Working Paper
356

LIBERALISATION OF RURAL POVERTY: THE INDIAN EXPERIENCE

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March 2004

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ABSTRACT

A price rise signifies a fall in purchasing power, if there is no commensurate increase in income. Thus the pertinent question in the face of the phenomenal rise during the 1990s in the prices of the food articles, which account for a major chunk of the total expenditure of the poor, is whether there has been a corresponding increase in the incomes of the poor. The present paper is a modest attempt at analysing the answer to this question. Our focus is on the agricultural workers, for whom wages constitute the principal source of income and the important channel affecting poverty. There is evidence that rural poverty at the all-India level and across several States increased significantly especially during the first 18 months of the reform period. It is argued that the phenomenal administered price inflation of food articles, thanks to liberalisation measures, has had much to do with this situation. We show that the subsidy cuts and the consequent price rises, unless followed by compensating measures, will perforce reduce the consumption level of the vulnerable group of the population; in fact, subsidy cut is found to entail higher costs in compensation to keep their consumption at least at the same level. Moreover, expressing the consumption changes of the poor in terms of the relative compensation for the rich, we find from empirical facts that the poor are left as a losing lot. We also estimate State-specific rural poverty line wage rates for the 1990s and find that by 1998-99, only three States in India, Kerala, Haryana and Himachal Pradesh, had a sufficient real income, that is, a nominal wage rate higher than the rural poverty line wage rate; the agricultural wage rates in all other 13 States could not catch up with even the minimum possible poverty line wage rate

'Therefore take the talent from him, and give it to him who has
ten talents. For unto everyone who has,
more will be given, and he will have abundance; but from him
who does not have, even what he has will be taken away.'
- Matthew 25: 28-29

'In the long run, we are all dead.'

- J. M. Keynes

1.   Introduction

The generally accepted major goals of economic policy in India have been growth, price stability, and economic justice. Economic history is claimed to have witnessed an association between periods of inflation and rapid economic growth (Hamilton 1952; Keynes 1930: Chapter 30), with explicit regressive distributional consequences (Keynes *op. cit*.), thus introducing a grain of incongruity among these objectives. Although the relation between the first two (*i.e.*, whether inflation, intended for development, is conducive to high rates of voluntary savings and capital formation, essential for economic growth) might still be an unresolved contention, the role of price stability in ensuring economic justice goes

beyond doubt: inflation tends to increase income inequalities and to ineffectuate anti-poverty programmes.

It goes without saying that price rises hurt the poor more and harm the goal of social justice. Despite this fact, the poor in India appear to have always been at the losing end of the policy games of the polity, whatever be the national slogans, whether for a socialistic society or for a market economy. Inflation has always been corroding the economic value of their everyday life, wherever be its source, whether in the unyielding state of the nature, or in deficit financing of economic development, or in administrative price hikes, or in economic liberalisation. Thus the last four decades witnessed a thirty-fold increase in the food prices at the wholesale level, the prices much more than doubling in each decade; and the first half of the 1990s heated the economy up in exceptionally hyper inflation in facilitating liberalisation.

Liberalisation

The first signal for launching a liberalised economy flashed across India from the Union Budget for 1991-92, in response to the 'severe fiscal crisis' of the previous year. The period had a lesson for India 'that the economy needed substantial reforms if the crisis was to be fully overcome…Both the balance of payments problems which were building up over the past few years and the persistent inflationary pressure were the results of large budgetary fiscal deficits which characterised the economy year after year….A reversal of the trend of fiscal expansionism was essential to restore macroeconomic balance in the economy.' (Government of India 1991-92 Part 1: 11). That is, the desired macroeconomic stabilisation was to be achieved through fiscal discipline, the resolution for which was in turn reflected in the Budget decision to abolish export subsidies, to increase fertiliser prices, and to take steps to keep non-plan expenditures in check (*ibid*.). In the initial years of

transition, most of the administered items,[1] such as steel, non-ferrous metals, fertilisers (except urea), lubricating oil, and so on, were decontrolled/decanalised to avoid the burden of subsidisation. The category of administered items now includes petroleum and petroleum products,[2] urea fertilisers, coal and electricity. In the same year, 'In order to reduce the fiscal deficit, the Government …..had to permit an increase in some administered prices of some basic goods and services.' (*op. cit.*: 21). And this continued in the following years also,[3] with the result, for example, that the electricity prices in general almost tripled in the 10 years of liberalisation. Decontrolling fertiliser prices also had the same effect, while the prices of iron and steel and non-ferrous metals nearly doubled (see Table 1). Note that these products being important factor inputs, their price rises had cascading impacts across the economy. Indeed, the first six years of the 1990s constitute the longest period of sustained double-digit inflation in independent India; and that too under conditions of good monsoon in all the six years!

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1   It should be remembered at this point that unlike in the erstwhile socialist countries, price freezing was never resorted to in India, though administered pricing was in force for a large number of commodities – vital raw material inputs, essential consumer goods, or goods having pervasive influence on the growth and development of the economy and on the welfare of a broad cross section of the consumer – such as minerals, petroleum crude and natural gas, fuel, power, light and lubricants and a number of important manufactured products, viz., iron and steel, non-ferrous metals (excluding aluminium) and fertilisers. Administered pricing policy aimed at price stabilisation of critical commodities through subsidisation. Regular upward revisions of these prices were very much in force, though.

2   As of April 1, 2002, the government was supposed to have ended the administrative pricing of auto-fuels – petrol and diesel – and domestic fuels – kerosene and cooking gas. However, the government held the price line following the renewed volatility in the global oil prices, following turmoil in West Asia and restocking of the US strategic reserves.

3   'Subsidies on a number of products with administered prices were reduced to bring down the fiscal deficit. This raised their prices.' (Government of India 1992-93: 80).

Price Inflation

The most devastating effect of subsidy cuts was experienced in the case of the food articles (Table 1) [4], on which the poor spend a major part of their meagre income. The general price level was primarily fed and led by the prices of food articles, as the relative prices during this period show. While the annual average inflation rate of food grains at the wholesale level in the 1980s was about 6. 5 percent, it was about 10.8 percent in the 1990s, (and 11.3 percent in the first half of the decade) the price level having a nearly three-times rise, thanks particularly to the government's regular moves of enhancing procurement prices of paddy and wheat substantially in favour of the large landlords to compensate for the subsidy cuts in input prices. For instance, the increase in the procurement price of common paddy (and wheat) in 1993-94 over 1990-91 was Rs. 105 (Rs. 125) per quintal. Such moves have been pregnant with two built-in forces of inflation.[5] At the wholesale level, food grains prices have been pushed up, since the procurement prices serve as a floor to their open market prices. Further, the increased procurement prices have forced the government to increase the issue prices of rice and wheat of the public distribution system (PDS) to a large extent in order to keep the food subsidy within manageable limits - during the

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4   'Primary goods led the inflationary surge with an inflation rate of 21.6 percent in the middle of November 1991; the pressure on food grains prices was even higher...…. The spurt in food grain prices pushed up consumer prices both in rural and urban areas' (Government of India 1992–93: 72). '*This is rather surprising given the good harvest*' (Government of India 1993–94: 62; *italics* ours).

5   'An upward revision of issue prices under the PDS for wheat…and for rice….and the higher minimum support price (MSP) payable to farmers for wheat and rice were apparently the main factors for this uptrend. Thus administered prices operating under PDS and the MSP (or procurement prices) provided a floor below which food grain prices could not have fallen *even though improved production and supply situation warranted a price fall*' (Government of India 1993–94: 62; *italics* ours).

same period, the increase in the issue price of rice (and wheat) was Rs. 148 (Rs. 96) per quintal. Thus the government, it is significant to note, has in effect been redistributing income from the poor to the rich landlords through administrative price inflation. The rise in procurement price has in turn led to an exceptional increase in procurement, resulting in a decline in open market availability and the consequent price inflation.[6]

A price rise signifies a fall in purchasing power, if there is no commensurate increase in income. A three-fold price rise cuts the purchasing power of a rupee down to a one-third, necessitating an equal increase in income. Thus the pertinent question in the face of the phenomenal rise during the 1990s in the prices of the food articles, which account for a major chunk of the total expenditure of the poor, is whether there has been a corresponding increase in the incomes of the poor. The present paper is a modest attempt at analysing the answer to this question. Our focus is on the agricultural workers, for whom wages constitute the principal source of income and the important channel affecting poverty. The relative incidence of poverty has been found to be more severe among agricultural workers (Pant and Patra 2001). According to the NSS quinquennial surveys, agricultural wage earners accounted for about 46.8 percent of the rural poor in 1987-88 (Sen 1996), and 51.87 percent in 1993-94 (Dev and Ranade 1997).

