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CHANGES IN THE INCIDENCE OF RURAL POVERTY AND RECENT TRENDS IN SOME ASPECTS OF AGRARIAN ECONOMY*

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> "Recall the face of the poorest and most helpless man whom you have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he be able to gain anything by it ? Will it restore him control over his own life and destiny ? In other words, will it lead to Swaraj or self-rule for the hungry and also spiritually starved members of our countrymen ?"
>
> — M. K. GANDHI

I am thankful to the members of the Indian Society of Agricultural Economics for electing me as the President of the 46th Annual Conference. I consider it to be no more than a generous gesture to a longstanding member. I am grateful to the Society for this act of kindness. I am painfully conscious of my inadequacies. I had the good fortune of association in the early stages of my professional career with eminent scholars in the discipline like Prof. V.K.R.V. Rao, late Prof. B. N. Ganguli, late Prof. D. R. Gadgil, Prof. V. M. Dandekar, Prof. R. Balakrishna and Prof. B.S. Rao. Prof. M.L. Dantwala and Prof. K. N. Raj have always been kind to me and have encouraged me in a number of ways. I wish to acknowledge my debt to all these. I crave the indulgence of the eminent scholars of this body if I do not meet their expectations.

The long-term strategy outlined in the Seventh Five Year Plan seeks to virtually eliminate poverty and illiteracy, achieve near full employment, secure satisfaction of basic needs of food, clothing and shelter and provide health for all by the year 2000 A.D. The revised 20-point Programme announced on 20th August 1986 renews the Government's commitment to eradicating poverty. The bulk of the poor continue to be in the rural areas and within rural areas, occupied in the agricultural sector. The trends in the agrarian and rural economy, having a bearing on sustained reduction in rural poverty are of continued interest. I propose to address myself to selected aspects of such trends with focus on the seventies and the early eighties, hopefully providing a backdrop for the discussions at the various sessions of this Conference.

INCIDENCE OF RURAL POVERTY

The widely quoted study of Montek Ahluwalia (1978) and even his later examination (1985) suggest no underlying time trend in rural poverty. The percentage of rural population in poverty (head count measure) suggests a

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decline in the fifties, a rise in the sixties reaching the peak in the mid-sixties and a fall in the seventies. The Sen Index also showed an almost identical pattern. However, the agricultural output per capita had a significant inverse relation with the incidence of poverty at the national level, though this relation was by no means universal at the State level. Dharm Narain found that besides agricultural production and time, the price of food has a significant positive relation to incidence of poverty (Mellor and Desai, 1985). There has been, however, no unanimity on the direction of change in the incidence of poverty.

Two recent works, one providing the results of a longitudinal study by the NCAER (1986) and the other on the data of National Sample Survey (NSS) 38th Round (Hanumantha Rao, 1985) suggest a decline in the incidence of poverty in the early eighties as compared to the early seventies in one case, and the late seventies in another case (Table I). They deserve our attention in relation to questions on the direction of change in the incidence of poverty.

TABLE I. PERCENTAGE OF RURAL POPULATION IN POVERTY: ALTERNATIVE ESTIMATES FOR SELECT YEARS: ALL-INDIA

Years (1)	Montek Ahluwalia[1] (2)	NCAER[2] (3)	Hanumantha Rao[3] (4)	Dandekar[4] (5)
1970-71	47·5	56·90	N.A.	N.A.
1971-72	41·2	N.A.	N.A.	46·0
1972-73	43·1	N.A.	N.A.	54·9
1977-78	39·1	N.A.	51·2	49·5
1981-82	N.A.	48·54	N.A.	N.A.
1983-84	N.A.	N.A.	40·4	44·4*

1. Montek Ahluwalia (1985, p. 60).
2. NCAER (1986, p. 27).
3. Hanumantha Rao (1985, p. 7).
4. Dandekar (1986, p. A-97). Dandekar suspects that the estimate for 1972-73 is high while other estimates are reasonable.

*January 1983 to December 1983.
N.A. = Not available.

