high, 87 per cent of the population is below this level (see Appendix tables).

V
Initial Findings from the 61st Round, 2004-05

The proposition that (a) there has been a substantial worsening of income distribution, and (b) that the worsening has been of a particular type, namely, absolute real decline in rural incomes, is consistent with the 61st round expenditure data. The CPIAL does not capture change in the cost of living adequately, so we use the rural direct poverty lines for the 2200 calories level (the base year actual nutrition norm in official estimates) from the 50th and 61st rounds to construct an index. The poverty lines are Rs 260 and Rs 575, rising by 121 per cent, compared to the rise by 76 per cent in CPIAL. The interpretation is as follows – unchanged real expenditure using this index means that nutritional access is preserved at the same specified level as before, without assuming a constant consumption basket or unchanged economic environment.

The entire rural population except the top 5 per cent, shows lower real expenditure in 2004-05 when we adjust by this index and compare with 1993-94 (Table 3). The bottom 80 per cent of persons needed to spend 14 per cent more than they actually could, to maintain the same real spending as a decade earlier. Adjusting the 1993-94 expenditure on food upwards by the index shows that average actual expenditure in 2004-05 was lower than adjusted expenditure for all groups. Average expenditure needed to be higher by about one-quarter from actual; even the top group spent less than required and the unfavourable gap was relatively more for some of the poorer spending groups. The observed average decline over time in the share of food expenditure in total expenditure, in such a specific context where per capita real expenditure although initially at low levels declines further over time, represents a case Ernst Engel did not explore and indicates exactly the opposite of betterment. It is not surprising that it is accompanied by decline in calorie intake and rise in poverty.[5]

The actual decline of incomes has been greater than that of expenditure, as the Situation Assessment Survey of Farmers by the NSS show. Table 4 summarises the striking results at the all-India level, of consumption and net investment expenditures relative to income from all sources. For over 96 per cent of farming households total income from all sources did not cover consumption expenditure and led to deficit. In many states deficits were financed through asset depletion by the majority who reported negative investment (see Tables A-178 to A-192 of Report 497) and for all-India, net investment per household on productive assets was a paltry Rs 124 per month. Admittedly 2002-03 was a drought year but even if we arbitrarily reduce these numbers by 20 per cent for a normal year, over 75 per cent of all farming households would still be in deficit.

The realistic poverty line in 2003 would be about Rs 610 per month per head (adjusting the 1999-2000 direct poverty line of Rs 565 for price change) and given the average family size of 5 members, Rs 3,050 per month is the minimum realistic poverty line per household. Some 80 per cent of all households in Table 4 spent less than this on consumption and still evidently had to finance it through borrowing or asset depletion to the extent of the shortfall of income.

Further, the Land and Livestock Surveys of the NSS for 1992 and 2003 (Reports 408 and 493) show a large rise from 22 to 32 per cent of households with nil operated land. In Andhra Pradesh households with nil operational holdings rose from

Table 4: All-India Rural Monthly Expenditure from All Sources, Consumption Expenditure and Investment in Productive Assets (Rs), 2002-03

Area Possessed Ha	Net Wages	Income Receipts				Consumption	Balance	Investment in Productive Assets	Surplus/ Deficit	Per Cent of HH	Cumulative Per Cent of HH
		Cultivation Income	Animal Farming	NFB	Total						
1	2	3	4	5	6	7	8 = (6–7)	9	10 (8-9)	11	12
< 0.01	1075	11	64	230	1380	2297	- 917	40	- 957	11.6	11.6
0.01 – 0.4	973	296	94	270	1633	2390	- 757	37	- 794	34.0	45.6
0.04 – 1.0	720	784	112	193	1809	2672	- 863	96	- 959	27.6	73.2
1.0 – 2.0	635	1578	102	178	2493	3148	- 655	151	- 806	15.1	88.3
2.0 – 4.0	637	2685	57	210	3589	3685	- 96	387	- 483	7.9	96.2
4.0 – 10.0	486	4676	12	507	5681	4626	1055	685	370	3.3	99.5
> 10.0	557	8321	113	676	9667	6418	3249	737	2512	0.5	100.0
ALL	819	969	91	236	2115	2770	- 655	124	- 779	100	

Notes: Column 8 is (Col 6-Col 7) and Column 10 is [Col 6 – (col 7 + col 9)] and these have been calculated by the author. Note that only the top 3.8 per cent of all households earned enough to meet consumption expenditure.

Source: 59th Round, NSS Report No 497, *Income, Expenditure and Productive Assets of Farmer Households,* Table A-192.

37 to 53 per cent of all rural households, in Tamil Nadu from 36 to 67 per cent, and in Kerala from 6 to 38.6 per cent. The nil holdings percentage in operational holdings has doubled in Haryana, Bihar and West Bengal, all from around 14-15 per cent to 28-30 per cent. Effectively much of the gains of past land reforms have been reversed by the impact of state expenditure deflation and market-oriented reforms in unleashing rural depression and impoverishment, forcing poor and small peasant owners to part with livestock and land.

VI
The Fallacy of Equivocation

The official and individual estimators follow the procedure of the 1993 'Report of the Expert Group on Estimation of Proportion and Number of Poor'. This had made two main recommendations – first, a long-overdue one, that the earlier practice should be discontinued, of blowing up the NSS fractile-specific consumption figures by using the ratio of the aggregate CSO consumption estimate to the NSS consumption estimate. It had also recommended that state-specific price indices should be used to estimate the state poverty lines. But, unfortunately, the Expert Group did not consider departing from the indirect method of price-adjustment in favour of the direct method for all previous estimates, nor did it bring the base year for the consumption basket, forward to 1993-94 as it could have done. This would have meant, taking RDA of 2400 calories, a rural poverty line for 1993-94 of Rs 325 and not Rs 206, and would have given a price adjusted poverty line by 1999-2000 of Rs 517, below which 68 per cent of the rural population is observed to fall. While an underestimate it would not have been so grossly off the mark as current official estimates are. The Expert Group however recommended continuing with the same method of price adjustment to a by then two-decade old consumption basket.

It is still not clear why so many academics in universities should have uncritically followed the Expert Group and treated a mere report as the Vedas and the Upanishads, ignoring all critical voices. The poverty lines calculated according to the Expert Group method, continued to be de-linked from the necessity of satisfying any nutrition norm at all. This de facto deviation from the original definition of poverty has had far-reaching methodological implications, which have not been fully appreciated by the academic community. As we have seen, it renders logically invalid every attempt to compare the extent of poverty, both across states at a given point of time as well as over time both for individual states and at the all-India level. The precise type of logical fallacy involved is the fallacy of equivocation.