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6   In addition to this, 'The tariff reform, which reduced customs duties across the board, was sought to be made revenue neutral not through an increase in indirect taxes that would reduce the disposable incomes of the rich and dampen inflation, but through increases in indirect taxes on commodities that fuel inflation and squeeze the real incomes of the poor.' (Mahmud 2001:27).

'Poverty Debate'

A heated debate has been raging in the informed circle as to whether the liberalisation process in India has resulted in an increase in poverty. Despite the differences in estimates, it is found that rural poverty in India did increase in the initial years of the 1990s (till 1992-93 over 1989-90) (World Bank estimates in Datt 1999; Jha 1999; Tendulkar *et al*. 1993; Tendulkar 1998), and in 1994-95 (World Bank estimates in Datt 1999) and in 1997-98 (Planning Commission, as reported in Ghosh 2000). Immediately after the initial surge of reforms, rural poverty in 1992 increased by around 25 percent. Sen (1996), Nayyar (1998), and Patnaik (1999), to name a few, infer this increase in rural poverty as due to reforms, while Tendulkar and Jain (1995), Tendulkar (1997), and Joshi and Little (1997), among others, hold the bad weather primarily responsible for it. Sen's contention bracketing rural poverty rise and economic reforms stems from the observed fall in government expenditure that resulted from the concerns over the macroeconomic stabilisation. This in turn led to a decline in the proportion of the non-agricultural labour force (for example, by about 16.3 per cent in 1992), forcing a steep fall in agricultural wages and a consequent increase in rural poverty. The drop in agricultural production thanks to bad weather and the resultant sharp increase in inflation, according to him, were not large enough to explain the rural poverty increase.

However, Radhakrishna and Ravi (1992) prove, by establishing an inverse association between inflation rate and total expenditure in 1990-91, that the hyperinflation of 1990-91 did hurt the poor. Since the wages of the rural labour are not indexed, they do not feel optimistic that the nominal expenditure of the poor would have increased enough to neutralise the effect of the steep increases in the prices of food articles. Sen (1996) claims that inclusion of relative price of food (RPF) in econometric models along with other explanatory variables such as

agricultural productivity and public development expenditure leads to a
much better explanation of pre- and post-reform poverty in India than
the models ignoring RPF. Ravallion (1998), based on NSS data from
1958 to 1993-94, finds a high correlation (0.76) between poverty and
RPF, (though he does not use his result for an attack on reforms but
maintains that this correlation is not an explanation of the adverse
distributional effects of changes in RPF, but due to the mean effect through
depressed mean per capita consumption). Nayyar (1998) does not find it
surprising that the incidence of poverty registered a significant increase
in the early 1990s, given the hyperinflation in food. Similarly,
Maheshwari (2002) shows that the food grains price rise during the reform
period, thanks to the structural adjustment-related policies (as argued by
Sen), is significant in explaining the increase in rural poverty in 1992.

It is in this background that we attempt to analyse the plight of the
rural poor in India in the face of inflation vis-à-vis income changes. In
the next section, we discuss, in a simple model, the cost of economic
liberlisation *a la* subsidy cuts that entails more than proportionate
compensatory increases in the incomes of the poor. In the third section
we analyse whether the subsidy cuts implied in the steep administered
price inflation facing the poor were effectively compensated by
corresponding income increases. Here we make use of an alternative
analytical measure of rural poverty line wage rate.   The last section
briefly concludes the study.

2.   The Cost of Liberalisation

In this section we attempt to analyse the implications for the poor
of the government's resolve to cut subsidies. The government can claim
to counter the effect of the administered price inflation thanks to subsidy
loss with compensating measures, say, in terms of income increases
including transfers. It follows that unless the poor are provided with

adequate income, their share in total national product would perforce fall. In relation to his rich neighbour, poking a big spoon into the (small) bowl, his position is more vulnerable; he must be compensated for the loss in subsidy with a more than proportionate increase in income. But, this, we argue, would entail higher costs to keep the consumption share of the poor at least at the same level; that is, the compensation required would be much higher than the subsidy taken away. This we formally show below.

The total consumption (c_i) of a household i is described by a (linearly homogeneous) Cobb-Douglas function in its nominal income y_i and the price level facing it p_i:

$$c_i = A y_i^{\alpha} p_i^{1-\alpha} \qquad \qquad \text{.....(1)}$$

This in turn yields the real consumption q_i of the household as a function of its purchasing power, y_i / p_i :

$$q_i \equiv c_i / p_i = A(y_i / p_i)^{\alpha} \qquad \qquad \text{... (2)}$$

Log-differentiating the function gives the percentage change in the real consumption of the ith household:

$$\dot{q}_i = \varepsilon_i (\dot{y}_i - \dot{p}_i) \qquad \qquad \text{.....(3)}$$

where ε_i is the real income elasticity of consumption and a dot above a variable indicates percentage change. Thus a drop in the purchasing power ($\dot{p}_i > \dot{y}_i$) is translated proportionally into consumption ($\dot{q}_i < 0$). Let us consider two households, poor ($i = 1$) and non-poor ($i = 2$). We are interested in finding the effect on consumption of the poor of subsidy removal vis-a-vis wage increases (and transfers). The price in the

liberalisation period, facing the poor household, say, p_1 is now devoid of subsidy, taken as a fraction s of price p_1, and is higher than the pre-liberalisation period price, $p_1(1-s)$. This gives the percentage increase in price (inflation rate): $\dot{p}_1 = s/(1-s)$, which is obviously greater than the subsidy rate, s. That is, when a subsidy is cut leading to a price rise, the rate of inflation thus brought about will be greater than the rate of subsidy that is cut. This has very significant implications as shown below. The household's wage income, y_1, in the second period is assumed to be higher than in the first period by an increase, say, t. Thus we have $\dot{y}_1 = t$. Hence

$$\dot{q}_1 = \varepsilon_1 \ (t-r), \qquad\qquad \text{..... (4)}$$

where $r = s/(1-s)$, is the forgone-subsidy odds. The cost of subsidy cut is obviously very high in terms of the required income increase, t.[7] To replace a 50 percent or more subsidy, a 100 percent or more income increase (t) is required, so that the consumption of the poor does not fall ($\dot{q}_1 \geq 0$), because a 50 percent subsidy cut implies a 100 percent price rise. When $s = 1/4$, t should be equal to or greater than 1/3 for $\dot{q}_1 \geq 0$.

The non-poor also have the benefits of subsidies through lower prices and other means as also of increased earnings; taking these benefits as proportions α and β of those actually meant for the poor, we have $\dot{p}_2 = \beta r$, and $\dot{y}_2 = \alpha t$.

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7   Note that income need to increase in the same (absolute) *amount* as the subsidy cut implicit in a price rise for the consumption not to fall. Hence, it may be argued that the *rate of growth* of income (which is what we consider here) be just equal to the *rate of subsidy* that was cut However, it goes without saying that the first (sentence) does not imply the second. Moreover, the nature of (implicit) subsidy is such that it is possible to show that this argument is just unsustainable and a logical conclusion is obtained only in our result. For a detailed discussion, see the appendix.

The total national product is $q = q_1 + q_2$, and the percentage change in it is

$$\dot{q} = (1 - \omega)\,\dot{q}_1 + \omega\,\dot{q}_2, \qquad \qquad .....(5)$$

where $\omega = q_2/q$.

In the short run, $\dot{q} = 0$, and substituting in (5) for $\dot{q}_1$ and $\dot{q}_2$, we can determine the equilibrium t in terms of the forgone-subsidy odds:

$$t = \frac{(\beta + \eta\rho)r}{\alpha + \eta\rho}, \qquad \qquad .....(6)$$

where $\eta = \varepsilon_1/\varepsilon_2$, and $\rho = (1 - \omega)/\omega$.

Substituting (6) in (4) yields the percentage change in the consumption (portion of the total product) of the poor in relation to that of the non-poor:

$$\dot{q}_1 = \frac{\varepsilon_1(\beta - \alpha)r}{\alpha + \eta\rho} \qquad \qquad ..... (7)$$

If the *status quo* in respect of the benefits to the non-poor is maintained, i.e., $\beta = \alpha$, the wage income increases of the poor are determined just to cover the forgone-subsidy odds, $t = r$, and his consumption level remains the same. However, if non-poor are compensated more than proportionately, i.e., $\alpha > \beta$, then $t < r$, and the consumption of the poor falls and *vice versa*. It is intuitively interesting to find that if the compensation accruing to the non-poor is higher than they are entitled to as determined by the previous level, the compensation for the poor (as well as their consumption) is reduced to that extent. It then simply means that in the short run, when the supply is fixed, the process of distribution of the total product is a zero-sum game; some gain at the loss of others. Since the gains/losses are directed by the relative

changes in the purchasing power, it is imperative that the poor be compensated more than proportionately; that the income of the poor increase by a greater proportion than that of the rich. But, as we have already seen, such compensation involves costs that exceed the subsidies, cut in the process of liberalisation.

