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RURAL POVERTY, MONEY-WAGE RATES AND
CEREAL PRICES IN INDIA

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Introduction

The debate on rural poverty in India, as evolved over nearly three decades, has focused attention on three issues: Has there been a discernible time trend in the incidence of rural poverty? What has been the pattern in short-run fluctuations? What is the pattern of inter-temporal movement to be explained? [Ghose, 1989]. The short-run fluctuations in the incidence of poverty have been very significant and have been characterised to be near cyclical [Mellor and Desai, 1985; Ghose, 1989]. In explaining this near cyclical fluctuation an observed inverse relationship between rural poverty and agricultural production has for long been called upon to play an important role. Such an explanation has, however, come under severe criticism in the recent past on two counts: Firstly, the relationship was found to be weak or absent at the level of states. Secondly, no proper 'trickle-down' mechanisms could be identified. Thus, the explanation has increasingly turned to the rather strong and decisive effect of price fluctuations [Gaiha, 1989]. This is the broad context within which the present paper is situated.

The first concern of the paper is with the observed near cyclical fluctuations in the incidence of poverty in India. The attempt at this level is to understand the nature of fluctuations through characteristics specific to these fluctuations, that is, through characteristics specific to cycles

and then to take up the question of inter-temporal movements again through these very characteristics. Such an approach puts the exercises of inter-temporal comparisons carried out over the years by various researchers in a certain perspective bringing out the reasons for disagreement among them in clear terms.

The second concern is with an explanation of the cyclical pattern in terms of movements of money wages of rural labour relative to cereal prices. This, in a sense, takes the discussion to the realm of trickle-down mechanisms. But in this, the mechanism itself comes to the fore leaving the plane of agricultural production in the background.

A critique of the economic theory and the method of statistical analysis underlying the voluminous literature on the subject is the spirit of this paper. The critique itself is only implicit. There is no attempt made anywhere in the paper to explicate it. The paper keeps to the empirical level all through but with a strong emphasis on realism of analysis. However, the influence of Marx and Kalecki in their approach to economic and social issues related to the distribution of social product and class conflict, and the influence of classicals and Bradley in their approach to statistical methods need hardly be mentioned.

2. Cyclical fluctuations and 'trends' in the incidence of rural poverty

The measure of incidence of rural poverty used here is the Head-Count Ratio as "there is very little divergence in the pattern of intertemporal movement between the two indices" (Head-Count Ratio and the Sen Index) [Ghose, 1989, p.308]. The weaknesses of these measures of poverty are well-known and are not discussed here [c.f. Sen, 1981; Kakwani, 1980].

Following Mellor and Desai (1985) and Ghose (1989), the fluctuations in the incidence of poverty may be taken to be near cyclical over the period from 1956/57 to 1977/78. Any cyclical fluctuations can be fully characterised by phase lengths and rate of change over the phases. Following Mellor and Desai (1985, Table 18.1), it may be seen that the whole period from 1956/57 to 1977/78 consists of two sub-periods: the first sub period from 1956/57 to 1971/72 and the second sub-period from 1971/72 to 1977/78. Both the sub-periods are characterised by near cyclical fluctuations. The first sub-period of 15 years consists of three phases of equal length (five years each) and the rate of change varied between 3.00 to 3.60 per cent per year. The second sub-period of six years is again characterised by near cyclical fluctuations and consists of two phases of equal lengths (of three years) the rate of change being 3.00 and 3.67 per cent respectively over the two phases. Whatever small deviations from the cyclical behaviour within sub-periods was owing to the slightly differing rates of change over different phases and was

not owing to the deviations in phase lengths. But between sub-periods the phase lengths themselves have changed keeping the rate of change within the bounds.

(Table 1)

Having characterised the growth pattern, one can pass on to inter-temporal comparison. As the growth pattern is characterised as cyclical fluctuation comparison should be made over comparable periods or comparable points. Either one should take two or more complete phases and estimate growth rates or take comparable points on an estimated cyclical function and compute growth rates. For the first sub-period the appropriate thing to do would be to compare points on phase I with points on phase III, that is, points at a distance of 10 years, which would show that there is practically no change in the incidence of poverty.

Between sub-periods, comparisons are not simple or unambiguous because the phase lengths are different. Here the unambiguous way of going about it is to compare peaks with peaks or troughs with troughs. The conclusion, then, would be that the bottom 40% of the population was below the poverty line (PL) during 1956/57 to 1971/72. Of the next 15% (not necessarily a fixed group through this period) which was going above and below the PL over 1956/57 to 1971/72 about 5% had permanently moved above the PL after 1971/72. This is all that can be said at this

stage of the analysis going by the characterisation of the fluctuations in the incidence of poverty as cyclical.