The fallacy of equivocation is a specific type of verbal fallacy, in which the same term is improperly used with two different meanings in the course of the argument to draw the inference, which therefore is not true. Modern books on logic follow Aristotle's classification of fallacies (Aristotle's *De Sophisticis Elenchis* or 'Of Sophistical Refutations') supplemented by recent analysis [Barnes 1984; Hamblin 1970; Thouless 1974].

We can construct an example of the fallacy of equivocation as follows: "The professor has been delivering her address for one hour to the gathering of students. Therefore every student knows exactly where she lives." The term "address" is being used in two quite different senses in the premise and in the conclusion – "address " in the sense of speech, and "address" in the sense of place of habitation. There is equivocal use of the term, so the inference "every student knows exactly where she lives" is not true. But fallacies of equivocation in economics are more difficult to spot. Intelligent non-specialists do not scrutinise arguments by economists carefully, nor do fellow economists not hitherto working in that particular area, because they trust the specialists at the intellectual level.[6] They take it for granted that terms which express concepts, must be correctly used by these trained professional scholars. This is a reasonable expectation but unfortunately it is by no means always realised, as the official method and the uncritical use of the same method by individual economists following the 1993 Expert Group report, shows.

The official poverty estimation method discussed in the previous sections provides an excellent example of the fallacy of equivocation. The issue turns on declaring a particular concept and definition of the term "poverty line expenditure" and applying it in a particular year, but then using a completely different definition of "poverty line expenditure", and improperly drawing the inference that "poverty" has declined. The fallacy of equivocation thus arises because the term "poverty line" is used in two different senses in the course of the same argument, so the inference about change in poverty, is not true. The fallacy has been committed by the Planning Commission in India since 1973-74, by the 1993 Expert Group which recommended continuing with the same fallacious method, and by a number of individual economists uncritically following the fallacious procedure advised by the 1993 Expert Group.

Some academics try to rescue their erring peers in an empiricist manner, by saying that the de facto nutrition norm has been lowered a bit from the de jure one, and it is not such an important matter to make a fuss about. They point out that bodies like the UN Food and Agriculture Organisation have been suggesting of late, lower figures of 2110 calories for south Asia and an even lower level of 1810 for India as a minimum. It is indeed a fact that having signally failed to reduce poverty itself, all international bodies which talk of poverty reduction are lowering the nutrition norms instead or applying purchasing power adjustment to deflate the dollar a day poverty lines, thereby sanitising their global poverty estimates to lower and less embarrassing ones. But such empiricist rescue efforts simply carry no conviction when we see what abandoning the nutrition norm has done to official poverty lines and hence poverty estimates in India: they have been reduced to conceptual garbage as Table 5 demonstrates.

No international body has said, or can dare to say that 1400 to 1600 calories are acceptable nutrition norms for developing countries (the average intake in advanced countries is around 3,000 calories). Not even P V Sukhatme, a most vigorous campaigner for a below 2400 calories norm, would have agreed that a 1700 calories or less daily intake per capita for any population, was reasonable – he used a 2200 calories norm in one of his own estimates [Sukhatme 1971]. Sub-human to very low energy intake levels of 1450 to1700 calories however, by 1999-2000 are associated with the official poverty lines for many states (Andhra Pradesh, Gujarat, Kerala, Tamil Nadu), while Punjab and Haryana are very close with 1720 calories or less being accessible at their official poverty lines.

There is a debate among the academics following the official indirect method, that owing to change in the recall period during the 55th round, 1999-2000 compared to earlier rounds, actual expenditure is overstated. Making the required adjustment for comparability alters the ogive slightly and raises the 27 per cent below the Rs 328 official poverty line, by another 1 per cent

according to Sundaram and Tendulkar (2003), and by 3 per cent according to Deaton (2003a). The NSS report however says that the 50th and 61st rounds are comparable using uniform 30 day recall in both while the 55th round is not comparable at all with the 50th one but is comparable with the 61st round mixed recall. No doubt there will be yet another recondite debate on comparability.

The lack of comparability arising from alteration in the recall period, however, is of relatively small importance, compared to the fundamental problem of lack of comparability arising from the unstated alteration in the consumption standard inherent in the indirect method all these estimators uncritically use. The main analytical point being made in this paper focuses on this mistake which leaves out half the rural population which is actually poor, and this basic problem with all indirect estimates remains whatever adjustments might be made for recall period.

VII
Reduction in Nutrition Accessible at Poverty Lines in Many States

The public is never informed, when poverty estimates are quoted, of the dilution of the energy intake norm leading to spurious estimates and claims of poverty reduction. Large though the dilution is, it does not prepare us for the truly heroic reduction of the consumption level accessible at official poverty lines in many states, owing to the extremely low state-specific poverty lines being applied.

How do we obtain the calorie intakes at the official state poverty lines? The basic data are available in the same format for each individual state as the all-India data in Table 1 for each large sample round barring one. By plotting for each state the same two curves – the ogive and the relation between average per capita expenditure and average per capita calorie intake, we can obtain the energy intake accessible at the official state poverty lines. In all I have plotted 135 relations – graphs containing the two relations for each of the 15 large states for the four large sample years after 1973-74, for which calorie data were available, and the ogives for the 61st round, 2004-05.[7]

It is our exercise with the state poverty estimates which bring out starkly, how the official method has led to a most bizarre and arbitrary variation of the calorie intake levels accessible at the poverty lines. The range of variation in the 50th round, 1993-94 is from 1625 calories in Kerala to 2230 calories in Orissa and Uttar Pradesh, with the all-India figure standing at 1980 calories. By the 55th round, there is further decline in the calorie intake at poverty lines in every state (except only Gujarat): the range now being from 1440 calories in Kerala to 2120 calories in Orissa with the all-India figure dropping further to 1890 calories. All southern states have extremely low official poverty lines, at which the calorie intakes were 1600 in Karnataka, 1590 in Andhra Pradesh and 1510 in Tamil Nadu. Clearly the poverty estimate within any state is not comparable over time – except for Gujarat, where although the official poverty lines and hence the poverty percentages are far too low giving below 1700 calories intake in both the 50th and 55th rounds, there is no further decline in intake over the period.