3. Analysis

Income Growth-Inflation Dynamics

Now we turn to look for the implications of the effect of liberalisation on the cost of living of the poor. Our focus is on the agricultural workers across 16 States who constitute a major chunk of the rural poor. Our concern is to find whether the price rises have worsened their already vulnerable position. An analysis of the changes in their purchasing power over time is in order here. We start our discussion with a comparison of the increases in the agricultural wages and price inflation, assuming that the agricultural wages constitute the sole source of income for these workers ($y_1 \equiv w$), and the price level facing them is represented by the consumer price index for agricultural labourers (CPI-AL). Table 2 gives the average agricultural nominal wage rates in the major 16 States of India during the period from 1989-90 to 1998-99. While in 1989-90, Haryana, Punjab and Kerala in that order led others in average agricultural wage rates, by 1989-99, Kerala surged far ahead of others in wage increase. Haryana followed Kerala, but Punjab lagged much behind in growth. It is significant to note that the all-India average agricultural wage rate in 1998-99 was less than half of the Kerala wage rate, and so it was for all these States except Haryana, Himachal Pradesh and Punjab; even the wage rate in Haryana was only nearly 70 percent of that of Kerala. The estimates of the cumulative growth in each year over 1989-90 provide a better comparative measure of changes in income and cost of living relative to the level on the eve of the

liberalisation. Thus we find that the agricultural wages in India on average increased by about 189 percent in 1998-99 over 1989-90 (or equivalently, about 2.9 times), with an annual average growth rate of 12.5 percent (Table 3). Only six States could grow better than the national average, Kerala leading the list with a 4.5 times rise. It should be pointed out that in all these States, money wages more than doubled in 9 years, Assam and Bihar having the least increase.

The cost of living of these workers on the other hand increased on average only by about 135 percent (or equivalently, 2.35 times) during this period, at an annual average growth rate of about 10 percent (Table 4).[8] It is significant to note that the State level estimates of CPI-AL cumulative growth for 1998-99 were distributed very thickly around that of the national average, implying low variability across States (note that the coefficient of variation was drastically falling over time), or more aptly, suggesting a convergence in the structure of the cost of living across the length and breadth of the economy. In the case of the cumulative increases in agricultural wages, however, there remained higher variability across the States; the corresponding coefficient of variation, after a steep fall, was increasing steadily over time. Also note that the promising positive gap between the growth rates of wages and price indices at the national average level apparently extended by 1998-99 to all but two States, viz., Assam and Bihar. This in terms of equation (3) suggests positive change in real consumption of the poor in all except these two States. However, more light is obtained from a look across time and space from Table 5 that explains equation (3) in terms of the real wage rate of the agricultural workers (taking $\dot{y}_1 = \dot{w}$, where w is the wage rate).

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8   The CPI–AL (food) has almost the same structure with marginally lower growth rates in most of the States and at national level.

Real Agricultural Wage Rate

As expected, an appreciable increase in the real wages has occurred only in the case of Kerala. Only in 1993-94 Kerala experienced a fall in real agricultural wage rate during this period. Tamil Nadu and to a less extent Gujarat appear to have some promising prospects. In general, however, for a majority of the States, the real wages (and thus the purchasing power) of the agricultural workers declined, over the previous period, in 1990-91 (7 States), 1991-92 (10 States), 1993-94 (7 States), 1994-95 (9 States), 1995-96 (6 States) and 1998-99 (10 States). In Assam and Bihar, real wages were steadily falling over time. And in Andhra Pradesh, Assam, Bihar and Karnataka, the average real wage rate for the 1990s was less than the 1989-90 level.

In 1989-90, Kerala ranked only third to Haryana and Punjab in terms of higher real wage rate of the agricultural workers, and continued to remain behind till 1994-95. Since 1995-96, Kerala has surged forward to the first place with tremendous steam of growth, having a real wage rate more than three-and-a-half times that of Orissa in 1998-99. Orissa has mostly been the last in the list.

Now let us interpret equation (3) in terms of a ratio of the cumulative growth of money wages to that of CPI-AL, i.e., ($\dot{w}/\dot{p}_1$), where p_1 stands for CPI-AL. Where ($\dot{w}/\dot{p}_1$) < 1, we have a fall in the real consumption of the poor ($\dot{q}_1$ < 0). With this interpretation, we find (in Table 6) that consumption of the agricultural workers tended to fall in most of the years during the 1990s in Andhra Pradesh, Assam, Bihar, Karnataka, and West Bengal. In the first year of the liberalisation, as many as 7 States appear to have experienced a fall in consumption of the poor; in the next year, 10 States; and in 1994-95, six States. The number steadily decreased over time, and in 1998-99, only in Assam and Bihar

the ratio fell below unity. After Kerala, Tamil Nadu appears to have fared much better. On average, however, during the 1990s, Andhra Pradesh, Assam, Karnataka, and West Bengal seem to have suffered from a fall in consumption of the poor; and in Bihar, it remained almost constant. This in turn suggests that on average income of the rural poor had not risen in these States to the extent it should have, to neutralise the price rise, though by 1998-99, only Assam and Bihar continued to be in deep waters. Andhra Pradesh also seems to be too weak to forge ahead. Another significant case is that of Punjab, where the relative income growth was steadily falling during this period, portending a probable fall in future consumption.

Implied Subsidy Cuts

Remember we have found that price inflation may be represented in terms of forgone-subsidy odds: $\dot{p}_1 = s/(1-s)$, which in turn yields an estimate of the subsidy cut implied in that price (CPI-AL) inflation. Table 7 presents these estimates.[9] It is seen that the rise in the rural cost of living in India involved an implicit subsidy cut to the tune of nearly 60 percent by 1998-99 over 1989-90, almost uniformly across the States. This in turn requires, as we know, a costly compensation, in terms of increase in income by about 150 percent, so that consumption is not adversely affected. All States except Assam and Bihar could manage it by 1998-99, as we have already seen. By 1996-97, it was about 50 percent, requiring 100 percent income rise; and Assam, Bihar, Karnataka, and West Bengal had failed to reach that level. The last two managed to cross the unit mark by 1997-98.

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9   There is hardly any significant difference in the estimates, when we use CPI–AL (Food) instead of the general index.

PDS Issue Price Inflation

We can have more corroborative and direct evidences in favour of these results by considering the cumulative inflation of food price level rather than that of cost of living index (general/food). It should be noted that a major chunk of the income of the rural poor is spent on food, and that they heavily depend upon supply from fair price shops. Hence the significance of an analysis of the effect of the issue price rises, instead of CPI inflation. The public distribution system (PDS) in India had been a significant factor of the poverty alleviation strategy aiming to enhance the food security especially for the poor. This role, however, was lost in the administered price inflation of the 1990s that made the PDS issue prices skyrocket and narrow the differential between market price and PDS price (Government of India 1993-94: 67). In five years, the central issue price of common rice increased by 120 percent over 1989-90 (i.e., 2.2 times) and that of wheat, nearly cent percent, with annual average growth rates of 17.1 percent and 14.5 percent respectively. There was no price revision for the next two years, and in June, 1997, the targeted public distribution system (TPDS) was introduced with dual prices, one for families below the poverty line (BPL), equivalent to 50 per cent of the economic cost to the Food Corporation of India (FCI), and the other for families above the poverty line (APL), equal to the full economic cost. The BPL issue price of common rice increased from Rs. 350 to Rs. 565 per quintal in three years from 1997-98, and the APL price from Rs. 700 to Rs. 1130 per quintal during the same period, both growing at an annual average rate of 17.3 percent. For wheat, the price rises were from Rs. 250 to Rs. 415 per quintal (BPL - at a growth rate of 18.4 percent) and from Rs. 450 to Rs. 830 per quintal (APL - at a growth rate of 22.6 percent) over the three years. As the 'increase in Central issue price does serve as a new floor price for the open market price' (*ibid*.), issue price inflation transmits its shock directly to the open market. Thus,

in the five years we considered above, the wholesale price index (WPI) for rice increased by 75.2 percent and for wheat by 86.2 percent over 1989-90, though these rises were only a fraction[10] (63 and 89 percent respectively) of the issue price inflation.

It should be remembered that the end retail PDS prices are fixed by the States (and Union Territories) after taking into account margins for the wholesalers and retailers, transportation charges, levies, local taxes, etc. Some States still subsidise the PDS, for example, Andhra Pradesh, Gujarat, Manipur, Sikkim, Tamil Nadu, etc. Since State-wise time series data on issue prices are not readily available, we take the *growth* of the Central issue prices as representative at the State level also. Again, the BPL-APL dual prices are not considered, as they are not comparable with the earlier prices.