The results of the longitudinal study which is rather unique in the sense that the same households are pursued through with a gap of a decade, suggest a decline in the percentage of people below the poverty line between 1970-71 and 1981-82. The decline in poverty is seen conspicuously among groups with which high incidence of poverty is associated, *i.e.*, landless agricultural labourers, marginal and small farmers. However, what is disturbing in the results of the data is the sharp increase in poverty among the large farmers. Further, while the change is characterised by movement up for some house-

holds, *i.e.*, 42.5 per cent, it is also marked by the movement down for more or less an equal number of households, *i.e.*, 45.4 per cent. It is to be suspected that the life cycle impact is more dominant in respect of the observed changes than any underlying forces of growth enabling a sustained take off of households from the poverty trap. This is to be inferred from the differences between changes in the household size of the group of poor of 1970-71, who stayed poor in 1981-82, and those who are not found to be poor in 1981-82. Within the former group, the household size increased from 5.59 to 6.77, while in the latter the size declined from 6.52 to 5.75. Similar differences could be noted in respect of those who are not poor in 1970-71, classified into (*a*) those who became poor in 1981-82 and (*b*) those who continued to be not poor in 1981-82.

The household size of those who became poor in 1981-82 increased from 5.18 to 7.16, *i.e.*, by 38.22 per cent, while the size of the households which continued to be not poor in 1981-82 increased only by 14.07 per cent. A similar difference, partly the difference in life cycle phenomenon, is also seen in changes in work participation rates between the households which stayed poor, and which rose above the poverty line. The average participation rates showed a jump in the latter group of households. Such differences are to be noticed between the 'not poor' households which became poor in 1981-82 and those which stayed 'not poor' in 1981-82. For those who became poor in 1981-82 the percentage increase in average participation rate was much lower as compared to those who stayed 'not poor' in 1981-82. The life cycle phenomenon appears to be compounded by its effects on per capita land ownership, particularly among the groups which were poor in 1970-71 and continued to be so in 1981-82.

An implication of the study is that in any group of poor, over a certain period, a not insignificant percentage will move above the poverty line due to the life cycle phenomenon and this cannot be attributed to progress in the economy (Bussink and Subbarao, 1986, p. 8).

Further, the NCAER data for a panel sample have a questionable basis for judging the trends in overall incidence of poverty inasmuch as the set of sample households selected to be representative of the population at one point of time cannot be representative of the population ten years later. Even in regard to the basis for judging what happened to the particular set of households, the NCAER data are of questionable value inasmuch as a high proportion of original households could not be located in the resurvey (Vaidyanathan, 1986, p. 7).

The results of the analysis of data of 32nd Round (1977-78) and 38th Round (1983-84) on rural poverty (Hanumantha Rao, 1985) suggest a hopeful picture of changes. These indicate a reduction not only in the percentage of rural poor from 51 to 40 per cent but also a reduction in the numbers of absolutely poor from 253 million to 221 million despite the increase in rural population during this period. Among the major States, only Rajasthan showed an increase in the percentage of people below the poverty line. Both the absolute numbers and the proportions of people below the poverty line

show a decline even among the Scheduled Castes and Scheduled Tribes. Notwithstanding the criticism of such results on methodological grounds (Vaidyanathan, 1986), one cannot suspect the possibility of a fall in poverty proportions between the two points of time. A sharp fall in the proportions of poor in response to good weather conditions was not uncommon in the past. That could be seen in the series built by Montek Ahluwalia (1985, p. 60) for the period 1956-57 to 1977-78. Between the two points of time, there was an increase of 20.6 per cent in foodgrain production. This rate of growth is above the long-term rate of growth of foodgrain production of 2.6 per cent per annum. This favourable situation by itself could be expected to reduce the incidence of rural poverty. However, the decline in the incidence of poverty across the States does not show a pattern which can be meaningfully related to growth rates in agricultural production or to variations in per capita expenditure on poverty alleviation programmes.

TRENDS IN THE AGRARIAN ECONOMY AND THE DIRECTION OF CHANGE IN THE INCIDENCE OF RURAL POVERTY

Growth in Agricultural Production and Reduction in Rural Poverty

It is more fruitful to examine the trends in the agrarian economy which have a bearing on the direction of change in the incidence of rural poverty. Even though no firm relationship has been established between the rate of growth of agricultural production and reduction in rural poverty, higher overall rates of growth with perceptible margins above the rates of growth of rural population should be expected to set the pace for sustained reduction in poverty. High rates of growth also help through their favourable effect on prices paid by the poor for food, and also through employment linkage effects between agriculture and non-agriculture.