The official estimate of poverty for Orissa was 48 per cent, over four times higher than that for neighbouring Andhra Pradesh at only 11 per cent. But how can we possibly compare and infer that Orissa was poorer than AP once we know that the officially poor in AP are all those persons consuming below 1590 calories while the officially poor in Orissa are all those consuming below 2120 calories? The directly measured poverty in Orissa was lower than in AP and poverty depth was also substantially less, those accessing below 2100 calories being 46 per cent and 62 per cent in Orissa and AP. Similarly the 13 per cent official poverty figure for Gujarat cannot be compared with the 44 per cent for Bihar and the former state said to be less poor, when we see that the calorie intake accessible at its poverty line has been pushed down to 1680 in Gujarat compared to 2010 in Bihar. Actual poverty

Table 5: Planning Commission Poverty Estimates by States and Calorie Intake at Official Poverty Lines Compared to Direct Poverty Estimates

	Indirect Official Estimate				Direct Estimate			
	1993-94		1999-2000		1993-94	1999-2000	1993-94	1999-2000
	Official Poverty at PL (Per Cent)	Calorie Intake at PL	Official Poverty at PL (Per Cent)	Calorie Intake at PL	<2400 Calories Poverty (Per Cent)	< 2400 Calories Poverty (Per Cent)	< 2100 Calories Poverty (Per Cent)	< 2100 Calories Poverty (Per Cent)
1	2	3	4		5	6	7	8
All-India	37	1980	27.4	1890	75	74.5	49.2	49.5
East								
Assam	45.0	1935	40.0	1790	93	91	62	71.0
Bihar	58.2	2150	44.3	2010	73	78	51	53.5
Orissa	49.7	2230	48.0	2120	70	79	42.5	45.5
West Bengal	40.8	2080	31.9	1900	72	81	42.5	55.0
South								
Andhra Pradesh	15.9	1650	11.1	1590	84	84	56	62.0
Karnataka	29.9	1815	17.3	1600	75.5	82.5	57	50.0
Kerala	25.8	1625	9.4	1440	84	82.5	64	60.0
Tamil Nadu	32.5	1650	20.6	1510	87	95	77.5	76.0
West-central								
Gujarat	22.2	1660	13.2	1680	83.5	85.0	64	68.5
Madhya Pradesh	40.6	2010	37.1	1850	72.5	78	47.5	57.5
MahaRashtra	37.9	1820	23.7	1760	89.5	92	75	55.0
Rajasthan	26.5	2100	13.7	1925	46	52.5	26.5	27.5
North								
Punjab	12.0	1825	6.4	1710	52.5	58.5	30	36.5
Haryana	28.0	1990	8.3	1720	55	47.5	34	30.5
Uttar Pradesh	48.3	2230	31.2	2040	65.5	61.5	38.5	37.5

Notes: Figures in brackets for all-India indicate rough adjustment for recall-period change; no adjustment is shown for the states.
Source: As Table 1 and NSS Report Nos 401,402,405.

incidence in Bihar was less than in Gujarat and poverty depth was also less as the last two columns show.

Clearly, the official poverty estimates are not comparable across states at any given point of time, and they are not comparable across time in any state. They no longer make any sense.

The deafening silence of all the other economists using the same indirect method, on the declining nutritional intake necessarily associated with their own estimated state-wise poverty lines, ignore the basic requirement of academic work that it must follow the principles of logic and of transparency. Academic work cannot be treated in such a cavalier manner, where data are used selectively, important information is suppressed, and thereby elementary logical principles that the world has known for 2,000 years, are openly flouted. The numbers these economists are producing on Indian poverty at the Planning Commission and at the World Bank, are feeding directly into the making of policy which affect the lives of millions of poor people. It is surely incumbent on the concerned economists that they show a more responsible attitude to their own academic work. They can hardly expect to retain credibility if they continue to pretend that the methodological criticisms over the last decade do not exist. In the matter of logical mistakes, there is no strength to be derived from collecting together in large numbers. The fact that not one or two, but 20 or more economists are using a logically incorrect method, does not render the method a correct one. The fact that 20 economists and not one or two, are producing senseless numbers in the name of poverty estimates, simply becomes a sad comment on the falling standards of intellectual work not only in our own universities but also in institutions abroad and at the World Bank.

Already the false poverty estimates and spurious claims of decline have played havoc with food security and increased hunger. Millions of very poor people have been priced out from the PDS by labelling them incorrectly as APL (above poverty line) and now moves are afoot to exclude the so-called APL completely from the PDS whose scope and operations are being run down. At some level simple common sense appears to have been abandoned by the estimators. Since we are not talking of historical data, the current cost of living should be known to them from their own daily experience. It is strange that any economist can seriously propose that Rs 10 to 12 per day even in an Indian village today can meet one person's expenditure on all food and non-food requirements, inclusive of the value of farm-produced output.

In reality it would buy one kilogram of the cheapest rice on the open market, and nothing else, or one litre of bottled drinking water. The official poverty line was lowest in Andhra Pradesh at Rs 263 per month or Rs 8.7 per day. Only 11 per cent of the rural population was below this spending level, at which at most 1590 calories was accessible. No doubt they belong to the poorest of the poor even among the tribal and dalit groups. We can well imagine how much more adverse their morbidity and mortality rates would be in relation to already adverse average rural levels. These unfortunate persons would be on their way to early death.

Drastic lowering of the calorie intake associated with extremely low poverty lines are necessarily also implied in the same procedure followed by the individual academics. At Deaton's recalculated monthly poverty line for Punjab of Rs 316.5 [Deaton 2003b: 367, Table 5], we find from our charts that only 1480 calories were accessible. No wonder only 2.7 per cent of Punjab's rural population in his estimate were "poor" since 1480 calories is a semi-starvation level, costing Rs 50 less than the very low official poverty line giving 1710 calories.[8] Yet some economists are celebrating the alleged "disappearance" of poverty in rural Punjab on the basis of such selective use of the NSS data, ignoring the dimension of nutrition completely. The reality is that landlessness has gone up in rural Punjab by nearly 10 per cent points between 1992 and 2003 (NSS Report 493), rural poverty had risen to nearly three-fifths, and over 36 per cent were below 2100 calories intake compared to 30 per cent five years earlier. The spurious official Indian poverty estimates are feeding into and rendering equally spurious the World Bank estimates both for India and with respect to its global poverty line, whose estimation basis has been usefully explained by Reddy and Pogge (2005). For the year 2000, a uniform poverty line of $ 1.08 a day was derived by the World Bank, by taking the existing lowest (hence rural) local currency official poverty lines of 10 poorest countries out of a set of 33 countries, "poorest" as identified after converting their local currency monthly poverty lines to dollar and adjusting for purchasing power by using the 1993 PPP conversion factor for consumption. The Bank then took the median value of the 10 values. This procedure gave Rs 7.51 per day for India at 1993 PPP, and after updating this with a domestic price index and applying to the distribution of persons by expenditure levels, 35.3 per cent in rural India were stated to be "poor".[9] The implied rupee poverty line is Rs 357 per month or Rs 11.9 per day.