Each PDS Central issue price rise during the 1990s was so prohibitively high (especially for common rice, see Table 8) that *in no State* the increase in wage income, as compared with 1989-90, (Table 3), could initially catch up with it; this marks the three years, 1990-91, 1991-92 and 1994-95, exceptionally bad. Compare this result with the general findings that rural poverty in India did increase in the initial years of the 1990s and in 1994-95, as pointed out at the outset. The results from the relative income growth (Table 5 and 6), explained above, also corroborate this. There was no issue price revision in 1992-93, yet only in 5 out of the 16 States could the wage increase outdo the earlier price rise. The next year's price revision left only Kerala, Punjab and Tamil Nadu unscathed. In 1995-96, however, only Kerala and Tamil Nadu could keep their head above waters in the face of the previous year's issue price revision; whereas in 1996-97, even with no price change, 7 of these States remained poor in income growth.

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10   These fractions may be taken as representing the β values in equation (5).

Comparative Dynamics

Given this grim scenario of wage income-food price growth dynamics, it is now worth comparing this with the income-price growth dynamics of the non-poor group, as captured in equation (5), which explains the consumption changes of the poor in terms of the benefits to the non-poor ($\beta - \alpha$). Note that from the definitions of the variables, we have $\beta = (\dot{p}_2 / \dot{p}_1)$, and $\alpha = (\dot{y}_2 / \dot{y}_1)$. Thus equation (5) actually relates the consumption growth of the poor to the differential of price inflation and income growth of the non-poor relative to those of the poor. Quantification of this relationship is difficult for want of sufficient data especially on the income growth of and price inflation facing the non-poor; yet we can attempt at some rough estimation, as below.

Let us identify the rural non-poor with the landlords, whose main source of income is channeled to the crops marketed. The Central Government's minimum support/procurement price (MSP) policy has successfully set an effective floor price set to different crops; these prices cover the paid out costs actually incurred by the farmers (Government of India 1998: 167). The 1990s saw sharp rises in procurement prices; for instance, the price of paddy increased by around 140 percent (2.4 times) by 1998-99 over 1989-90, and that of wheat, by 156 percent (Table 9). Thanks mainly to this trend, the terms of trade in general was more in favour of the agricultural sector during the 1990s than during the 1980s (Government of India 1998: 171). As already mentioned, the rise in procurement price has also led to an exceptional increase in procurement; for example, rice procurement increased from 7.73 lakh tonnes in 1989-90 to 15.56 lakh tonnes in 1997-98, and wheat procurement from 8.94 lakh tonnes to 9.3 lakh tonnes during the same period, despite some fluctuations in a few years. Now we postulate that the growth in the income of the landlords from Government procurement of rice and wheat

may be taken as a proxy for the income growth of the non-poor. In the case of rice procurement, we use the procurement price of common paddy in general in the estimation of the sales income. We also account for the fluctuations in the procurement by means of a three-year moving average. The landlords' income is thus estimated and its cumulative increase in the 1990s over 1989-90 calculated (Table 9). The cumulative price inflation facing the landlords is taken as represented by that from the general wholesale price index (WPI-all commodities), and reported in Table 9. These together with the cumulative growth of agricultural wages and CPI-AL provide the required proxy estimates of the income growth ratio, $\alpha = (\dot{y}_2 / \dot{y}_1)$, and the inflation ratio, $\beta = (\dot{p}_2 / \dot{p}_1)$, of the two groups. And we find the former greater than the latter during the whole 1990s. Thus the non-poor having benefited much more than the poor in general ($\alpha > \beta$), the consumption of the latter was bound to fall in this period.

Rural Poverty Line Wage Rate

We have so far been considering the consumption prospects of the poor in terms of *rate of changes* in their purchasing power, assuming that its *level* is sufficient for their subsistence. Despite the legendary difficulties in a proper quantification in this respect, we make a modest attempt here in terms of a 'rural poverty line wage rate'. Since the wages are assumed to be the sole source of income of the agricultural households, we need to examine whether the wage rate is sufficient to meet the basic needs of an agricultural household and is thus consistent with the poverty line. A 'poverty line wage rate' is a wage rate consistent with the accepted poverty line that is enough to ensure the barest minimum standard of life above the rural poverty line. The rural poverty line wage rate (RPLW) is estimated for the 16 States for the period from 1989-90 to 1998-99, based on the official rural poverty line for

1987-88, drawn at Rs. 7980 [11] and the State-specific consumer price index number for agricultural labourers (CPI-AL). Thus, assuming that on average an agricultural worker with four dependents is employed for 25 days a month, the minimum RPLW corresponding to this official rural poverty line for 1987-88 comes out to be Rs. 26.6 a day. This is then adjusted for changes in the State-specific CPI-AL. For instance, for Andhra Pradesh, the RPLW turns out to be Rs. 21.98 a day for 1987-88, and for Kerala, Rs. 28.89. The RPLW increases over time in line with the corresponding CPI-AL, the one for Andhra Pradesh to Rs. 61.14 by 1998-99, that for Kerala to Rs. 81.85, the maximum among the States, and the all-India average to Rs. 72.19 a day. Table 10 presents the estimated RPLW for the 16 States as well as the all-India average during the period, based on the general assumption of a 5-member agricultural family and 25 days' work a month.[12] Andhra Pradesh, Gujarat, Tamil Nadu and West Bengal, with less than proportionate increase in the cost

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11   The Planning Commission has defined the poverty line (PL) on the basis of the nutritional requirements of 2435, rounded to 2400, calories per capita per day for rural areas and 2095, rounded to 2100, calories for urban areas, as recommended by the Expert Group on Estimation of Proportion and Number of Poor chaired by Professor Lakadawala which accepted the PL of the Task Force on Minimum Needs and Effective Consumption Demand. In rupee terms, the PL is the mid-point of the expenditure class in which the calorie needs are satisfied. On this basis, the cut-off points of monthly per capita expenditure turn out to be Rs. 49.09 in rural areas and Rs. 56.64 in urban areas at 1973-74 prices. This has since then become the criterion for estimating the number and proportion of the poor in India; at times the PL is updated to allow for the changes in the prices affecting the cost of living of the people around the PL. For a household of 5 members, the PL for 1987-88 has been drawn at an annual income of Rs. 7980 in rural and Rs. 9120 in urban areas. (Reply to Unstarred Question No. 850 in *Rajyasabha,* March 20, 1990)

12   It should be noted that this latter assumption (of 25 days' work a month for an agricultural labourer) is highly questionable, it being far from the reality in most of the States, and the RPLW estimated correspondingly might be a gross underestimate. We however use it as the minimum wage rate required to be above the poverty line, so that we can examine whether the actual wage rate is anywhere near even this minimum one.

of living, stand out with RPLW less than the all-India average for all/ most of the years.

Measure of Poverty Gap

Now comparing the nominal wage rate, obtained in these States over time, with the corresponding RPLW, would drive home the message on the extent of poverty among the agricultural workers. The comparison would be clearer, if we use a measure of poverty gap (PG), defined here as the deviation between the RPLW and the nominal wage (*w*) expressed as a ratio of the former (i.e., PG = 1 – *w*/RPLW). When $w \geq$ RPLW, PG $\leq$ 0, suggesting an improvement in the standard of living; higher values of PG, on the other hand, indicate a worsening situation. In the former case, that is, when $w \geq$ RPLW, the ratio *w*/RPLW may be taken as an indicator of the *sufficient real income* of the agricultural households. Since the rate of change of RPLW is identical with that of the CPI-AL, the percentage change of the sufficient real income corresponds to equation (3), with $y_1 = w_1$ and p_1 = CPI-AL. It is also easy to see that the real wage growth rate is the negative of the growth rate of our poverty gap estimates (given in Table 11), which in turn suggests that a decline in real wages is a reflection of a rise in poverty gap. Thus, in Table 11, we find that by 1998-99, only three States in India, Kerala, Haryana and Himachal Pradesh, had a sufficient real income, that is, a nominal wage rate higher than the RPLW; the agricultural wage rates in all other 13 States could not catch up with even the minimum possible poverty line wage rate. In four of these States (Karnataka, Madhya Pradesh, Orissa, and Tamil Nadu) in 1989-90, agricultural wages were less than half of the RPLW; only Orissa was left in this group by 1998-99. Never had this State got an opening to improve its lot, (as evidenced also by the low variability over time). It is significant to note that in 1989-90, on average in India, the nominal agricultural wage rate was about 32.5 percent less

than the RPLW; however, the gap has over time narrowed down to about 17 percent in 1998-99, through fluctuations.

As already found, Kerala, Haryana and Himachal Pradesh are the only three States, where the nominal agricultural wages outstripped the corresponding RPLW; the gap had been narrowing down at a faster rate and became negative for Haryanan and Kerala by 1992-93 and for Himachal Pradesh by 1996-97. Though Kerala had a fall back in 1993-94, her surge has since then been phenomenal. Note that the poverty gap for Punjab was negative for the five years of 1991-96, after which it started to increase.