Before going to the explanatory frame, one may attempt a very brief review of the estimation procedures adopted by many researchers in the field. When the variation is characterised by cyclical fluctuations, estimating trend of any sort following the parametric method can be highly misleading. The estimated coefficients will be subject to change depending upon the number of phases of unequal length, or the parts of phases of the cycles included. In the above case, if phases 1 to 3 are taken one would arrive at one result; the result would be different when phase 4 is also included; the result would be altogether different when lower part of phase 1, phase 2 and upper part of phase 3 are taken. This more or less explains the main reason for disagreement among Bardhan (1974), Minhas (1974), Lal (1976) and Planning Commission (1980). Within the limitations indicated above, the Planning Commission estimate seems to be on a firmer ground as it takes four phases over two complete cycles into account.

8. Cyclical fluctuations of wage incomes

Going by Ghose (1989), 60% of the bottom population in rural India is wholly or partly dependent on wage incomes. Then, in explaining the cyclical fluctuations in the proportion of population below the PL the behaviour of wage incomes has an important role to play. The factors governing per capita wage

incomes may be summarised in terms of the following formula:

$$\begin{array}{l} \text{Per capita annual} \\ \text{wage income of} \\ \text{rural labour} \\ \text{households} \end{array} = \begin{array}{l} \text{worker-population} \\ \text{ratio} \end{array} \times \begin{array}{l} \text{Annual number} \\ \text{of days of} \\ \text{employment in} \\ \text{agriculture} \end{array} \times \begin{array}{l} \text{Daily} \\ \text{wage-} \\ \text{rate} \end{array}$$

There are two dimensions to the variation of per capita annual wage income both of which operate through the three factors depicted on the R.H.S. of the formula. Firstly, there is the temporal movement of these three factors which result in a certain temporal movement of the per capita wage income. Secondly, at any given point of time for a given average per capita wage income there is a distribution of the rural households over wage income classes. This again comes about as a result of the variation of the three factors across the households. It is the PL operating on the second, namely the distribution, which determines the population below the PL. It is the combined effect of the temporal movement and the variations over the households of these three factors which makes for the cyclical fluctuation of the population below the PL. This broadly defines the subject of this section.

As regards the temporal movement of worker-population ratio, Unni's (1988) exhaustive study has shown that there is no clearcut long term increase in the ratio at the all India level or at the level of individual states.¹ At the all-India level the ratio was 48.2 in 1956-57, 46.2 in 1964-65, 48.2 in 1974-75 and 44.1 in 1977-78. Among the states Uttar Pradesh, Orissa and Kerala showed perceptible decline over the four points of time.

whereas all the other states conformed to the all-India pattern. The consensus seems to be that there was no clearcut long term trend but only minor year to year fluctuations linked to the fluctuations in agricultural output : a bad year draws more women and children into the labour force and a good year witnesses the reversal of it.

Again, going by the findings of Unni (1988) there does not seem to be any trend in the annual number of days of employment per worker. The relationship seems to be with good or bad agricultural years : a good agricultural year providing employment for a larger number of days and a bad agricultural year providing employment for a smaller number of days. Among all the states only Uttar Pradesh and Rajasthan showed some difference from the all-India pattern : Uttar Pradesh showed a steady increase over 1964-65, 1974-75 and 1977-78 for both male and female agricultural labourers whereas Rajasthan showed an increase for female labourers and a peak in 1974-75 for male labourers.

(Table 2)

As is evident, the first two factors, namely the worker-population ratio and the annual number of days of employment per worker, showed opposite tendencies. In a bad year, whereas the worker-population ratio showed a tendency to increase, the number of days of employment showed a tendency to

fall. Now an examination of the net effect of the two factors, which may be termed as the number of days of employment to population ratio, is called for. The data which are provided in Table 2 show that between the two, the number of days of employment per worker was the dominating factor. The bad agricultural year of 1974-75 pushed the number of days of employment to population ratio down for both male and female at the all-India as well as at the level of most states. The exceptions were Bihar, Rajasthan and Uttar Pradesh. The case of Rajasthan and Uttar Pradesh only go to show the dominance of the number of days of employment per worker in clear terms as they were the exceptions with regard to this very variable as indicated above. Bihar stood out because of the highest increase among all the states in female worker-population ratio between 1964-65 and 1974-75 and in number of days of employment per male worker between 1974-75 and 1977-78. Based on the tendencies in worker-population ratio, the number of days of employment per worker and their net effect, an explanation cannot be provided for the cyclical behaviour of per-capita wage incomes. All that can be said is that a dip occurred in the number of days of employment to population ratio in a bad agricultural year. That leaves only the movement of wage rates for an explanation.