The argument that for international comparison, the already low dollar a day poverty line should be adjusted downwards to only one-quarter to one-fifth, according to the varying purchasing power of developing country currencies, makes no economic sense. The unstated assumption has to be that this is a reasonable daily poverty line for the US, but clearly it is not, for it would have bought at most either one bottle of water there, or 2.5 lbs of rice, just as the PPP adjusted $ 1.08 in India (which deflates its nominal rupee equivalent to about a quarter), could barely buy either a single bottle of water, or at most 1.1 kg rice. Even the reverse adjustment to the one-dollar poverty line, namely taking a multiple according to purchasing power, would not give us anything but a travesty of a poverty line for the US. Thus, today, one US dollar when spent within India buys exactly as much as Rs 44.5 does (which is nearly four times the official poverty line). While the purchasing power of one US dollar is about a quarter in the US, surely it is not the case that $ 4 per day, or less than $ 1,500 per year, would be a reasonable per capita poverty line for the US. How can it be maintained that one-sixteenth of this level or 25 cents is an adequate poverty line for India? Of course, the problem has arisen precisely because the $ 1 a-day (or, at present, the $ 1.08 a day) measure itself is derived from the unrealistically low national official poverty lines of developing countries. Even the higher of China's two rural poverty lines, 800 yuan per year or 2.2 yuan per day, is absurdly low and is equivalent to Rs 11, exactly the same as India's poverty line, at the prevailing exchange rate. China's official rural poverty figures too are gross underestimates, for with relentless market reforms and user charges such a paltry sum spells destitution.

VIII
Statewise Variations and Trends in Actually Existing Poverty

Poverty is officially underestimated to the greatest extent in south India with 800 to 1000 calories per diem deficit from RDA in every state. Although Andhra Pradesh had 84 per cent of rural population in poverty during both 1993-94 and 1999-2000, its

Chart 5a : Deficit of Calorie Intake from RDA at Official PL, South India

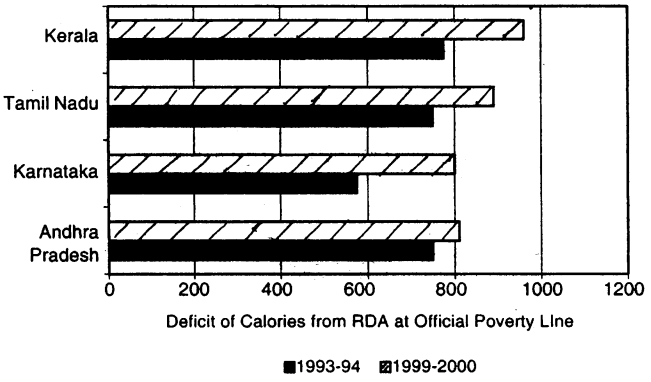
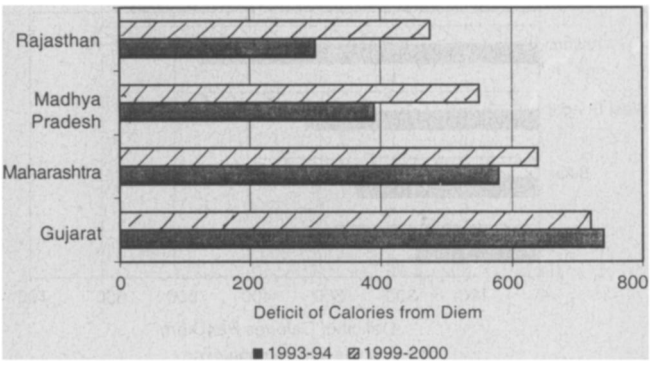


Chart 5b: Deficit of Calorie Intake from RDA at Official PL, West-Central India



government was congratulated by the Planning Commission on reducing rural poverty to 11 per cent. It was not mentioned that the 1993-94 official poverty line was so low it allowed 1650 calories only to be accessed and this further declined to 1590 calories at the 1999-2000 poverty line. The case is similar in Tamil Nadu and Karnataka. The fact that Kerala has always historically shown the lowest average calorie intake but good performance on vital rates (low death rate, low IMR, low maternal mortality) has led to a great deal of complacence in official circles. It is forgotten that equality of access to food which is a function of a relatively less unequal asset and income distribution and a well-functioning PDS, is an important factor, and that "while the level of dietary inadequacy is undoubtedly the dominant determinant of under- nutrition, the level of primary healthcare in the community can significantly modify the severity of its clinical manifestations" [Gopalan 1992]. The special characteristics of Kerala however are not to be found in other states, and even in Kerala the reform decade has impacted hard on farmers with agrarian depression and suicides.

In west-central India poverty is officially underestimated to the largest degree in Gujarat and Maharashtra, with calorie deficit from RDA at the official poverty lines of 600 per day or more, while in Madhya Pradesh too there is a big deficit of over 500 calories. In north India poverty is underestimated to a substantial extent in both Punjab and Haryana. These hitherto most prosperous states have been experiencing serious problems with the loss of an internal market in India to the tune of over 20 million tonnes of foodgrains owing to the sharp fall in per capita foodgrain absorption in the country following income-deflation. Actual poverty affects half the population and in Punjab it has been rising. In east India poverty is underestimated to the largest extent in Assam while West Bengal too has a substantial deficit of 500 calories at its poverty line. The only states where calorie intake at official poverty lines is 2000 or more and hence underestimation while present is not very large, are Bihar, Orissa and Uttar Pradesh.

The picture with respect to actual poverty is fully consistent with the adverse macroeconomic trends in the rural economy in terms of rising unemployment and falling foodgrains absorption discussed in the first section and is borne out by the recent NSS surveys confirming agrarian distress. In only four states out of the 15 major states of India (Assam, Kerala, Haryana and Uttar Pradesh) have directly estimated rural poverty fallen slightly between 1993-94 and 1999-2000, while in 11 of the remaining 12 states, poverty has risen over the period. We are making no adjustment for the change in recall period and the rise in poverty in these 11 states would be greater if this was done. In the remaining state, Andhra Pradesh, poverty depth has increased, while Karnataka registers moderately lowered poverty depth despite rise in poverty.

The only state in the country which has reduced poverty depth very substantially during the economic reforms period despite overall poverty rising a bit, interestingly, is Maharashtra where the percentage below 2100 calories has fallen drastically from 75 to 55 while the below 1800 calories percentage (not shown), has also fallen from 38 to 26. This large reduction in poverty depth is undoubtedly the positive result of Maharashtra's long-standing employment guarantee scheme and is a good augury for the current National Rural Employment Guarantee Act, provided it is properly implemented. Of course, these 1999-2000 data predate the problems of cotton farmers and pervasive suicides in the Vidarbha region of Maharashtra.