There are many studies which examined the growth rates of agricultural production of the post-green revolution period in comparison with the pre-green revolution period. On the basis of fitting semi-logarithmic trends to the various indices of agricultural production, Srinivasan (1979) has found that the output of food crops grew more or less uniformly over the period 1949-50 to 1977-78 with no evidence of either acceleration or deceleration since 1967-68. More recently Sawant (1983) has shown that the compound rate of growth of foodgrain production from 1950-51 to 1980-81 was of the order of 2.5 per cent per annum which was slightly higher than the rate of growth of 2.2 per cent per annum recorded in the earlier period from 1950-51 to 1967-68. Using the latest available data on foodgrain production until 1983-84 and on agricultural production and agricultural income until 1982-83, Isher Judge Ahluwalia (1985, p. 38) estimated semi-logarithmic regressions to yield pairwise growth rates for selected sub-periods. The tests of statistical significance showed no difference in the rates of growth of output for either foodgrains or agricultural output as a whole. Over the two decades from 1959-60 to 1979-80, the output of foodgrains increased at a compound rate of 2.5 per cent per annum, and there was no significant difference between the pre- and post-green

revolution periods. Estimates of the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India also show that the annual compound growth rate for the period 1967-68 to 1983-84, the post-green revolution period, has not been higher than the long-term growth rate for the period 1949-50 to 1983-84 (Government of India, 1985, p. 160); the growth rate in both the periods was around 2.6 per cent. The yield growth rate of recent years has barely managed to compensate for the area expansion of earlier years in overall contribution to growth. While there is no evidence of slow down in the growth of production of foodgrains or even of agriculture as a whole after the mid-sixties, there is no doubt that the growth of agriculture was slow throughout the period. Value added in agriculture which represents agricultural income, increased at a rate of 2.3 per cent per annum over the period. The increase in rural population over the same period was about 1.7 per cent per annum. The increase in agricultural income per capita, therefore, was negligible. There was very little growth to percolate.

It is much more important for our purpose to ask as to what happened to the growth rates of agricultural production in States which are known to record relatively higher incidence of poverty. As per the estimates of Sawant (1983, p. 485), in Bihar and West Bengal, the annual rate of growth of foodgrain production was 0.8 and 0.9 per cent respectively, while the production of foodgrains was nearly stagnant all through the late sixties and seventies taken together in Orissa, Madhya Pradesh and Kerala. There is, of course, some evidence in recent years that the expansion of irrigation and public credit has unclogged the channels of productivity growth at least for the rich and middle farmers in some of the eastern States (Bardhan, 1986, p. 13).

Together with the low rate of growth of foodgrain production in States with high incidence of poverty, there has also been a lower rate of growth of production of coarse cereals (0.91 per cent compound for the period 1967-68 to 1983-84 as against the long-term trend of 1.47 per cent for the period 1949-50 to 1983-84) produced in dry areas and mostly consumed by poorer people. Low rates of growth of production of pulses and oilseeds concentrated mainly in the poorer dry areas should also be said to have adverse effects in relation to poverty.

We must also note that the post-green revolution period has been marked by a higher variation around the trend growth rate as compared to the pre-green revolution period especially with respect to the output of cereals. The primary reason is a greater synchronisation of crop area and yield movemets in different regions, besides the incidence of floods affecting larger areas (Bardhan, 1986, p. 16; Ray, 1983).

A number of scholars (Hanumantha Rao, 1977; Subbarao, 1985) have been highlighting the growing regional concentration of foodgrain production and its association with the coexistence of embarrassingly large and growing buffer stocks of foodgrains and mass poverty. The data for recent years do not suggest that the regional concentration of foodgrain production has been reduced. States such as Bihar, Orissa, Madhya Pradesh and West Bengal

with relatively high incidence of rural poverty recorded a lower share of food-grain production in 1983-84 as compared to 1964-65.

Growth of Labour Productivity and Incidence of Rural Poverty/Unemployment

A recent study (Mahendra Dev, 1986) on regional dimensions of growth and labour productivity in Indian agriculture points out that the coefficient of variation across States in labour productivity for the triennium ending 1982-83 was 68.3 while the corresponding coefficient for the triennium ending 1964-65 was 34.5. The study also shows that many of the regions in States with high incidence of poverty such as Madhya Pradesh, Orissa, Bihar and West Bengal have been marked by either very low or negative rates of growth of labour productivity between the triennia 1962-65 and 1975-78. The same study shows that during the period in question the growth rate of work force has been higher in low growth regions and lower in high growth regions.