(Table 3)

Turning to the movement of wage rates (in real terms) of male agricultural labourers,² it may be seen that (Table 3)

the fluctuations are nearly cyclical. Periods of increases are invariably followed by periods of declines the whole process repeating with a certain regularity. The phase lengths were nearly five years till 1971/72. (In 1971/72, although the sign itself was negative in eight of the states the magnitudes in six out of the eight states were below 4%). Since then the lengths of the phases had become shorter with lengths of three years or less for the downward phase and four years for the upward phase.³ It only needs to be recalled that these phases correspond rather well to the phases of movement of the incidence of poverty (last column of Table 3).

(Table 4)

Turning to the rates of change in the wage rates over the different phases (Table 4), it may be seen that till 1974/75 the rate of decline within a phase was proportionately large relative to the rate of increase during the preceding phase. The only exception to this pattern was Kerala and Punjab. This underwent a change after 1974/75. The rate of decline became proportionately smaller relative to the preceding rate of increase since then. Further, since 1971/72 the lengths of the declining phases themselves became shorter relative to the lengths of the increasing phases. Thus, the increases in the wage rates, owing to both a change in the phase lengths and change in the rate, became larger relative to the declines preceding it. This, then, seems to be the reason for the

downward shift of the peak in the incidence of poverty discussed in section 2 above.

Going by the phase lengths and proximate rates of change the relationship between the cyclical fluctuations in the incidence of poverty and the real wage rates seems to be inverse and fairly close. When the magnitude of this relationship was measured by the Pearson's coefficient of correlation for the period 1957-58 to 1973-74 the sign turned out to be negative for every state (last row of Table 4). The strength of the relationship, as measured by a "t" test, turned out to be significant for all the states except Tamilnadu and Punjab. This completes the discussion of the first dimension referred to above. The reasons for the variation of the value of r or its lower value in some cases cannot be settled here and are left open.

As already indicated, it is the second dimension which establishes the link between the movement of the incidence of poverty and the movement of real wage rate. The link is the distribution of rural labour households over wage-income classes mediated through the variation in the worker-population ratio, the number of days of employment per worker and family size. This is powerfully brought out by Parthasarathy and Rao (1973). What ought to be noted in this context is the concentration of around 24% of the households in the per capita income class of Rs.351-450 (where the poverty line is Rs.450 per capita). Given

the distribution of the rural households over per capita wage-income classes through these variables, it is easy to see that in relation to any fixed line such as PL the proportion of population falling below it will vary inversely with real wage rate over time. Higher the wage rate lower the proportion below the PL and lower the wage rate higher the proportion below the PL. The strength of this argument is borne out by another of Parthasarathy and Raos' (1974) papers where they clearly bring out the sensitivity of per capita income to the changes in wage rate. The elasticity of per capita income with reference to wage rate was found to be the highest (0.88) among all the elasticities computed at the mean levels) and the increase in per capita income associated with an increase of a rupee in wage rate was found to be Rs. 121.15.

Having established a relationship between the movement of real wage rates and the changes in the incidence of poverty it would be tempting to predict the latter on the basis of the former. Before turning to it, the movement of real wages as presented in Table 4 may be summarised in the form of an index number taking 1956-57 = 100. It may be seen that this index increased to 118 by 1961-62, decreased to 101 by 1966/67, again increased to 125 by 1971-72 and touched the lowest (94) by 1974-75. However, in 1977-79, it crossed the highest point reached during the previous twenty years and reached a level of 130 never again to fall below that level. A peak was reached in 1978-79 (145) followed by a mild decline in the next two years, the level

dropping to 132 by 1980-81. From then on the increase was sharp and by 1984-85 the level was over 70 percent higher than the level in 1956-57.

Turning now to the question of prediction of incidence of poverty, although the years in which the peaks and troughs occur may be predicted with accuracy - the troughs falling in 1971-72 and 1978-79 and the peaks falling in 1974-75 and 1980-81 - the predicted values of the incidence of poverty will be different from the actuals because the relationship is mediated through the worker-population ratio and the annual number of days of employment.⁴ As changes in wage rates get translated into changes in per capita incomes through these factors, in order to gain a given absolute increase in per capita income more than proportionate increases in wage rates will be required farther below the values of worker-population ratio and the number of days of employment are from their respective mean values.