The rise in poverty in West Bengal during the 1990s might surprise some, given the positive effects of land reforms and revived functioning of panchayats in that state since 1978. In fact, between 1977-78 and 1993-94 there was a large drop in poverty in West Bengal, the percentage of persons with intake below 2400 calories declining from 84 to 72, and also a drop in poverty depth, the below 2100 calories percentage declining from 67 to 43 while, most importantly, the below 1800 calories percentage also declined drastically from 40 to 17. (The 1977-78 and 1983 data for states have not been presented here since it would lengthen this paper inordinately and will be presented later along with urban estimates.) Thus the nutrition data are entirely consistent with all previous analyses pointing to the very positive results of the first 15 years of Left Front rule in the state. With neo-liberal reforms there was perforce a cutback in development expenditures in West Bengal too as in other states, as the centre, taking a strongly deflationist stance, reduced tax devolution and gave loans only at exorbitant interest. Some of the earlier gains have been reversed over the 1990s: the below 2100 calories percentage has risen to 55 from 43, and the below 1800 calories percentage to 22 from 17, which is certainly a disturbing development. Nayyar (1991) had pointed out that the ranking of the states of India according to their poverty levels estimated using the two methods, in the 1970s was highly correlated even though there was an increasing gap between the direct and indirect estimates. Spearman's rank correlation coefficient worked out to 0.89 and 0.84 (using the official estimate on the one hand, and direct estimates using two different norms, 2200 and 2000 calories) and was significant at the 1 per cent level. However, we find

Chart 5c: Deficit of Calorie Intake from RDA at Official PL, East India

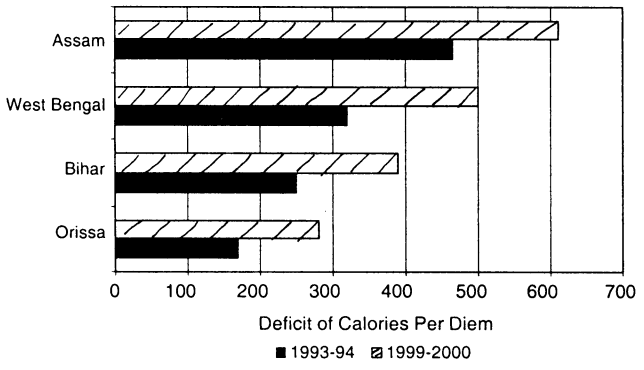
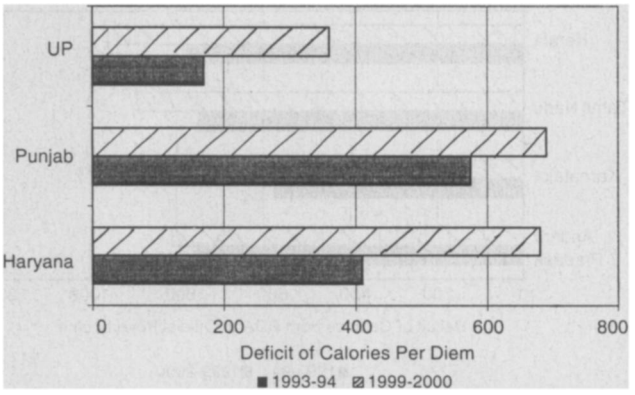


Chart 5d: Deficit of Calorie Intake from RDA at Official PL, North India



that by 1983 the rank correlation coefficient value had dropped to 0.6 and further to 0.2 by 1999-2000, and it may well be negative by now. To be precise, Spearman's rank correlation coefficient taking the poverty ranks of the states by the official method, and by the direct method for 1999-2000, works out to 0.236 and 0.075 (using the same two nutrition norms as she had used) and neither is significant at the 1 per cent level.[10]

It must not be thought that all economists have been following the fallacious method recommended by the 1993 Expert Group, which has resulted in the contretemps of drastic underestimation of poverty, and arbitrary variations in poverty across states. There are a number of writers critical of the official method who have rightly put nutrition back at the centre of their analysis of poverty. Nayyar's early research also contained a thorough discussion of nutritional norms. Others writing recently have followed a direct poverty estimation route, though a different one from inspecting and calculating from current NSS data – the method I have followed in this paper. They have estimated the minimum cost of accessing the calorie RDA on the basis of current nutrient prices by solving for the classic "diet problem" and thus have obtained a normative food expenditure. By comparing with the actual expenditure on food in the NSS, they arrive at the percentage of persons failing to reach this required food expenditure, and this comes to 66 per cent at the All-India level for the 55th Round [see Coondoo, Majumdar, Lancaster and Ray 2004, Ray and Lancaster 2005].

S Subramanian (2005) has analysed the impact of relative food price rise, and the loss of common property resources on the demand for food, using the theory of consumer demand to show, in his own words, that "...(a) at an income level which the official methodology equates with the poverty line, it would not be compatible with optimising behaviour to consume food at its calorifically normative level; and (b) the level of income required to induce optimal consumption of the calorific norm will be greater than the officially stipulated poverty line" (p 61). He has rejected the official procedure of taking an invariant base-year consumption basket, as assigning arbitrarily a normative value to the consumption pattern of one particular year. This means rejecting the entire basis of the official poverty numbers. However it is not clear why every year is regarded by him as being equally arbitrary. Our existential reality is that we live in the present, not in the past or the future; the cost of minimum current consumption needs must provide the partitioning device for dividing the set of all persons into poor and non-poor if such an exercise is to be at all undertaken.

J V Meenakshi and B Viswanathan (2003) have used the statistical technique of kernel density functions to estimate the distribution of persons by calorie intake and have presented the resulting ogives. It might at first sight appear that they are following the direct method of estimating poverty but this is not the case. While other authors using the official method have de-linked poverty level expenditure from any nutrition norm, Meenakshi and Viswanathan's procedure is the mirror opposite. They have conceptually de-linked nutritional levels from consumer expenditure and given a different name, "calorie deprivation" to their estimates. It is as much selective use of the NSS data however, to talk of energy intake alone without relating it to the associated expenditure, as it is to talk of expenditure alone without relating it to the associated energy intake. The result is to permit the spurious official and World Bank claims of declining poverty to go unchallenged even when nutrition is discussed, for although the official poverty lines and poverty ratios are given, any mention of what is happening to average nutritional intake at the official poverty line expenditure over time and across states, is avoided.

We have not used the classifications given in the NSS reports of persons distributed by their levels of calorie intake, precisely because these are not directly by expenditure levels. Low calorie intake of individuals is a necessary but not a sufficient index of poverty. It is to be expected that even in high income groups there will exist a certain proportion of persons, with unusually low calorie intake for their age and sex, since these groups include fashion models, racing jockeys, anorexic youth and sick persons unable to absorb food. While poverty will necessarily lead to low intake, from low intake alone poverty cannot be inferred. For obtaining a sufficient index, expenditure levels must always be factored in, so that we are correctly separating out those with enforcedly low calorie intake *because* their expenditure is low, from those persons with high total expenditure who might restrict their energy intake for reasons other than purchasing power.