In short, in all States other than in Kerala, Haryana and Himachal Pradesh, the nominal wage income of the agricultural workers as of 1998-99 lay well below the RPLW, suggesting on average the extent of poverty in India. The growth dynamics involved in the two competing forces of wage income and inflation, which determines the RPLW, appears to be too tardy to offer an improvement in many of these States in the near future. This pessimistic message results from our estimates of the number of years it would take since 1998-99 for the agricultural wages to catch up with the RPLW, given the growth dynamics (Table 12). Thus, for example, in the case of Andhra Pradesh, given the growth rates during the period we consider of the wages of the agricultural workers and the inflation facing them at 10.7 and 10.4 percent respectively, it would take, since 1998-99, about 167 years for the wages to overtake the corresponding RPLW; in other words, the present spell of poverty would still reign for over 160 years in the State, other things remaining the same. Only in two States, Gujarat and Tamil Nadu, with higher wage growth potential, would such an overtaking be possible in the immediate future. In Assam and Bihar, where the rural cost of living grows faster than wage income, a catch up appears impossible. We also present two

scenarios of desirable growth rates of wages required since 1998-99 to catch up with the RPLW by a target year of 2020, assuming i) the same CPI-AL growth rates as during the period considered; and ii) a 5 percent growth rate of CPI-AL. These rates in turn depend on the magnitude of PG in 1998-99 and the growth rate of wages. Obviously, Orissa, Karnataka and Bihar need much bigger push.

4. Conclusion

'The inflationary spiral' that India witnessed in the initial years of economic liberalisation was no doubt phenomenal. It peaked at 16.3 per cent in WPI in September 1991, and at 16.1 percent in CPI for industrial workers in January 1991, at 15.7 percent in CPI for urban non-manual employees in September 1991 and at as high as 23.9 percent in CPI-AL in May 1992. CPI-AL inflation was above 20 percent for eleven successive months starting with September 1991, and was above 10 percent for almost the whole of 1991-1993. While the uptrend in inflation was 'primarily due to sharp increases in the prices of primary articles, especially food grains and other food articles' (Government of India 1992-93: 80), we find that there was no corresponding increases in the incomes of those who spend mainly on these items, especially in the case of agricultural labourers in general, during the inflationary period. Besides being a pointer to the extent of poverty in India, this invalidates the official claim (for example, Government of India 1993-94: 58) of the 'wage-price spiral' also

On the other hand, the new inflation lavishly prospered a tiny island of abundance. The rich farmers and landlords benefited from the rise in the prices of primary articles much more than the loss in fertiliser subsidy and liberalisation opened for them new vistas of ventures in agro-industry and agro-exports. However, in spite of the increase in the incomes of this group, inflation in the consumer durables and non-durables on which

they spend more was less than the overall inflation. Thus, the liberalisation seems to have compensated the non-poor much more than the poor for their respective loss in purchasing power, and in a zero-sum game of short run consumption, this implies that the non-poor stood to gain at the cost of the poor. Thus, delivered to the common man is a high-cost life, upon which is going to be attained, if ever, a price stability, directed by the free play[13] of the market forces. Thus, the liberalisation appears to be unleashing not (only) the market forces, but the fetters, though kept loosely so far, on poverty.

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13   if at all allowed by the Government; see the last part in footnote no. 5.

APPENDIX

Price Changes and Implicit Subsidy

It goes without saying that a subsidised price (P_s) is necessarily less than actual price (P_a) by the amount of subsidy (S): $P_s < P_a$. That is, a subsidised price is obtained after deducting a certain amount of subsidy from the actual price. That is, $P_s = P_a - S$. A subsidy cut raises P_s to P_a. But what is subsidy?

It is always a certain percentage (s) of the *actual price* deducted from it (actual price). That is, it is on the actual price that a subsidy is declared. Thus $S = s\,P_a$, where s is the subsidy rate. Then P_s can be written as $P_s = P_a - s\,P_a = P_a\,(1 - s)$.

Now suppose price P^0 falls to P^1, where the superscripts 0 and 1 refer to two consecutive periods. A price fall implies a subsidy provision. Thus P^0 refers to actual price ($P^0 = P_a$), while P_1 to subsidised price ($P^1 = P_s$). Thus we have $P^1 = P^0(1 - s)$. Then the percentage change (*fall*, or deflation, in this case) is $\dot{P} \equiv (P^0 - P^1)/P^0 = s$, the rate of subsidy. Also note that $sP^0 = P^0 - P^1 = S$, the subsidy implied, where $P^0 (= P_a) > P^1 (= Ps)$.

Now consider the opposite case: price P^0 rises to P^1, where the superscripts 0 and 1 refer to two consecutive periods, as earlier. A price rise implies a subsidy cut. That is, P^0 was a subsidised price ($P^0 = P_s$). But a subsidised price is defined with reference to an actual price only. So, what was the actual price here? Since the subsidy cut raised the price (from P^0) to P^1, we can reasonably assume that given the two price levels, P^1 was the actual price ($P^1 = P_a$) when P^0 was the subsidised price. As P_s is defined in terms of P_a undergoing a deduction, [i.e., $P_s = P_a\,(1 - s)$], we have P^0 in terms of P^1: i.e., $P^0 = P^1(1 - s)$. With these two price levels (where $P^0 < P^1$), the percentage *increase* in price

(that is, inflation rate) is $\dot{P} \equiv (P^1 - P^0)/P^0 = s/(1-s)$. Note here that $sP^1 = p^1 - p^0 = S$, the implied subsidy that was cut, where $P^1 (= P_a) > P^0 (= P_s)$

It may be argued that we may have $P_a = P_s(1 + s)$ or $P_s = P_a - sP_s$, that is, with the above example, $P^1 = P^0(1 + s)$, so that it may be shown that the percentage increase in price just equals the subsidy rate, s: $\dot{P} \equiv (P^1 - P^0)/P^0 = s$. Here subsidy is determined with reference to subsidised price ($S = s\,P_s = s\,P^0$), which not only goes wrong with the usual practice, but also is just *impossible*, as shown below:

The argument given earlier shows that a subsidised price presupposes a subsidy, by which it remains lower, and a subsidy presupposes an actual price, from which it (subsidy) is deducted. Thus subsidisation is a sequence of three related events: first, there is an actual price, then there is a subsidy (or subsidy rate), and *then* a subsidised price, *a result* from the first two. That is, subsidy exists (is determined) *before* the subsidised price. Hence the event $S = s\,P_s$, i.e., subsidy being determined with reference to the subsidised price, *which implies that subsidised price exists before subsidy is determined*, is just impossible !

Hence the *only* reasonable relationship possible is $P_s = P_a(1 - s)$, which yields the percentage increase in price $\dot{P} = s/(1 - s)$, the forgone-subsidy odds ratio.

Table 1: Annual Inflation Rate and Relative Prices (Based on WPI)

	Average Annual Inflation Rate (%)				Prices Relative to General Price Level		
	1980s	1990s	1990s I	1990s II	1989-90	1995-96	1999-2000
All Commodities	6.52	8.07	10.14	5.04	1	1	1
Primary Articles	6.35	9.25	10.88	6.85	0.99	1.03	1.101
Food Articles	7.57	10.13	11.02	8.82	1.08	1.13	1.31
Food grains	6.46	10.79	11.26	10.1	0.996	1.06	1.28
Cereals	5.97	10.97	11.11	10.75	0.96	1.01	1.25
Rice	6.78	10.1	10.99	8.76	1.02	1.07	1.23
Wheat	5.02	11.91	10.61	13.9	0.89	0.92	1.27
Pulses	9.45	9.53	11.65	6.43	1.24	1.35	1.42
Fruits and Vegetables	6.9	9.83	11.29	7.67	1.03	1.09	1.21
Milk	9.13	7.47	7.7	7.12	1.21	1.06	1.15
Eggs, Fish & Meat	7.5	11.07	14.01	6.8	1.08	1.32	1.41
Non-Food Articles	6.54	7.93	11.66	2.58	1.002	1.09	0.99
Fuel, Power, Light & Lubricants	6.51	9.89	9.5	10.47	0.999	0.96	1.18
Coal Mining	11.09	8.33	7.99	8.84	1.4	1.24	1.43
Mineral Oils	3.33	10.65	10.37	11.06	0.78	0.79	0.99
Electricity	8.19	11.1	11.96	9.81	1.13	1.25	1.49
Manufactured Products	6.75	7.06	9.65	3.29	1.02	0.99	0.93
Food Products	6.48	8.49	9.1	7.57	0.998	0.94	1.04
Sugar, Khandsari & Gur	5.37	9.31	8.22	10.96	0.92	0.83	1.03