We have examined the data on the rate of growth of labour productivity, which is noted to be inversely related to the incidence of rural poverty (Mahendra Dev, 1986) in relation to NSS regionwise poverty and unemployment proportions of 1972-73 (Bardhan, 1984, Appendix Tables). The top NSS regions arranged in descending order by the incidence of rural poverty, and again by unemployment are compared with the NSS regions at the bottom. The two sets are examined for the differences in respect of growth rate of labour productivity during the triennia 1962-65 to 1975-78.

Regions grouped under highest incidence of poverty were either marked by negative or very low rate of growth of labour productivity while high growth rates of labour productivity exceeding three per cent per annum are to be found generally in regions grouped under the lowest incidence of poverty. As regards the association between incidence of unemployment and growth rate of labour productivity, growth rates of labour productivity are generally lower in regions grouped under the highest incidence of unemployment category.

We also examined whether growth rates of labour productivity between 1962-65 and 1975-78 have been of significance in low wage NSS regions of 1972-73. The low wage regions are in Madhya Pradesh, Karnataka, Orissa, Uttar Pradesh, Bihar, Andhra Pradesh and Tamil Nadu. Not all low wage regions are regions with high incidence of unemployment. In fact, regions in Madhya Pradesh in particular are characterised by low wages but report only low incidence of rural unemployment. Growth rates of labour productivity are again found to be either negative or low in many regions characterised by low wage situations.

Thus, regions under the lowest end, either by poverty or unemployment or by wages, showed much poorer performance in the seventies in relation to growth rates of labour productivity.

We do not have access to regionwise data either on labour productivity or on poverty for the period after 1977-78. There are a number of reasons as to why the post-1977-78 period is important. There has been much more concern both with rural poverty and with regional inequity since the

TABLE II. NSS REGIONS 1972-73 BY LEVELS OF RURAL POVERTY AND GROWTH RATES OF LABOUR PRODUCTIVITY IN CROP PRODUCTION, TRIENNIA 1962-65 TO 1975-78

Levels of rural poverty (1972-73)	Exponential annual growth rate of labour productivity 1962-65 to 1975-78			
	High growth (above 3 per cent)	Medium growth (between 1·5 and 3 per cent)	Low growth (between 0 and 1·5 per cent)	Negative growth
(1)	(2)	(3)	(4)	(5)
High (52·05-83·95 per cent)	Nil	Maharashtra Eastern, West Bengal Western Plains	Maharashtra Coastal, Bihar Northern, Maharashtra Inland Central, Bihar Southern, Bihar Central, Kerala Northern, Maharashtra Inland Northern, Maharashtra Inland Eastern	Madhya Pradesh Eastern, Madhya Pradesh Inland Eastern, Madhya Pradesh Inland Western, Rajasthan Southern, Orissa Southern, Gujarat Eastern, Orissa Northern, Orissa Coastal, West Bengal Eastern Plains
Medium (40·41-49·61 per cent)	Uttar Pradesh Himalayan, Jammu & Kashmir Outer Hills, Tamil Nadu Coastal Northern	Rajasthan South Eastern, Madhya Pradesh Northern, Uttar Pradesh Western	Uttar Pradesh Central, Uttar Pradesh Eastern, Uttar Pradesh Southern, Madhya Pradesh Western, Tamil Nadu Inland, Karnataka Coastal Ghats, Maharashtra Inland Western, Andhra Pradesh Inland Northern, Karnataka Inland Northern, Andhra Pradesh Coastal, Kerala Southern	West Bengal Himalayan, West Bengal Central Plains
Low (9·75-38·52 per cent)	Haryana Eastern, Rajasthan North Eastern, Gujarat Saurastra, Haryana Western, Jammu & Kashmir Mountains, Punjab Southern, Gujarat Dry, Punjab Northern	Assam Hills, Karnataka Inland Southern, Jammu & Kashmir Jheelum Valley, Rajasthan Western	Assam Plains, Karnataka Inland Eastern, Tamil Nadu Coastal Eastern	Gujarat Plains Southern, Gujarat Plains Northern, Andhra Pradesh Inland Southern

Source of data: 1. Levels of rural poverty: Pranab Bardhan (1984, Appendix Tables C, pp. 228-230). Poverty ratios of 1972-73 are arranged in descending order and classified into High, Medium and Low.