This more or less completes one stage of analysis. Starting with the near cyclical fluctuations of the incidence of poverty the discussion has passed on to the near cyclical fluctuation of the real wage rates establishing the necessary links on the way. Now, the question is no more the cyclical fluctuations in the incidence of poverty but that of the cyclical fluctuations in the real wage rates. But the movement of real wage rates is in essence the movement of money wage rates in relation to prices. This is taken up in the next section.

4. Step-movement of money wages and price cycles

A careful examination of the temporal movement of money wages of agricultural labourers as reported in the Agricultural Wages in India showed that this movement is of a specific type.⁵

A close look at the signs of annual percentage changes of money wages for the thirteen states showed that there were only a few negative signs - less than 10%. Among the annual percentage changes bearing negative signs there were a few with magnitudes above two percent; mostly they were close to zero. This goes to show that money wages of agricultural labourers are downward sticky.

Turning to the magnitudes of the annual percentage changes, it was observed that consecutively low figures over four or five years were followed by high figures over the next two to three years. It may be inferred that money wages tended to stagnate or increase slowly over a period of four to five years to be followed by sharp increases in the next two to three years.⁶ This pattern was seen to have repeated over the last thirty years or so. This is summarised in Table 5. As is evident, there is a remarkable uniformity across the states of India as far as the pattern is concerned. The differences in the magnitudes are also not very large as the coefficient of variation is well below 40 percent for all the phases. And these differences are mainly owing to the behaviour of money wage rates in Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Orissa over certain periods the reasons for which shall become evident,

to some extent, when the discussion of prices are taken up. Overall the movement of money wages of agricultural labourers may then be characterised by a step-movement.

(Table 5)

Now, the question is why do money wage rates of agricultural labourers increase in a step-movement? To answer that question an examination of the movement of retail prices of cereals needs be taken up. There are two reasons for taking the prices of cereals instead of the often used Consumer Price Index for Agricultural Labourers (CPIAL). Firstly, what the labourers perceive especially during a period of rising prices, are the prices of those commodities which are dominant in their consumption basket. And if wage bargains take place at all they will be in terms of these prices. Secondly, CPIAL is a state level index and its applicability to particular regions within a state is suspect.

The movement of prices of cereals has been characterised by cyclical fluctuations with some regularity and a strong trend element. The prices decline rather slowly from a peak through one or two years and then stagnate or increase slowly over a period of four to five years. During the next two to three years the prices increase rather sharply and reach a peak. This pattern has repeated over the last thirty years. So, the movement itself had been marked by clear peaks and troughs.

This is summarised in Table 6. From the late fifties through the sixties the cyclical fluctuations were rather pronounced and the distance between two peaks was close to ten years.⁷ In the seventies a marked change had come about. Firstly, the distance between the peak of the late sixties and that of 1974-75 was shorter - less than seven years - compared to the distance between the previous two peaks. Secondly, the decline that followed the peak of 1974-75 was prolonged - the trough was reached four to five years after the peak compared to one to two years earlier. The increase that came later was also milder as was indicated by the peak of 1981-83 which was 50% higher than the peak of 1974-75 only in one state. So much was common to the movement of all cereal prices in all the states. But there were some differences as well.

(Table 6)

The differences in the movement of prices were between those of coarse cereals and rice and wheat. Firstly, beyond 1974-75 there were no clearly marked peaks in the prices of coarse cereals. The levels reached during 1974-75 had not been reached till 1985. They were either stagnating or declining which was different from the movement of prices of rice and wheat which were showing peaks again around 1983-85, although the peaks themselves were at levels moderately higher than those of 1974-75. The more pronounced differences were to be observed till 1967-69. Whereas the peaks for the prices of rice and wheat were

clearly marked the coarse cereal prices showed pronounced year to year fluctuations. This is evident from the occurrence of peaks between 1957 and 1961 and between 1965 and 1969 as is shown in Table 6.

Putting the pattern of movement of money wage rates and prices of cereals together, it may be argued that the sharp upward movement of prices of cereals create the necessary conditions for the labourers to bargain for a raise in the money wage rates. And increases do come about as was indicated by the timing of the sharp increases in money wage rates. These increases were always around the peaks of prices. It needs to be emphasised that the money wage response was to the price increases rather than the levels themselves. This is borne out by the fact that the money wage rates did show sharp increases in the late seventies and early eighties when the level of prices themselves were below the levels reached in the early to mid-seventies in many states. However, the increases in money wage rates were not fully compensating the increases in cereal prices as would be evident from a comparison of the rates in Tables 5 and 6.⁸ So, during this phase of rising prices of cereals the real wages tend to decline leading to their downward phase. The real wages begin their upward movement sometime during the phase of declining prices because the money wages were downward sticky (recall the step-movement). The increase in real wages could be quite sharp depending upon the decline in prices.