	Average Annual Inflation Rate (%)				Prices Relative to General Price Level		
	1980s	1990s	1990s I	1990s II	1989-90	1995-96	1999-2000
Common Salt	5.17	13.82	19.26	6.12	0.903	1.46	1.52
Edible Oils	7.44	5.75	9.24	0.73	1.07	1.02	0.86
Textiles	5.9	4.8	10.92	-3.75	0.95	0.996	0.702
Fertilisers	-0.13	10.12	13.44	5.32	0.597	0.71	0.72
Drugs and Medicines	4.33	11.86	8.99	16.3	0.85	0.795	1.196
Soaps & Detergents	5.59	9.16	8.44	10.25	0.93	0.85	1.03
Iron & Steel	8.27	6.06	7.46	3.98	1.14	0.98	0.94
Non-Ferrous Metals	11.71	6.48	8.59	3.4	1.46	1.34	1.26
Electricial Machinery	5.95	3.92	10.06	-4.65	0.96	0.95	0.65
CPI - Agricultural Labourers	7	9.21	10.62	7.11	1.03	1.71	1.39
CPI - Industrial Workers	8.75	9.48	10.39	8.14	1.14	1.83	1.52
CPI - Urban Non-Manual Employees	8.54	9.27	10.15	7.97	1.02	1.62	1.32

Note: 1980s = 1989-90 over 1981-82; 1990s = 1999-2000 over 1989-90; 1990s I = 1995-96 over 1989-90; 1990s II = 1999-2000 over 1995-96.

Table 2: Average Agricultural Wage Rate (Rs./Day)

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Andhra Pradesh	17.01	18.42	21.14	24.5	26.07	29.89	32.53	36.42	39.98	42.29
Assam	21.71	25.08	27.19	29.72	30.66	32.95	36.37	39.24	42.78	48.2
Bihar	17.04	19.23	22.2	22.74	26.17	27.95	29.75	32.4	36.87	39.32
Gujarat	17.17	19.04	22.64	26.34	28.5	32.68	36.59	40.49	49.25	58.17
Haryana	31.93	35.15	41.75	50.12	55.62	60.87	65.3	74.76	82.61	92.34
Himachal Pradesh	27.64	29.4	34.03	39.53	42.89	51.7	57.77	71.16	86.07	86.07
Karnataka	15.02	15.51	16.84	16.79	22.29	21.81	22.69	29.19	35.45	38.15
Kerala	29.37	34.31	39.61	48.64	53.51	62.45	82.04	101.95	122.54	134.26
Madhya Pradesh	15.04	17.46	20.13	23.91	26.73	28.86	32.15	35.87	37.83	41.92
Maharashtra	17.58	20.12	22.86	23.82	28.82	35.74	35.91	36	45.38	46.26
Orissa	12.27	14.48	17.37	19.77	21.34	23.28	25.75	27.63	29.15	32.25
Punjab	31.7	37.11	43.33	48.12	57.31	61.51	61.79	65.81	71.5	76.41
Rajasthan	22.01	25.18	31.09	30.78	33.21	38.45	43.88	56.69	61.19	55.25
Tamil Nadu	13.9	14.15	17.57	21.76	25.13	29.48	34.52	39.53	45.34	51.29
Uttar Pradesh	18.69	21.34	25.15	26.92	29.52	31.83	38.72	42.85	49.06	54.76
West Bengal	24.05	25.86	28.16	35.6	37.07	37.71	41.68	45.5	53.74	61.9
All India (Average)	20.76	23.24	26.94	30.57	34.05	37.95	42.34	48.47	55.55	59.93
C V (%)	30.95	32.04	32.36	35.10	34.93	35.75	38.21	42.04	43.85	43.70

Note: C V = Coefficient of Variation.

Source: *Report of the Commission for agricultural Costs and Prices*, various issues.

Table 3: Percentage Increase in Agricultural Wages over 1989-90

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Growth Rate % p a
Andhra Pradesh	8.29	24.28	44.03	53.26	75.72	91.24	114.11	135.04	148.62	10.65
Assam	15.52	25.24	36.9	41.23	51.77	67.53	80.75	97.05	122.02	9.27
Bihar	12.85	30.28	33.45	53.58	64.03	74.59	90.14	116.37	130.75	9.74
Gujarat	10.89	31.86	53.41	65.99	90.33	113.1	135.82	186.84	238.79	14.52
Haryana	10.08	30.75	56.97	74.19	90.64	104.51	134.14	158.72	189.2	12.52
Himachal Pradesh	6.37	23.12	43.02	55.17	87.05	109.01	157.45	211.40	211.40	13.45
Karnataka	3.26	12.12	11.78	48.4	45.21	51.07	94.34	136.02	153.99	10.91
Kerala	16.82	34.87	65.61	82.19	112.63	179.33	247.12	317.23	357.13	18.40
Madhya Pradesh	16.09	33.84	58.98	77.73	91.89	113.76	138.5	151.53	178.72	12.06
Maharashtra	14.45	30.03	35.49	63.94	103.3	104.27	104.78	158.13	163.14	11.35
Orissa	18.01	41.56	61.12	73.92	89.73	109.86	125.18	137.57	162.84	11.33
Punjab	17.07	36.69	51.8	80.79	94.04	94.92	107.6	125.55	141.04	10.27
Rajasthan	14.4	41.25	39.85	50.89	58.34	99.36	157.56	178.01	151.02	10.77
Tamil Nadu	1.8	26.4	56.55	87.99	112.09	148.35	184.39	226.19	268.99	15.61
Uttar Pradesh	14.18	34.56	44.03	57.95	70.3	107.17	129.27	162.49	192.99	12.69
West Bengal	7.53	17.09	48.02	54.14	56.8	73.31	89.19	123.45	157.38	11.08
All India (Average)	11.96	29.79	47.25	64.04	82.81	103.97	133.49	167.59	188.69	12.50
C V (%)	42.15	26.97	28.29	21.90	25.54	29.45	31.59	31.85	31.92	

Note: % p a = percentage per annum.

Table 4: Percentage Increase in CPI - AL over 1989-90

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Growth Rate % p a
Andhra Pradesh	7.18	38.83	58.40	55.14	73.25	91.84	111.58	122.35	143.72	10.40
Assam	9.91	30.50	41.83	55.08	71.17	85.07	95.24	107.59	135.52	9.99
Bihar	8.61	31.14	41.39	53.54	68.35	82.03	92.03	104.18	131.65	9.78
Gujarat	11.92	39.06	49.92	57.77	78.58	95.63	104.52	117.19	138.91	10.16
Haryana	12.59	26.39	35.11	57.99	72.15	82.57	102.66	113.68	135.47	9.98
Himachal Pradesh	12.59	26.39	35.11	57.99	72.15	82.57	102.66	113.68	135.47	9.98
Karnataka	6.32	33.07	50.72	45.59	68.77	94.86	103.56	110.94	134.39	9.93
Kerala	10.99	23.17	37.83	55.56	73.05	95.98	117.85	126.48	136.41	10.03
Madhya Pradesh	8.84	30.56	37.75	48.23	69.95	80.43	98.99	108.33	128.54	9.62
Maharashtra	7.09	42.78	47.86	42.65	77.81	99.73	100.27	107.75	127.67	9.57
Orissa	7.79	34.55	37.92	49.09	68.57	87.14	99.61	105.71	127.14	9.54
Punjab	12.59	26.39	35.11	57.99	72.15	82.57	102.66	113.68	135.47	9.98
Rajasthan	13.90	32.56	36.04	58.94	82.11	84.43	106.56	112.48	129.34	9.66
Tamil Nadu	8.29	29.83	41.85	46.96	70.44	92.13	104.42	107.18	128.18	9.60
Uttar Pradesh	18.67	38.44	37.82	62.05	78.86	89.86	115.33	118.29	142.89	10.36
West Bengal	14.56	33.06	35.24	50.61	61.77	79.86	92.52	102.04	140.41	10.24
All India (Average)	10.37	33.91	42.69	52.53	70.61	86.70	103.99	111.04	134.57	9.94
C V (%)	32.28	16.04	16.31	10.65	7.07	7.36	6.97	6.01	3.97	

Table 5: Real Wage Rate of the Agricultural Workers (Rs./Day)