2. Exponential annual growth rate of labour productivity 1962-65 to 1975-78: Mahendra Dev (1986, A-69).

Fifth Five Year Plan period. There is some evidence of the spread of new technology to backward areas. In the light of these one would expect the poorer States to fare better during this period as compared to the past. In the absence of regionwise data we may examine the Statewise poverty data in 1972-73 and changes in labour productivity between 1972-73 and 1982-83, based on the results of Mahendra Dev (1986). This shows that labour productivity of rural work force has improved between 1972-73 and 1982-83 in States which were showing relatively poorer performance during the past. The cases of Uttar Pradesh, Maharashtra and Andhra Pradesh need mention. But it should be recognised that in the same period States with the highest incidence of poverty such as Orissa, Madhya Pradesh, Bihar and West Bengal recorded either negative or very low rates of growth of labour productivity. Such results should have contributed to a higher degree of regional concentration in poverty in the traditionally poor regions.

As regards wage labour (males) in the rural areas, of which the bulk are in agriculture, the NSS data for the 27th Round (1972-73) and 38th Round (1983) show two major trends: firstly, an increase in the overall percentage of wage labour and secondly, casualisation of wage labour. This contradicts the results of decennial census which suggest a declining proportion of hired labour in the rural areas. But the NSS results are considered to be more plausible

TABLE III. COMPOSITION OF THE RURAL MALE WORK FORCE IN INDIAN STATES: 1972-73 AND 1982-83

Sr. No.	State	Wage labour as a percentage of total work force		Casual wage labourers as a percentage of total wage labourers	
		1972-73	1982-83	1972-73	1982-83
	(1)	(2)	(3)	(4)	(5)
1.	Andhra Pradesh	40·0	46·6	68·6	74·2
2.	Assam	23·8	35·9	40·0	49·0
3.	Bihar	39·5	42·8	60·9	82·2
4.	Gujarat	34·4	40·4	64·6	81·5
5.	Haryana	24·0	30·0	40·3	52·3
6.	Jammu & Kashmir	9·4	26·8	20·9	69·7
7.	Karnataka	37·8	41·5	72·1	87·3
8.	Kerala	54·3	54·5	72·1	76·7
9.	Madhya Pradesh	27·3	33·7	56·8	72·0
10.	Maharashtra	53·5	47·4	70·3	71·5
11.	Orissa	39·9	43·7	68·3	76·8
12.	Punjab	30·7	33·6	52·3	61·7
13.	Rajasthan	10·2	20·5	53·5	63·1
14.	Tamil Nadu	42·4	54·2	60·0	75·1
15.	Uttar Pradesh	21·6	24·1	66·7	73·6
16.	West Bengal	48·1	50·4	N.A.	75·4
	All-India	34·1	39·6	64·6	72·8

Source: 1. NSS 27th Round, *Sarvekshana*, October 1977.

2. NSS 38th Round, Report No. 315, cited by Jose (1986).

(Krishnamurty, 1984). These trends observable from the NSS are to be seen in all the major States of India. The only exception to the rising trend in the proportion of wage of labour (rural males) as a percentage of total work force in 1982-83 as compared to 1972-73 is Maharashtra. But it is possible that in this case the higher proportions of 1972-73 were influenced by the severe drought conditions during this period and the entry of large number into wage labour. Even such States as Jammu & Kashmir and Rajasthan, which had relatively very low proportions of wage labour in 1972-73 show very rapid increase. Among the major States as in 1982-83, in Kerala, West Bengal and Tamil Nadu, wage labour (males) formed a majority of the rural work force. The proportions of wage labour should not be of much concern if this suggests the process by which the under-employed marginal farmer and artisan get absorbed in the organised sector: but it has generally not been so. I should add that the rising proportions of hired labour are attributable more to the entry of marginal farmers and artisans in the labour market than to proletarianisation *per se.*

The incidence of daily status unemployment is far higher among rural labour households than among rural self-employed; 15.82 for the labour households as against 3.16 for self-employed households (Government of India, 1981, p. 215) based on 1977-78 NSS rounds. Visaria (1980, p. 13) noted that the coefficient of correlation between the proportion of casual labourers and the incidence of unemployment in terms of person-days in the rural areas of 17 major States in India was high and significant. He further noted that a one percentage point increase in the proportion of casual labourers in the

TABLE IV. PERCENTAGE OF UNEMPLOYED TO TOTAL PERSONS OF AGE 5 YEARS AND ABOVE ACCORDING TO CURRENT DAY STATUS IN RURAL AREAS FOR MAJOR STATES