This more or less provides an explanation for, (i) the cyclical fluctuations in real wages (and in turn the cyclical fluctuations in the incidence of poverty); (ii) the downward shift of the peak in the incidence of poverty in the seventies, and (iii) the differences in the behaviour of money wage rates in Gujarat, Karnataka and some other states referred to above. The explanation is through the behaviour of cereal prices together with the money wage rates. As to (ii), it may be recalled that the upward phase preceding the peak of 1974-75 was short. Although the rate of increase itself was sharp the short duration could not push the real wages far down. The sharp upward movement of prices, however, created the necessary conditions for a sharp increase in money wages during this period - the highest in most of the states. The decline in prices that followed was sharp and the declining phase itself was longer. These three factors together effectively raised the real wages and consequently brought the trough in the incidence of poverty down. The price increases of the early eighties could not erode these gains mainly because the upward phase of prices (which was sharp) was accompanied by an increase in money wages and the increase in prices itself in comparison with the earlier peak of 1974-75 was moderate.

The pattern of money wage increases in Gujarat, Karnataka, Madhya Pradeshetc. till 1971/72 referred to earlier could also be explained in terms of the behaviour of cereal prices in these states. These are the states in which the

share of coarse cereals in the total consumption of cereals was fairly high and wage bargains in most parts of these states must be taking place in terms of the movement of prices of coarse cereals. This movement of prices was marked by certain peculiarities till the late sixties which had already been highlighted. The peculiarity was the lack of clearly marked phases as reflected in the occurrence of peaks between 1957 to 1961 and 1965 to 1969. The associated increases in money wage rates were also spread out not conforming to the phases marked in Table 5.

5. Concluding Observations

Cyclical fluctuations in the incidence of poverty, real wages, and cereal prices are closely related. The whole process is set off by the fluctuations in the price of cereals which are the staple food of the agricultural labourers. The sharp increases in cereal prices bring down the real wages leading to an increase in the incidence of poverty. The fall in the price makes for an increase in the real wages leading to a decrease in the incidence of poverty. The key links establishing the relationship between real wages and incidence of poverty are the distribution of rural households over wage-income classes and the elasticity of per capita income with respect to wage rates.

Both real wages and incidence of poverty are, in a sense, derived variables and cannot throw any light on the

mechanisms making for their cyclical fluctuations. This mechanism is the money wage response to the movement of cereal prices - sharp increases in prices leading to a sharp increase in money wages and the downward stickiness of wages in the face of decline and relative stagnancy in prices. This is the central mechanism operating on the wage-price plane or the plane of distribution of social product and the mechanism itself is the wage bargain.

The fluctuations in the price of cereals themselves are generated ultimately by the pattern of growth of output of cereals which are obviously marked by certain regularities. What are the factors making for this regularity, are they basically natural factors - for instance, rainfall, or is the influence of the very same price factor rather strong are some of the questions of importance in this context.

Footnotes

1. She talks in terms of earner-population ratio. But in her own words, "earner-population ratios for rural labour households are a close approximation to worker-population ratios....." (Unni, 1988, p.A-60)
2. For the sake of completion one needs to mention wage rates of female labourers. But given the pattern of movement of the ratio between the two (See Jose, 1988), the argument of this paper remains unaffected.
3. Ideally the sixth phase of the cycle should have been from 1978/79 to 1981/82. But lack of data necessitated a slight modification.
4. The predicted values will have a downward bias beyond 1977-78. A rough computation showed that the predicted values for 1977-78 and 1983 were 35.2 and 23.7 respectively as against the actual values of 39.1 and 32.8 respectively.
5. Agricultural Wages in India (AWI) data are often questioned on various grounds (Lal, 1976; Rao, 1972). There are two carefully written theses in the Centre for Development Studies, Trivandrum, India (Baby, A.A., 1986; Sridhar, V. 1987) which have examined the merits of these criticisms and concluded that for inter-temporal comparisons they are the best data.
6. The sharpness of the pattern is greatly blunted when aggregated data is used. To see it in all its sharpness one should examine the data at the district level for individual operations as is carried out by Baby, A.A. and Sridhar, V. in the theses referred to in footnote 4.
7. The pattern comes out much better when phases are worked out separately for each state (and districts within the state!)
8. There is a problem of kind payment of wages. In the AWI these are reported in cash equivalents. But such payments do not seem to constitute a major component of the wages. If they had been then the price cycles should have got transmitted as cycles in money wages which are not to be found.