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Growth Rate % p.a.	Average 1990s	C V %
Andhra Pradesh	2.77	2.8	2.48	2.52	2.74	2.81	2.77	2.81	2.93	2.83	0.22	2.74	5.35
Assam	2.79	2.94	2.68	2.7	2.54	2.48	2.53	2.59	2.65	2.63	-0.65	2.64	5.08
Bihar	2.16	2.24	2.14	2.04	2.16	2.1	2.07	2.14	2.29	2.15	-0.04	2.15	3.64
Gujarat	2.59	2.57	2.46	2.65	2.72	2.76	2.82	2.99	3.42	3.67	3.96	2.9	13.94
Haryana	3.87	3.78	4	4.49	4.26	4.28	4.33	4.47	4.68	4.75	2.31	4.34	7.11
Himachal Pradesh	3.35	3.16	3.26	3.54	3.29	3.64	3.83	4.25	4.88	4.43	3.15	3.81	15.57
Karnataka	1.98	1.92	1.67	1.47	2.02	1.7	1.53	1.89	2.21	2.14	0.9	1.84	14.31
Kerala	3.47	3.65	3.8	4.17	4.07	4.27	4.95	5.53	6.4	6.71	7.6	4.84	23.43
Madhya Pradesh	1.9	2.03	1.95	2.19	2.28	2.14	2.25	2.28	2.29	2.32	2.23	2.19	5.89
Maharashtra	2.35	2.51	2.14	2.15	2.7	2.69	2.4	2.4	2.92	2.72	1.62	2.52	10.56
Orissa	1.59	1.74	1.68	1.86	1.86	1.79	1.79	1.8	1.84	1.84	1.63	1.8	3.36
Punjab	3.84	3.99	4.15	4.31	4.39	4.33	4.1	3.93	4.05	3.93	0.26	4.13	4.25
Rajasthan	2.83	2.85	3.02	2.91	2.69	2.72	3.06	3.53	3.71	3.1	1.01	3.06	11.34
Tamil Nadu	1.92	1.8	1.87	2.12	2.36	2.39	2.48	2.67	3.02	3.1	5.49	2.42	18.87
Uttar Pradesh	2.31	2.22	2.25	2.41	2.25	2.2	2.52	2.46	2.78	2.79	2.11	2.43	9.42
West Bengal	3.27	3.07	2.88	3.58	3.35	3.17	3.15	3.22	3.62	3.5	0.76	3.28	7.59
All India (Average)	2.76	2.8	2.68	2.85	2.97	2.96	3.02	3.16	3.5	3.4	2.33	3.04	8.97
C V (%)	25.78	25.16	30.09	32.61	26.86	29.3	31.54	32.87	33.94	36.19		29.94	

Table 6: Growth of Agricultural Wages Relative to Growth of CPI-AL over 1989-90 $(\dot{y}_1 / \dot{p}_1)$

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Average	CV %
Andhra Pradesh	1.15	0.63	0.75	0.97	1.03	0.99	1.02	1.10	1.03	0.97	17.52
Assam	1.57	0.83	0.88	0.75	0.73	0.79	0.85	0.90	0.90	0.91	27.86
Bihar	1.49	0.97	0.81	1.00	0.94	0.91	0.98	1.12	0.99	1.02	18.99
Gujarat	0.91	0.82	1.07	1.14	1.15	1.18	1.30	1.59	1.72	1.21	24.22
Haryana	0.80	1.17	1.62	1.28	1.26	1.27	1.31	1.40	1.40	1.28	17.27
Himachal Pradesh	0.51	0.88	1.23	0.95	1.21	1.32	1.53	1.86	1.56	1.23	33.29
Karnataka	0.52	0.37	0.23	1.06	0.66	0.54	0.91	1.23	1.15	0.74	48.50
Kerala	1.53	1.51	1.73	1.48	1.54	1.87	2.10	2.51	2.62	1.88	23.43
Madhya Pradesh	1.82	1.11	1.56	1.61	1.31	1.41	1.40	1.40	1.39	1.45	13.87
Maharashtra	2.04	0.70	0.74	1.50	1.33	1.05	1.05	1.47	1.28	1.24	33.55
Orissa	2.31	1.20	1.61	1.51	1.31	1.26	1.26	1.30	1.28	1.45	24.11
Punjab	1.36	1.39	1.48	1.39	1.30	1.15	1.05	1.10	1.04	1.25	13.27
Rajasthan	1.04	1.27	1.11	0.86	0.71	1.18	1.48	1.58	1.17	1.15	23.72
Tamil Nadu	0.22	0.88	1.35	1.87	1.59	1.61	1.77	2.11	2.10	1.50	40.87
Uttar Pradesh	0.76	0.90	1.16	0.93	0.89	1.19	1.12	1.37	1.35	1.08	20.06
West Bengal	0.52	0.52	1.36	1.07	0.92	0.92	0.96	1.21	1.12	0.96	30.02
All India (Average)	1.15	0.88	1.11	1.22	1.17	1.20	1.28	1.51	1.40	1.21	14.77
CV (%)	52.52	35.73	36.90	26.02	24.57	26.38	26.43	27.34	31.89	22.70	

Table 7: Subsidy Cuts Implied in CPI-AL Inflation Over 1989-90

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Growth Rate % pa
Andhra Pradesh	0.067	0.28	0.369	0.355	0.423	0.479	0.527	0.55	0.59	31.25
Assam	0.09	0.234	0.295	0.355	0.416	0.46	0.488	0.518	0.575	26.07
Bihar	0.079	0.237	0.293	0.349	0.406	0.451	0.479	0.51	0.568	27.92
Gujarat	0.106	0.281	0.333	0.366	0.44	0.489	0.511	0.54	0.581	23.64
Haryana	0.112	0.209	0.26	0.367	0.419	0.452	0.507	0.532	0.575	22.72
Himachal Pradesh	0.112	0.209	0.26	0.367	0.419	0.452	0.507	0.532	0.575	22.72
Karnataka	0.059	0.249	0.337	0.313	0.407	0.487	0.509	0.526	0.573	32.74
Kerala	0.099	0.188	0.274	0.357	0.422	0.49	0.541	0.558	0.577	24.64
Madhya Pradesh	0.081	0.234	0.274	0.325	0.412	0.446	0.497	0.52	0.562	27.37
Maharashtra	0.066	0.3	0.324	0.299	0.438	0.499	0.501	0.519	0.561	30.62
Orissa	0.072	0.257	0.275	0.329	0.407	0.466	0.499	0.514	0.56	29.16
Punjab	0.112	0.209	0.26	0.367	0.419	0.452	0.507	0.532	0.575	22.72
Rajasthan	0.122	0.246	0.265	0.371	0.451	0.458	0.516	0.529	0.564	21.09
Tamil Nadu	0.077	0.23	0.295	0.32	0.413	0.48	0.511	0.517	0.562	28.3
Uttar Pradesh	0.157	0.278	0.274	0.383	0.441	0.473	0.536	0.542	0.588	17.93
West Bengal	0.127	0.248	0.261	0.336	0.382	0.444	0.481	0.505	0.584	21
All India (Average)	0.094	0.253	0.299	0.344	0.414	0.464	0.51	0.526	0.574	25.37
C V (%)	28.57	12.21	11.11	7.03	4.06	3.85	3.41	2.78	1.69	

Table 8: Procurement Prices and PDS Issue Prices

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	Growth Rate% p.a
Procurement Prices (Rs./quintal)												
Paddy: Common	185	205	230	270	310	340	360	380	415	440	490	10.23
Fine	195	215	240	280	330	360	375	395	445	470	520	10.31
Super Fine	205	225	250	290	350	380	395	415				10.6
Wheat	215	225	275	330	350	360	380	475	510	550	550	9.85
Percentage Increase over 1989-90												
Rice: Common		10.81	24.32	45.95	67.57	83.78	94.59	105.41	124.32	137.84	164.86	
Fine		10.26	23.08	43.59	69.23	84.62	92.31	102.56	128.21	141.03	166.67	
Super Fine		9.76	21.95	41.46	70.73	85.37	92.68	102.44				
Wheat		4.65	27.91	53.49	62.79	67.44	76.74	120.93	137.21	155.81	155.81	
PDS Issue Prices (Rs./quintal)												
Rice: Common	244	289	377	377	437	537	537	537				11.93
Fine	304	349	437	437	497	617	617	617				10.64
Super Fine	325	370	458	458	518	648	648	648				10.36
Wheat	204	234	280	280	330	402	402	402				10.18
Percentage Increase over 1989-90												
Rice: Common		18.44	54.51	54.51	79.10	120.08	120.08	120.08				
Fine		14.80	43.75	43.75	63.49	102.96	102.96	102.96				
Super Fine		13.85	40.92	40.92	59.38	99.38	99.38	99.38				
Wheat		14.71	37.25	37.25	61.76	97.06	97.06	97.06				
Implied Subsidy Cut over 1989-90, (%)												
Rice: Common		15.57	35.28	35.28	44.16	54.56	54.56	54.56				
Fine		12.89	30.43	30.43	38.83	50.73	50.73	50.73				
Super Fine		12.16	29.04	29.04	37.26	49.85	49.85	49.85				
Wheat		12.82	27.14	27.14	38.18	49.25	49.25	49.25				