As might be expected, some of those involved in the 1993 Expert Group report are trying to defend their position either directly or by proxy. But the arguments being put forward are a total academic embarrassment and would not be worthy of even being mentioned here were it not for the fact that they have already made it to some official publications. One such argument (apparently made by the Expert Group itself) is that in any poverty ranking the state of Bihar can be expected to come towards the bottom and since applying the nutrition norm directly

does not put Bihar towards the bottom, the nutrition norm should not be applied. Those who put forward or defend this gem of illogicality merely expose their preconceptions regarding Bihar and ignore research showing substantial rural real wage rise in many districts in the pre-reform phase, in which out-migration had a role to play.

Another common argument defending the wrong idea that falling calorie intake is voluntary, is that there has been mechanisation in agriculture and the energy intake needs of rural labourers has reduced. One can scarcely find a clearer example of apologetics than this argument which involves a double non sequitur. First, the argument assumes that rural labourers were adequately fed before mechanisation and there is scope for reducing intake, which is not the case; second, it assumes that with mechanisation human energy intake necessarily goes down, while the converse is observed to be the case everywhere. Even if we consider Asia alone, the highest levels of energy intake of rural workers are in the most agriculturally mechanised countries like Japan, Korea and China which have seen rising nutritional standards of rural workers as their incomes rise, which is as it should be since the aim of raising labour productivity through mechanisation is precisely to improve the lot of people.

IX
Inability of Official Poverty Lines to Capture Actual Cost of Living

In constructing the consumer price index for agricultural labourers, zero or negligible weight is given to many items of spending which are in practice unavoidably important for even poorer workers such as transport to site of work, coping with ill-health, and basic utilities. Altering the weighting diagram of the CPIAL to take realistic account of these items would certainly help a bit, but not all that much. In my judgment the more important problem is the arbitrary procedure of applying the given price-index to a fixed consumption basket which goes back as far as 34 years. However well constructed the price index itself might be, taking such a distant fixed basket cannot but ignore important and mainly non-reversible structural changes taking place in the economy over time, which are responsible for altering the choices faced by consumers such that the actual consumption basket is altered and there is necessarily a much higher cost today of accessing the minimum energy intake.

The changes in the economy which have altered the set of choices consumers face, fall into two categories: First, long-term structural changes since the 1960s which are mainly irreversible, and second, changes under neo-liberal reforms over the last 15 years which are in principle reversible. The long-term changes have been extensively discussed but ignored by the official estimators. M H Suryanarayana (1996) in a detailed discussion of the concepts and methods used for estimating expenditure by the NSS, had pointed out that the economic environment for labourers and poorer farmers was changing in a manner not fully captured by price indices. Over the previous three decades there had been substantial monetisation of the rural economy. Wages paid in kind as grain or meals, valued at low prices in NSS rounds, were now paid in cash which the labourer had to exchange for food at higher retail prices embodying lower quantities. Common property and gleaning rights were disappearing. This rendered official poverty lines of dubious value, and he had advocated using direct quantitative indices for measuring poverty.

Mehta and Venkatraman (2000) had drawn attention to the fact that crop-straw, fuel-wood and fodder which was earlier gleaned, gathered or accessed as common property (only partly valued in the NSS, or valued at low farm gate prices), now had to be purchased at retail rates. Food and cooking fuels are jointly demanded since no one can eat raw food, and with a real income which is constant or declining, a part of food expenditure has to be enforcedly reduced to buy fuel. They had established that the rising non-food monetised expenditure on utilities (fuels, transport, health) meant that food expenditure in real terms was forced down to a lower level by 1993-94. The present author too had drawn attention in a brief but sharply worded manner to the futility of using the consumption basket of 1973-74 to estimate current poverty [Patnaik 2004].

At the 1993-94 official poverty line, 6 per cent of spending was on "fuel and light" and 13.1 per cent was on miscellaneous goods and services (medical services, transport, education and rent) adding up to 19.1 per cent. By 2004-05 for the official poverty line expenditure class, the fuel and light share at 10.2 and the miscellaneous goods and services share at 23.4 per cent added up to 33.6 per cent of spending. Since real spending has been stagnant over 1993-94 to 2004-05 for four-fifths of all persons, a higher share spent on these items entails not just a lower food share but absolute decline in spending on food. Only Rs 221.8 per month per head or Rs 7.4 per day, could be spent on food in 2004-05. This is Rs 126 at 1993-94 prices, less than the Rs 143 actually spent on food at the official poverty line of 1993-94.

Second, the more recent changes affecting poverty are the outcome of the deflationary policies discussed in the first section of this paper, which are in principle all reversible. Large cuts in development expenditures reduced the level of rural activity and raised unemployment. Rising input and credit costs combined with stagnant or falling output prices, or an adverse price scissors further reduced incomes. Mass demand deflation in turn led to a drastic lowering of the inflation rate by the end-1990s, and even in the severe drought year 2002-03, agricultural prices hardly rose since distress sales ensured easy market supplies, and with lower output demand was further compressed. The rise in the official poverty line which entirely reflects the rise in the CPIAL, was 60 per cent between 1993-94 and 1999-2000 but was below 11 per cent between 1999-2000 and 2004-05. Neo-liberal deflation squeezed aggregate demand so severely that it eventually resulted in price deflation in agriculture. This set of factors has led to a downward shift in the demand curve for necessities for a majority of the rural population.

The recent moderate revival of inflation during 2006-07 is partly cost-push owing to rising imported oil prices, but is mainly shortage-induced owing to the collapse of grain output growth in the last few years, brought about by the sustained decade-long state attack on farmers' viability. Lower inflation during 2000 to 2005 should have benefited rural net food purchasers if everything else was the same, but because it was the result of expenditure deflation-induced depression, any benefit was swamped out by unemployment rising faster and earnings declining more rapidly than the inflation rate was decelerating, pushing more people into poverty.

The remedy is simple – a strongly expansionary fiscal policy and genuine commitment to implementing the NREG Act by funding it properly, supported by large-scale revival of foodgrains and other crops procurement at realistic prices; and scrapping the iniquitous and senseless APL-BPL divide, would

be enough to lift the agrarian economy out of depression and reduce hunger. There is no sign however that the country's leaders have the wisdom to change course and avert the current slide to the abyss.

As regards poverty measurement the solution lies in using simple, direct and transparent indices of poverty and the minimum use of complex, indirect and opaque measures, however enamoured professional economists might be of the latter. The calorie intake by different expenditure groups will become available soon for 2004-05 from the NSS 61st round and will permit direct estimation of actual poverty and poverty depth. Possession of tangible assets, food grains absorption per head, whether the family resides in hard-roofed structures, floor area occupied per family, yardage of textiles consumed, use of electric power – all considered by differing economic levels rather than in terms of overall averages alone – these are some of the simple and crucial indices which will give a clear idea of poverty and its trends over time. Poverty estimation should be entrusted to an independent body of academics, not to international financial institutions or to governments, which are parties interested in claiming success for their policies, and have by now amply demonstrated their lack of objectivity.