Sr. No.	State	Males	
		27th Round (1972-73)	38th Round (1983)
	(1)	(2)	(3)
1.	Andhra Pradesh	6·90	5·59
2.	Assam	1·46	1·88
3.	Bihar	5·67	4·24
4.	Gujarat	3·48	3·02
5.	Haryana	2·25	3·41
6.	Jammu & Kashmir	5·24	8·36
7.	Karnataka	4·65	4·69
8.	Kerala	12·84	13·39
9.	Madhya Pradesh	2·19	1·56
10.	Maharashtra	5·60	3·99
11.	Orissa	6·31	5·09
12.	Punjab	2·89	4·08
13.	Rajasthan	3·25	3·09
14.	Tamil Nadu	7·19	12·00
15.	Uttar Pradesh	1·95	2·16
16.	West Bengal	7·23	8·80
	All India	4·75	4·79

Source : NSS 38th Round, No. 315, pp. 25-26.

Note:— Since the present results of 38th Round are based on the data relating to the first two sub-rounds period, comparable results for the 27th Round and 32nd Rounds, particularly for the employment and unemployment pattern, are worked out also for the corresponding periods. See NSS 38th Round, pp. 1-2.

rural labour force would result in an increase of about 0.4 percentage point in the reported incidence of unemployment in terms of person-days.

The NSS data for the 27th Round and 38th Round show an increase in chronic unemployment for males and females both in the rural and urban areas. As regards current day status unemployment, for all-India (rural) the incidence of unemployment among males does not suggest a decline. But in as many as nine out of 16 major States, there is a rise in the incidence of unemployment. Tamil Nadu shows the most perceptible rise in the unemployment rate. The other States which show relatively high levels of incidence of unemployment are Jammu & Kashmir, Kerala and West Bengal. I should add, however, that the incidence of male unemployment has fallen in some of the States with very high incidence of poverty levels such as Madhya Pradesh, Orissa and Bihar. Yet, it should also be recognised that in these States poverty is found to be related more to low wage rates and to low labour productivity. We noted earlier that in these States between 1972-73 and 1982-83 growth rates of labour productivity have been either negative or low.

Evidence from field studies on rice cultivation in South India suggests that over a period, employment per hectare of cropped area under HYV has been falling. While one cannot generalise on the basis of these limited surveys, the results of these should be taken note of in considering the emerging trends.

The hired labour days per hectare of irrigated paddy increased from 127 during 1957-60 to 161 for *kharif* and 198 for *rabi* in 1968-69 with the shift to HYV in West Godavari district of Andhra Pradesh initially. By 1980s, there is a marked decline almost to pre-HYV level. This decline is also associated with a rapid decline in bullock labour days per hectare of irrigated paddy due to replacement of bullock labour by tractors in ploughing and transport (cited by Mohan Rao, 1986, p. 18). A similar picture is seen from North Arcot district of Tamil Nadu. In the initial period of HYVs the number of person-days per acre of HYV was 123 under well irrigated conditions, much more than under the canal irrigated conditions of West Godavari. It was 16 per cent more for improved local varieties in total labour required and 28 per cent in hired labour required (Chinnappa and Silva, 1980, p. 210). But the increase in the proportions of area under HYV since 1973-74 witnessed a continuous fall in the labour use per hectare as seen from the data of Comprehensive Cost of Cultivation Studies for the district. The index of labour use per hectare with 1973-74 as 100 showed a continuous fall and reached its lowest level, *i.e.*, 72.13 by 1981-82. In terms of labour use per quintal of output it was 79.20 hours in 1973-74 and only 49.50 hours in 1982-83. The steep decline reflects the increased mechanisation of irrigation, pumping and paddy threshing (Ramasamy *et al.*, 1986, Table 11 and p. 9). These studies are only illustrative. In a recent publication, Jayasuriya and Chand (1986) reviewed recent trends in labour absorption in wheat and rice based on evaluation of a large number of micro level studies and concluded that both in wheat and rice, labour absorption which was initially high during the initial stage of green revolution has

been declining due to adoption of labour saving innovations. The elasticity of employment with respect to output which was noted earlier to lie in the range of 0.3 to 0.5 (Sinha, 1979, p. 1510), should be even lower in the light of recent developments.

The declining trends in labour absorption effects of new technology need to be seen together with the rapidly declining productivity of capital within agriculture (Brahmananda, 1982, p. 47). As the declining factor productivity is combined with a shift in the terms of trade against agriculture since the latter half of the seventies, there has been a falling trend in the net income of farmers (Swamy and Gulati, 1986). Observations from the delta areas of Andhra Pradesh suggest that large farmers are shifting their investments and even their residences to urban locations. These trends, if persistent and widespread are likely to slow down the rate of growth of private investments, and possibly even employment. Similarly, the observed trends of shifts of lands to farm forestry, fish ponds and horticulture are likely to affect the rate of employment within agriculture, though these shifts promote private profits. Large scale conversions of vast tracts of fertile food growing land to plantations suit the interest of absentee landlords and farmers who want to retain control over land without being dependent on labour (Dakshina Murthy, 1986, p. 774) but are likely to affect employment.