Table 1
Cyclical Fluctuations in the Incidence of Rural Poverty in India

Phase No.	Phase	Change in the (percentage of) population in poverty	Phase length (years)	Rate of change (%)
(1)	(2)	(3)	(4)	(5)
1	1956-57 to 1961-62	54% to 39%	5	3.00
2	1961-62 to 1966-67	39% to 57%	5	3.60
3	1966-67 to 1971-72	57% to 41%	5	3.20
4	1971-72 to 1974-75	41% to 50%	3	3.00
5	1974-75 to 1977-78	50% to 39%	3	3.67

Source: Mellor and Desai (1985), Table 18.1 for columns 2 and 3
 Note: The end-point of the first phase and the starting-point of the second phase have been changed from 1960/61 to 1961/62.

Table 2
Number of Days of Employment to Population Ratio for Rural Labour Households

State	Number of Days of Employment to Population Ratio					
	Male			Female		
	1964-65	1974-75	1977-78	1964-65	1974-75	1977-78
All-India	192	178	206	90	89	92
Andhra Pradesh	199	181	194	129	110	121
Bihar	173	173	246	60	73	83
Gujarat	243	189	210	155	129	110
Karnataka	199	186	-	137	171	-
Kerala	134	111	125	70	53	58
Madhya Pradesh	193	189	232	107	103	136
Maharashtra	207	202	207	129	145	133
Orissa	201	149	200	67	60	71
Punjab	234	190	219	40	51	48
Rajasthan	177	218	171	96	111	97
Tamilnadu	167	135	174	98	90	100
Uttar Pradesh	166	185	196	48	65	56
West Bengal	237	197	222	49	53	47

Source: Computed from Unni, Jeemol (1988), Tables 2 and 4.

Table 3

Signs of the Annual Percentage Changes of Real Wages of Agricultural Labourers (Male)
and Incidence of Poverty

Year	Signs of annual changes of Real wages of agricultural labourers by States												Signs of changes of Incidence of poverty	
	Andhra Pradesh	Assam	Bihar	Gujarat	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Tamil-nadu	Uttar Pradesh		West Bengal
1956-57
1957-58	+	-	-	+	+	+	+	-	-	+	-	+	-	-
1958-59	+	-	-	+	+	+	+	-	-	+	-	+	-	-
1959-60	-	+	-	+	+	+	+	-	-	+	-	+	+	-
1960-61	+	-	+	-	+	+	-	+	+	+	-	+	+	-
1961-62	+	-	+	-	+	+	-	+	+	+	-	+	+	+
1962-63	-	-	-	-	+	+	-	-	-	+	+	+	-	+
1963-64	-	-	-	-	-	-	-	-	+	-	-	-	-	+
1965-65	-	-	-	-	-	-	-	-	+	-	-	-	+	+
1965-66	-	+	-	+	+	+	-	-	-	+	-	+	+	+
1966-67	-	-	..	-	+	+	-	+	-	-	-	-	-	+
1967-68	+	+	..	+	+	+	+	+	-	+	+	+	-	+
1968-69	-	+	+	+	-	-	+	+	..	+	+	+	+	-
1969-70	+	+	+	-	-	-	+	+	..	+	-	-	+	-
1970-71	+	-	+	+	+	+	+	-	+	+	+	+	-	-
1971-72	-	-	-	+	+	+	-	-	-	-	-	+	+	-
1972-73	-	-	-	-	-	-	-	-	-	-	-	-	-	..
1973-74	-	-	-	-	-	-	-	-	-	-	-	-	-	..
1974-75	-	-	-	-	-	-	-	-	-	-	-	-	-	..
1975-76	+	+	+	+	+	+	+	+	+	+	+	+	+	..
1976-77	+	+	+	+	+	+	+	+	+	+	-	+	+	..
1977-78	+	+	-	-	+	+	-	+	-	-	-	-	+	..
1978-79	+	-	-	+	+	+	+	+	+	+	+	+	+	..
-1979-80	-	-	-	-	+	+	-	-	-	-	+	-	-	..
1980-81	-	+	-	-	+	+	-	-	-	-	-	-	-	..
1981-82	+	+	+	+	+	+	+	+	-	+	-	+	-	..
1982-83	+	+	+	+	+	+	+	+	-	+	-	+	-	..
1983-84	+	+	+	+	-	-	+	+	+	+	-	+	+	..
1984-85	+	+	+	+	+	+	+	+	+	+	+	+	+	..

Source: Jose (1988), Table 18A and Ghose (1989), Table 1.

Note : When a single observation was missing interpolation was resorted to.