Appendix

Indirect and Direct Poverty Estimates, 61st Round, 2004-05

As this paper was already in press before the 2004-05 nutrition data became available in May 2007, the discussion of direct poverty estimates using these data is confined to this Appendix and awaits a fuller treatment later.

There are alternative estimates which emerge from the 61st round depending on whether we take the uniform 30-day recall, which is stated to be comparable with the 50th round estimates, or the mixed recall which is stated to be comparable with the 55th round estimates. The 2004-05 ogive, using the mixed recall, lies to the right of the ogive using the uniform 30 day recall (Chart A-1) by a mere Rs 40 or so for the poorest four deciles. With the former, about 20 per cent of persons are below Rs 365, while with the mixed recall, about 30 per cent of persons are below Rs 360. Since Rs 356 is the indirect poverty line the poverty percentages are 18.5 and 28.5 respectively. The mere Rs 40 rightward shift in the mixed recall ogive compared to the U 30 one results in a large drop by 10 percentage points in official poverty solely because the indirect poverty line is already such a gross underestimate and so low, that it intersects the ogive at a point where it has the steepest slope. The calorie intake permitted by the official poverty line has declined further to 1820 (see Table A-2).

Using Chart A-2 along with A-1, the percentage of rural persons not able to access 2400 calories at the all-India level is 87.0, up sharply from 74.5 per cent in 1993-94 and from about 77.5 per cent in 1999-2000. The required spending to access RDA has gone up to Rs 795, a rise by two-fifths over the five years. The actual rise in poverty is even greater than anticipated, and poverty depth has increased more than during any previous period, not surprisingly given the pervasive agrarian depression and farmer-labourer distress. Millions of persons have been pushed down to a lower nutritional status. Every nutritional level shows about 10 to 12 per cent more of total population below it and 5 per cent more of all persons have sunk below the lowest, 1800 calories level. The average calorie intake in rural India has declined further from 2153 to 2047 over the decade. Average daily protein intake has declined by 3 gms and average fat intake has risen

Chart A-1: Ogive Based on Consumption Expenditure from Uniform Recall, 61st Round

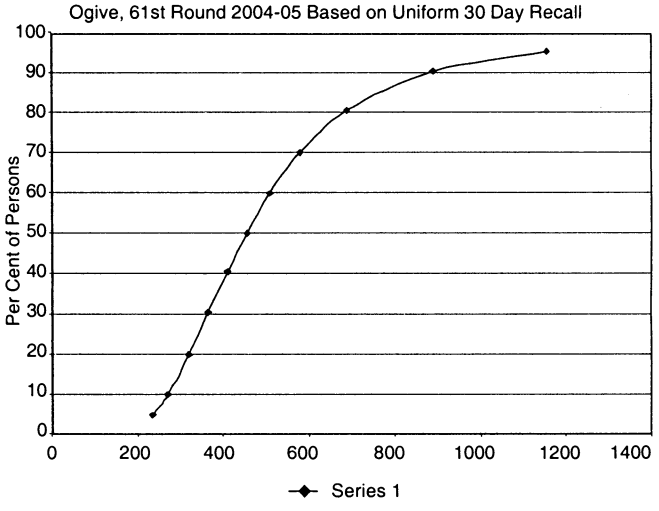


Table A-1: 61st Round Consumer Expenditure with Alternative Recall Periods (Uniform 30-day and Mixed)

1 MPCE Class (U30)	2 Per Cent of Persons	3 MPCE (U30)) (Rs)	4 Per Cent of Persons	5 Monthly Per Capita Expenditure M, 1993-94 Prices (Rs)	6 M, 2004-05 Prices (Rs)	7 Estimated Upper End of Exp Class (Rs)
0- 235	4.8	199.53	5	137	239.7	275
235-270	5.1	253.80	5	169	295.7	315
270-320	9.9	296.64	10	193	337.7	360
320-365	10.5	342.40	10	220	384.9	410
365-410	10.2	387.72	10	245	428.7	450
410-455	9.4	432.06	10	271	474.2	500
455-510	9.9	481.55	10	299	523.2	545
510-580	10.2	543.25	10	333	582.7	620
580-690	10.4	630.40	10	380	664.9	710
690-890	9.8	775.00	10	455	796.1	880
890-1155	5.0	999.94	5	569	995.6	1110
1155 +	5.0	1956.57	5	936	1637.8	2166
All	100.0	558.78	100	331	579.17	

Notes: MPCE for 2004-05 under mixed recall M is given in 1993-94 prices for percentiles on p 19, Table P 7 and is reproduced in the fifth column above against the respective percentiles in col 4. The values in 2004-05 prices are then obtained using CPIAL. Column 7 values are approximate and obtained by assuming that the col 6 values are mid-points of the respective classes.

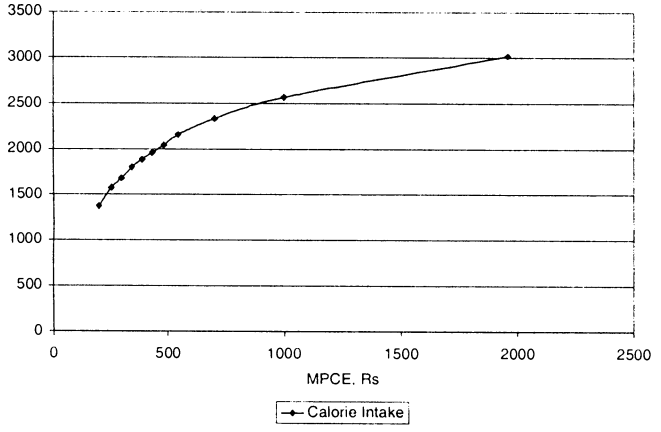
Source: NSS Report 508.

Table A-2: Poverty Estimate, 1993-94 and 2004-05, All-India Rural

Direct Estimate				
Levels of calorie intake per day	2400	2200	2100	1800
Per cent of persons below specified level, 2004-05	87.0	69.5	60.5	25.0
Per cent of persons below specified level in 1993-94	74.5	58.5	49.5	20.0
Required monthly per capita expenditure in 2004-05 to access nutrition level, Rs	795	575	515	342
Official Estimate				
Official poverty line (OPL)	1993-94	2004-05		
Rs	206	356		
Per cent of persons below OPL	37.3	28.3		
Calorie intake at OPL	1980	1820		

Source: Calculated from NSS Report 513, *Nutritional Intake in India*, 2004-05, A-18, A-90, and Report 508.