Trends in Real and Money Wages of Agricultural Labour

The trends in real wages of agricultural labour, together with the trends in employment, provide the basic information to judge whether conditions are being created for the improvement of incomes of the poorest sections in rural society. There are a number of studies on the trends for the fifties and early sixties. Some suggest divergent conclusions depending upon the choice of initial year and the end period. The data of Rural Labour Enquiries for 1964-65 to 1974-75 indicate a decline in the average daily earnings in agricultural operations by men belonging to agricultural labour households by 12 per cent in real terms for the whole of rural India; at the State level real wages declined in all the States, except in Punjab, Haryana, Uttar Pradesh and Jammu & Kashmir (where it rose) and Karnataka (where it stayed the same) (Bardhan, 1984, p. 189). But when interpreting this result we should recognise that 1974-75 was not a good agricultural year as compared to 1964-65.

Some two-point survey results for the later period are available. For instance, the International Food Policy Research Institute (IFPRI) resurvey of 11 villages in North Arcot district reports increase in real wages between 1973-74 and 1982-83. Where payments were made exclusively in kind for such operations, kind payments increased by 11 per cent on an average for women, and by 21 per cent for men (Ramasamy *et al.* 1986, p. 16). These villages benefitted from pumpset revolution followed by HYV technology and cannot be considered typical even for the State of Tamil Nadu. There is need for considering a longer series and for a more recent period for discerning the trends in real wages. For this purpose we depend upon the only con-

TABLE V. EXPONENTIAL† GROWTH RATES (PER CENT) OF MONEY AND REAL WAGES OF MALE AGRICULTURAL LABOURERS FOR SELECTED CENTRES FROM 1974-75 TO 1984-85

Sr. No.	State	District	Village/Centre	Sowing		Harvesting		Field labour	
				Money wage	Real wage	Money wage	Real wage	Money wage	Real wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Bihar	Patna	Mahadevpur	6·4*	0·3	0·5	—6·2*	—	—
2.	Bihar	Muzaffarpur	Narasingpur	11·7*	5·2**	15·7**	9·6	—	—
3.	Bihar	Ranchi	Gaitalsood	7·0*	0·9	6·5**	0·4	—	—
4.	Haryana	Karnal	Uggarkheri	8·3*	1·7	5·1*	—1·3	—	—
5.	Madhya Pradesh	Hoshangabad	Sangkherakalan	10·1*	5·1**	10·0*	5·0*	—	—
6.	Madhya Pradesh	Surguja	Basdei	11·5*	6·4**	9·5*	4·5**	—	—
7.	Madhya Pradesh	Morena	Bijaipur	10·3*	4·3**	8·1*	3·2	—	—
8.	Madhya Pradesh	Satna	Kotar	9·7*	4·7**	9·1*	4·1**	—	—
9.	Kerala	Kozhikode	Koduvally	12·4*	6·5*	—	—	—	—
10.	Kerala	Palghat	Elapully	6·7*	3·7*	—	—	—	—
11.	Punjab	Ludhiana	Pakhowal	6·1*	—0·4	3·6	—2·7	—	—
12.	Rajasthan	Kota	Dhoti	6·6*	0·9	8·4*	2·5	—	—
13.	Tamil Nadu	Thanjavur	Alangudi	—	—	1·0	—4·0	—	—
14.	Tamil Nadu	Tirunelveli	Malayankulan	—	—	4·3*	—1·9	—	—
15.	Uttar Pradesh	Varanasi	Awajapur	10·4*	3·8	8·1*	1·6	—	—
16.	Uttar Pradesh	Varanasi	Keshavpur	10·0*	3·4	6·9*	0·5	—	—
17.	Andhra Pradesh	Krishna	Ghantasala	—	—	—	—	10·1*	4·8*
18.	Andhra Pradesh	Guntur	Tadikonda	—	—	—	—	12·7*	7·3*
19.	Andhra Pradesh	Rangareddy	Arutla	—	—	—	—	13·2*	7·8*
20.	Karnataka	Bangalore	Harisandra	—	—	—	—	9·7**	8·0
21.	Karnataka	Tumkur	Gaddahalli	—	—	—	—	6·5*	0·4

N.B.:—* Significant at 1 per cent level. ** Significant at 5 per cent level.