Table 4

Average Annual Percentage change of Real Wages of Agricultural Labourers (Male)

Phase	Averages by States												
	Andhra Pradesh	Assam	Bihar	Gujarat	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal
14/57 to 14/62	4.8	-0.8	0	4.0	3.2	3.5	3.9	3.6	4.3	3.9	1.2	7.7	1.9
14/62 to 16/67	-2.4	-6.5	-3.0	-2.7	-8.2	+3.0	-7.1	-2.8	-2.2	-1.9	-0.9	-2.2	-3.5
16/67 to 17/72	4.1	2.6	3.5	4.7	5.1	4.5	4.1	1.5	-1.0	8.6	4.1	8.7	1.0
17/72 to 14/75	-8.1	-4.9	-5.3	-13.7	-9.5	-9.1	-8.7	-12.2	-9.2	-7.0	-8.7	-9.1	-8.4
14/75 to 13/79	11.4	5.1	11.6	18.0	14.7	8.5	12.3	8.3	14.0	5.6	8.4	13.6	9.3
13/79 to 11/81	-2.0	-1.5	-5.5	-5.9	-8.5	7.5	-7.2	-5.9	-6.2	-6.4	1.9	-8.6	-4.1
11/81 to 11/85	7.7	6.8	8.3	9.3	-1.2	0.3	10.3	12.2	8.4	3.5	3.6	9.7	0.4
r	-0.39	-0.59	-	-0.45	-0.92	-0.77	-0.64	-0.45	-0.52	-0.34	-0.25	-0.43	-0.68

Source: 1. Jose (1988) Tables 12A and 12B; 2. Anjumalia (1978), Table 3(a)

Table 5

Average Annual Percentage change in the Money Wages of Agricultural Labourers (Male)

Phase	Averages by States												
	Andhra Pradesh	Assam	Bihar	Gujarat	Karnataka	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	Tamil Nadu	Uttar Pradesh	West Bengal
1956/56 to 1962/63	6.00	0	0.3	4.00	4.7	9.1	3.5	2.8	7.7	4.5	2.0	6.7	1.3
1962/63 to 1967/68	11.4	10.3	15.5	8.3	4.2	16.4	8.0	12.2	4.2	16.0	10.4	20.6	14.6
1967/68 to 1971/72	3.0	3.7	3.3	7.8	6.7	5.0	5.7	3.0	7.0	8.5	7.0	3.8	1.3
1971/72 to 1975/76	12.3	8.3	13.5	9.8	13.8	11.8	17.3	3.8	13.0	9.5	17.0	19.8	9.3
1975/76 to 1979/80	9.0	7.0	4.8	8.8	8.8	5.0	3.8	8.8	8.5	6.3	3.5	3.3	4.1
1979/80 to 1984/85	18.2	18.2	17.0	19.4	7.4	17.8	19.4	21.0	16.0	11.8	14.0	16.4	5.1

Source: Computed from the data in Jose (1974) and Jose (1988).