Chart A-2: Per Capita Daily Calorie Intake by MPCE, 2004-05, All-India Rural



by 5.5 gms, both being small changes relative to the large decline in energy intake.

The below 2100 calories percentage of persons is substantially higher at 60.5 compared to 49.5 in 1993-94 and the below 1800 calories percentage is 25, while it was 20 a decade earlier (Table A-2). The absolute numbers of rural persons below 2100 calories has risen by 150 million, from 289 million in 1993-94 to 440 million by 2004-05. Those accessing below 1800 calories, the poorest of the poor, numbered 182 million by 2004-05 compared to 117 million in 1993-94, an increase by 65 million. By taking a very low poverty line at which at most 1820 calories can be obtained, effectively the Planning Commission is designating as "the poor", only the poorest among the actually poor.

In Table A-3 the statewise poverty estimates are given, including the 2200 calorie level, bearing in mind that this was the likely actual official base year nutrition norm. As high as 69.5 per cent of all persons were below 2200 calories intake by 2004-05 compared to 58.5 per cent in 1993-94. In only two of the 15 major states in India (Assam and Kerala) have directly estimated poverty, unambiguously declined (for all levels) during 1993-94 to 2004-05, while in 11 states it has unambiguously increased for all levels. Andhra Pradesh shows marginal improvement by 2004 compared to decline up to 1999-2000 since both extreme poverty depth and below-RDA percentages have declined. While there were nine major states in 1993-94 where one-fifth or more of persons could not access 1800 calories, by 2004-05, as many as 12 states out of 15 were in that position. Rural poverty has increased not marginally but markedly, in a wide belt of states spanning the entire country, from Punjab, Haryana and UP to Gujarat, Rajasthan and Madhya Pradesh and from Bengal, Bihar and Orissa to Karnataka and Tamil Nadu.

At the very low official poverty lines, in 1993-94 the rural population in 10 major states could not access 2000 calories, and in four major states could access only 1700 calories or less. But by 2004-05, the number of states so affected were higher. The official poverty lines did not permit the rural population of 14 (out of 15) major states to access 2000 calories, while the population of seven major states could only obtain 1700 calories or less. Their official poverty ratios had thereby gone down. Thus the secret of official "poverty reduction" remains the unstated lowering of the consumption standard. EPW

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Notes

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Table A-3: Calorie Intake at Official Poverty Lines, 2004-05 and Direct Estimates by States

	Official Indirect Estimates			Direct Estimates					
	2004-05 Official Poverty Line (OPL)	Poverty Ratio at OPL (Per Cent)	Calorie Intake at OPL	1993-94 <2400 Calories (Per Cent)	2004-05 <2400 Calories (Per Cent)	1993-94 <2200 Calories (Per Cent)	2004-05 <2200 Calories (Per Cent)	1993-94 <1800 Calories (Per Cent)	2004-05 <1800 Calories (Per Cent)
	1	2	3	4	5	6	7	8	9
All-India	356.3	28.3	1820	74.5	87.0	58.5	69.5	20.0	25.0
East									
Assam	387.64	22.3	1810	93.0	87.5	72.5	63.5	30.0	21.5
Bihar	354.36	42.1	1960	73.0	84.0	60.0	68.5	25.0	25.0
Jharkhand	366.56	46.3	2020	na	80.5	n.a	60.0	na	10.0
Orissa	325.79	46.8	2010	70.0	82.5	47.0	67.0	16.0	27.5
West Bengal	382.82	28.6	1855	72.0	83.0	52.5	67.5	17.0	24.3
South									
Andhra Pradesh	292.95	11.2	1620	84.0	79.5	67.5	67.5	27.0	25.0
Karnataka	324.17	20.8	1625	75.5	95.0	62.5	86.5	29.0	43.5
Kerala	430.12	9.6	1480	84.0	75.0	71.5	66.0	40.0	34.0
Tamil Nadu	351.86	16.9	1600	87.0	94.0	81.0	86.5	43.0	46.0
West-Central									
Gujarat	353.93	19.1	1655	83.5	89.5	71.5	83.5	36.0	41.0
Madhya Pradesh	327.78	36.9	1790	72.5	90.5	55.5	81.5	21.5	37.5
Chhattisgarh	322.41	40.8	1805	na	88.5	na	76.5	na	40.0
Maharashtra	362.25	29.6	1675	89.5	95.0	82.0	78.5*	38.0	41.5
Rajasthan	374.57	18.7	1835	46.0	76.0	33.0	61.0	7.5	15.0
North									
Punjab	410.38	9.1	1700	52.5	68.0	35.0	53.5	11.0	15.0
Haryana	414.76	13.6	1735	55.0	63.5	40.0	52.5	11.5	20.0
Uttar Pradesh	365.84	33.4	1965	65.5	72.5	45.0	60.0	11.0	16.5
Uttaranchal	478.02	40.8	2205*	na	60.0*	na	40.0*	na	3.5

Note: * Provisional.

Source: NSS Report Nos, 401, 402, 405 for 50th round, Reports 508, 513 for 61st round.

1 'The Nature of Fallacies in Economic Theory', Satyendranath Sen Lecture delivered at the Asiatic Society, Kolkata, August 11, 2004.
2 Gopalan is referring to P V Sukhatme's argument, which he had earlier refuted [Gopalan 1983] that mean energy requirement level minus two standard deviations should be considered for poor populations.
3 National Nutrition Monitoring Bureau, *25 Years of NNMB*, Delhi, 1997.
4 Note that since the highest expenditure class is open-ended for rural and urban India, the last point of the relevant ogives have not been shown. Assuming that the given average expenditure is the mid-point of the expenditure class in each case, we get Rs 1,738 and Rs 4,223.6 as the estimated upper end values for rural and urban expenditure. The reader can visualise the ogives approaching 100 at these values.
5 Most economists incorrectly interpret a necessary condition as a sufficient one. Rising real income does imply a falling share of food expenditure in total expenditure but the converse is not true. A falling share of food expenditure in total expenditure does not imply rising income and is consistent with falling income.
6 I repudiate the views I expressed on poverty in my papers written before 2004 where I uncritically reproduced Planning Commission and World Bank estimates. I was not then aware of the fatally flawed methodology used, and only contradiction of the claims of these bodies with deepening agrarian distress, led me to look closely at the official procedure.
7 Any inaccuracies in plotting and reading the graphs are mine, but the mistakes if any are likely to be small, 10 calories at most.
8 For many other states like Andhra Pradesh, Deaton's recalculated poverty lines give higher estimates than the Planning Commission ones but are of course still far below the correct estimates applying the nutrition norm.
9 See Reddy and Pogge (2005); *World Development Report, 2006*, Table A1 on p 278, cols 9 and 10.
10 Ramanand Ram (2004).

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