Table 9: Growth Dynamics of Income and Price of the Poor vis-à-vis the Non-Poor

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Procurement Price(Rs. / Quintal)											
Rice Common	185	205	230	270	310	340	360	380	415	440	490
Wheat	183	215	225	275	330	350	360	380	475	510	550
Procurement ('000 Tonnes)*											
Rice Common	10754	11595	11993	12522	13673	12671	12237	12855	13684	15432	17187.67
Wheat	8863	9253.7	8399.7	8989.3	10361	12344	10793	9936	10044	12031	14383.33
Income from Sales (Rs. Crores)											
Rice Common	1989.5	2377.0	2758.3	3381.0	4238.5	4308.0	4405.4	4884.9	5678.7	6790.2	8422.0
Wheat	1621.9	1989.5	1889.9	2472.1	3419.2	4320.3	3885.5	3775.7	4770.9	6135.6	7910.8
Total	3611.4	4366.6	4648.2	5853.1	7657.8	8628.3	8290.9	8660.6	10449.6	12925.9	16332.8
Cumulative increase (%) over 1989-90 in											
Landlords' Income		20.91	28.71	62.07	112.04	138.92	129.58	139.81	189.35	257.92	352.25
Agricultural Wages		11.96	29.79	47.25	64.04	82.81	103.97	133.49	167.59	188.69	199.28
WPI All Commodities		10.26	25.41	38.01	49.54	68.39	81.85	90.22	98.59	110.41	117.29
CPI - AL		10.37	33.91	42.69	52.53	70.61	86.70	103.99	111.04	134.57	139.63
Alpha		1.75	0.96	1.31	1.75	1.68	1.25	1.05	1.13	1.37	1.77
Beta		0.989	0.749	0.891	0.943	0.968	0.944	0.868	0.888	0.820	0.840

Note: * = 3-year moving average

Table 10: Estimated Poverty Line Wage Rates in Agriculture (assuming 25 days work in a month)

	1987-88	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Andhra Pradesh	21.98	25.09	26.89	34.83	39.74	38.92	43.46	48.13	53.08	55.78	61.14	63.06
Assam	27.17	31.80	34.95	41.50	45.10	49.31	54.43	58.85	62.08	66.01	74.89	78.04
Bihar	28.28	32.33	35.11	42.40	45.71	49.64	54.43	58.85	62.08	66.01	74.89	76.49
Gujarat	24.43	27.13	30.36	37.73	40.68	42.81	48.45	53.08	55.49	58.93	64.82	67.65
Haryana	27.95	33.80	38.06	42.72	45.67	53.40	58.19	61.71	68.51	72.23	79.60	81.44
Himachal Pradesh	27.95	33.80	38.06	42.72	45.67	53.40	58.19	61.71	68.51	72.23	79.60	81.44
Karnataka	25.29	31.06	33.02	41.33	46.82	45.22	52.42	60.53	63.23	65.52	72.80	75.22
Kerala	28.89	34.62	38.43	42.64	47.72	53.85	59.91	67.85	75.42	78.41	81.85	83.85
Madhya Pradesh	26.72	32.41	35.28	42.31	44.65	48.04	55.08	58.48	64.49	67.52	74.07	77.34
Maharashtra	25.90	30.61	32.78	43.71	45.26	43.66	54.43	61.14	61.30	63.59	69.69	72.68
Orissa	29.38	31.51	33.97	42.40	43.46	46.98	53.12	58.97	62.90	64.82	71.57	78.12
Punjab	27.95	33.80	38.06	42.72	45.67	53.40	58.19	61.71	68.51	72.23	79.60	81.44
Rajasthan	27.17	31.80	36.22	42.15	43.26	50.54	57.91	58.64	65.68	67.56	72.92	78.00
Tamil Nadu	26.07	29.63	32.08	38.47	42.03	43.54	50.50	56.92	60.57	61.38	67.60	70.02
Uttar Pradesh	28.85	33.11	39.29	45.83	45.63	53.65	59.22	62.86	71.29	72.27	80.41	82.87
West Bengal	26.60	30.08	34.46	40.02	40.68	45.30	48.66	54.10	57.91	60.77	72.31	71.12
All India (Average)	26.60	30.77	33.97	41.21	43.91	46.94	52.50	57.46	62.78	64.94	72.19	73.74
C V (%)	7.14	8.24	9.77	6.34	5.36	9.96	8.76	7.84	9.23	9.06	8.13	7.98

Table 11: The Minimum Income Gap of Poverty

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	Average	C V (%)
Andhra Pradesh	0.322	0.315	0.393	0.383	0.330	0.312	0.324	0.314	0.283	0.308	0.329	10.33
Assam	0.317	0.282	0.345	0.341	0.378	0.395	0.382	0.368	0.352	0.356	0.352	9.43
Bihar	0.473	0.452	0.476	0.503	0.473	0.486	0.494	0.478	0.441	0.475	0.475	3.80
Gujarat	0.367	0.373	0.400	0.352	0.334	0.326	0.311	0.270	0.164	0.103	0.300	31.97
Haryana	0.055	0.076	0.023	-0.097	-0.041	-0.046	-0.058	-0.091	-0.144	-0.160	-0.048	-165.11
Himachal Pradesh	0.182	0.228	0.203	0.134	0.197	0.112	0.064	-0.039	-0.192	-0.081	0.081	174.59
Karnataka	0.516	0.530	0.593	0.641	0.507	0.584	0.625	0.538	0.459	0.475	0.547	11.27
Kerala	0.152	0.107	0.071	-0.019	0.006	-0.042	-0.209	-0.352	-0.563	-0.641	-0.149	-189.12
Madhya Pradesh	0.536	0.505	0.524	0.464	0.444	0.476	0.450	0.444	0.440	0.434	0.472	7.91
Maharashtra	0.426	0.386	0.477	0.474	0.340	0.343	0.413	0.413	0.286	0.326	0.388	16.36
Orissa	0.611	0.574	0.590	0.545	0.546	0.562	0.563	0.561	0.550	0.548	0.565	3.78
Punjab	0.062	0.025	-0.014	-0.054	-0.073	-0.057	-0.001	0.039	0.010	0.040	-0.002	-2047.75
Rajasthan	0.308	0.305	0.262	0.288	0.343	0.336	0.252	0.137	0.094	0.240	0.256	32.02
Tamil Nadu	0.531	0.559	0.543	0.482	0.423	0.416	0.394	0.347	0.261	0.241	0.420	26.78
Uttar Pradesh	0.435	0.457	0.451	0.410	0.450	0.462	0.384	0.399	0.321	0.319	0.409	13.10
West Bengal	0.200	0.250	0.296	0.125	0.182	0.225	0.230	0.214	0.116	0.144	0.198	28.97
All India (Average)	0.325	0.316	0.346	0.304	0.275	0.277	0.263	0.228	0.145	0.170	0.265	25.01
C V (%)	53.44	54.51	56.81	74.70	70.98	76.39	88.36	111.35	200.60	176.65	81.60	

Table 12: Number of Years for the Agricultural Wages to Equal Poverty Line Wages Since 1998-99

	Growth rate % p. a.		1998-99		Catch-up	Desired Growth of Wages	
	Wages	CPI - AL	Wages	PL Wages	Period (yrs)	1	2
Andhra Pradesh	10.65	10.40	42.29	61.14	166.7	12.46	6.95
Assam	9.27	9.99	48.2	74.89	NP	12.44	7.34
Bihar	9.74	9.78	39.32	74.89	NP	13.38	8.44
Gujarat	14.52	10.16	58.17	64.82	2.8	10.76	5.57
Haryana	12.52	9.98	92.34	79.60	NA	NA	NA
Himachal Pradesh	13.45	9.98	86.07	79.60	NA	9.55	4.59
Karnataka	10.93	9.93	38.19	72.80	71.3	13.53	8.44
Kerala	18.40	10.03	134.27	81.85	NA	NA	NA
Madhya Pradesh	12.06	9.62	41.9	74.07	25.9	12.79	8.03
Maharashtra	11.54	9.57	46.96	69.69	22.2	11.76	7.09
Orissa	11.37	9.54	32.35	71.57	48.0	13.98	9.25
Punjab	10.27	9.98	76.41	79.60	15.7	10.21	5.21
Rajasthan	10.81	9.66	55.45	72.92	26.2	11.17	6.45
Tamil Nadu	15.61	9.60	51.29	67.60	5.2	11.12	6.46
Uttar Pradesh	12.69	10.36	54.76	80.41	18.4	12.50	7.04
West Bengal	11.08	10.24	61.9	72.31	20.5	11.10	5.82
All India (Average)	12.50	9.94	59.93	72.19	8.1	10.96	5.98

NA = Not Applicable; NP = Not Possible
1 = at the given growth rate of CPI - AL, to reach PLW since 1999-2000 by 2020;
2 = at a minimum 5 % growth rate of CPI - AL

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