Table 6

Cyclical Fluctuations in the Retail Prices of Cereals by States 1956 to 1985

State (Centre)	Years in which peaks in prices occur					Average Annual Percentage Change from peak to peak (from two years preceding the peak to peak) and from peak to the succeeding trough				
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<u>Rice</u>										
Uttar Pradesh	-	1960	1968	1975	1984	-	10.0(32.1)	10.3(21.6)	6.2(8.1)	
Karnataka)	-	1961	1969	1979	-	-	-13.1	-4.6	-2.9	
Kerala	-	1958	1967	1974	1983	-	17.8(22.5)	7.1(49.5)	4.2(25.4)	
Andhra)	-	1959	1969	1978	-	-	-21.1	-16.8	-8.2	
Tamil Nadu	-	1960	1967	1975	1983	-	35.2(29.2)	10.2(28.8)	2.2(21.9)	
(State Average)	-	1961	1971	1978	-	-	-26.7	-6.7	-10.5	
Uttar Pradesh	-	1957	1969	1975	1983	-	11.0(25.6)	17.8(51.9)	1.9(20.4)	
Assam)	-	1958	1970	1978	-	-	-20.0	-18.1	-11.6	
Kerala	-	1961	1968	1974	1982	-	7.9(18.7)	29.6(75.0)	1.0(7.0)	
Andhra Pradesh)	-	1963	1970	1976	-	-	-3.7	-6.2	-23.8	
Karnataka	1956	1961	1966	1975	1985	6.0(...)	18.0(39.7)	5.9(8.1)	4.4(0.7)	
Andhra)	1957	1963	1970	1976	-	-15.1	-2.2	-5.5	-18.0	
Kerala	-	1960	1968	1975	1983	-	18.8(28.3)	11.8(31.7)	6.4(28.9)	
West Bengal)	-	1961	1970	1978	-	-	-17.3	-8.9	-9.4	
Uttar Pradesh	-	1958	1968	1975	1984	-	11.2(40.1)	6.1(19.5)	4.3(9.1)	
Assam)	-	1961	1971	1976	-	-	-28.8	-19.4	-21.7	
West Bengal	-	1958	1958	1975	-	-	9.4(18.4)	4.4(16.4)	increasing	
West Bengal)	-	1961	1969	-	-	-	-9.6	-6.5	-	
<u>Wheat</u>										
Uttar Pradesh	-	1959	1967	1974	1983	-	13.6(31.0)	7.1(20.5)	3.9(9.0)	
Uttar Pradesh)	-	1961	1968	1976	-	-	-5.6	-6.4	-2.8	
Uttar Pradesh	-	1958	1969	1975	1983	-	7.3(5.5)	10.5(22.1)	4.8(12.7)	
Uttar Pradesh)	-	1963	1971	1976	-	-	-3.5	-4.4	-23.3	
Uttar Pradesh	-	1959	1967	1974	1983	-	9.6(10.7)	6.5(30.5)	3.1(10.5)	
Uttar Pradesh)	-	1961	1968	1978	-	-	-12.3	-20.6	-6.3	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Jowar</u>									
Andhra Pradesh (Hyderabad)	1957 1958	1965 1966	1968 1970	1975 1978	1983 -	4.5(26.2) -12.8	7.8(19.8) -17.2	16.2(19.3) -10.8	4.8(25.1) -8.4
Madhya Pradesh (Ujain)	1957 1961	- -	1969 1970	1974 1978	1981 -	- -	6.0(32.2) -9.3	26.0(46.6) -1.4	0 (25.0) -9.4
Karnataka (Raichur)	1959 1961	1965 1966	- -	1973 1978	1981 -	10.3(35.7) -18.9	- -	14.1(37.8) -8.3	2.6(21.3) -6.3
Uttar Pradesh (Jhansi)	- -	- -	1967 1968	1974 1976	1980 -	- -	- -	5.5(31.8) -43.3	3.1(17.3) -16.7
Tamilnadu (Coimbatore)	1960 1963	1965 1966	1969 1970	1975 1978	1983 -	7.1(34.2) -6.5	7.3(34.2) -24.6	16.7(48.9) -10.1	1.8(9.7) -13.29
Gujarat (Rajkot)	- -	- -	1967 1971	1975 1976	1985 -	- -	- -	10.7(15.7) -6.6	1.3(10.4) -38.6
<u>Bajra</u>									
Andhra Pradesh (Hyderabad)	1957 1958	1965 1966	- -	1975 1976	1983 -	5.2(31.3) -21.7	- -	12.0(10.1) -18.5	4.5(2.4) -23.1
Gujarat (Ahmedabad)	- -	- -	1967 1971	1975 1976	1983 -	- -	- -	11.7(16.2) -6.1	4.5(19.8) -41.2
Maharashtra (Ahmednagar)	1957 1958	1965 1967	- -	1975 1979	- -	15.0(77.9) -16.0	- -	6.7(6.4) -8.2	declining -9.0
Rajasthan (Ajmer)	1957 1962	- -	1967 1968	1975 1979	- -	- -	7.1(14.2) -4.0	18.2(22.1) -5.2	declining -9.7
Tamilnadu (Tiruchirapally)	1959 1960	1965 1966	- -	1975 1979	- -	9.7(35.9) -8.5	- -	17.5(65.4) -36.7	declining -12.9
<u>Ragi</u>									
Tamilnadu (Salem)	1961 1963	1965 1966	1969 1970	1975 1978	1981 -	8.9(31.3) -8.3	9.2(39.0) -23.1	16.7(48.9) -22.5	1.4(37.7) -14.0
Karnataka (Kolar)	1961 1963	1966 1970	- -	1975 1978	1981 -	26.7(57.1) -10.0	- -	5.7(9.8) -6.0	2.8(44.3) -13.0
Madhya Pradesh (Sagar)	1962 1963	- -	1967 1971	1974 1976	1981 -	- -	33.6(55.0) -6.4	7.7(47.0) -36.5	1.2(29.0) -19.1

Source: Ministry of Agriculture, Agricultural Prices in India (various issues)

Note : 1. Price data are taken for one centre in each state.

2. The lower figures in columns 2 to 6 are the troughs and the corresponding figures in columns 7 to 10 are the average annual percentage decline.

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