† Function fitted: $Y = ab^t$, where $b = \left(1 + \frac{r}{100}\right)$.

tinuous series available, and for the centres reported in *Agricultural Situation in India* despite some of the known limitations in the data. The trends in real wages by deflating the money wage level with Consumer Price Index for Agricultural Labour of the States in which they are located, adjusted to 1974-75, are studied for 21 centres. These covered the States of Bihar, Haryana, Madhya Pradesh, Kerala, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Andhra Pradesh and Karnataka. The data are not reported for other States. The analysis is done only in respect of male agricultural labourers and for sowing and harvesting operations in respect of States excepting Andhra Pradesh and Karnataka for which the data reported pertained to field labour. Log-linear equations are fitted to the data of each centre. The results show a mixed picture. In respect of harvesting, three centres in Madhya Pradesh alone show a significant and rising positive trend in real wages. For sowing one centre in Bihar, all the four centres in Madhya Pradesh and two centres in Kerala show a rising trend. As regards field labour all the three centres in Andhra Pradesh show a rising and significant trend during the period 1975-85. When the data of the centres are averaged (in the absence of feasibility of a better alternative), time trend of rise is seen for Madhya Pradesh (in respect of sowing and harvesting), for sowing in Kerala and for field labour in Andhra Pradesh.

A study of growth rates of agricultural wages in Haryana (Kumar and Sharma, 1983, pp. 205-206) for two periods, 1967-80 and for 1960-66, for different agricultural operations show that there is hardly any long run growth in real wages and there are violent fluctuations with low wages between 1967-74. The green revolution period 1967-80 was marked by comparatively a better picture, but the estimates of growth rates during this period except for sowing, and for picking of cotton were not found to be significant.

Thus, the trends in real wages do not provide a uniform picture. While the trends of rise in Andhra Pradesh can be meaningfully explained in terms of growth rate of the seventies, this is not so in respect of Madhya Pradesh.

The money wages in most of the centres as in 1984-85 ranged between Rs. 6 and Rs. 11 for sowing and between Rs. 7.50 and Rs. 10.50 for harvesting. Punjab, Haryana and Kerala recorded higher wages. The wages obtaining may be compared with what C. Gopalan, a former Director-General of Indian Council of Medical Research, has worked out as the requirement for least-cost balanced diet. They are Rs. 10 to Rs. 11 per day for a family. Assuming that the food expenditure constituted not more than two-thirds of the total expenditure if a basic minimum standard of living is to be assured, he has estimated that about Rs. 16 per day should be the minimum wage needed for a family at 1979 level of prices prevailing in Hyderabad. Refining the exercise further and providing for weekly holidays and some leave periods for unanticipated loss of earning, Gopalan works out the daily minimum wage for a family at Rs. 22 (Sankaran, 1984). The wages are different from this level even in Punjab and Kerala.

Trends in Annual Incomes of Agricultural Labour

The trends in annual incomes are much more important than the trends in wages. Bardhan's analysis (1984, p. 191) based on the data for Rural Labour Enquiries suggests that between 1964-65 and 1974-75 annual wage income per agricultural labour household declined in all the States (including the highest growth region of Punjab-Haryana) except in Uttar Pradesh; for rural India as a whole it declined by 16 per cent during this period. These results are subject to two limitations: firstly, the latter year was not a good agricultural year weatherwise, and secondly, total annual incomes including non-wage incomes may give a different picture (Laxminarayan, 1977). However, a study for the two time periods 1963-64 and 1977-78 by Bardhan (1984, p. 192) showed that the proportion of agricultural labour households below the poverty line for rural India as a whole increased somewhat from 52 to 56 per cent. Evidence from Punjab for the post-green revolution period suggests that with high growth rates, agricultural labourers also gain and the proportions of poor in this group decline (Chadha, 1984; Dantwala, 1986). But in the context of low growth rates particularly in poorer regions, it should not be surprising if there has been no improvement in real income position of agricultural labour at the aggregate level.

Even when trends of hired labour and unemployment show a mixed picture, there is an evidence of declining access for agricultural labourers to common property resources (Jodha, 1986). Large scale privatisation of common property resources has taken place during the last three decades. Though privatisation of common property resources has been done largely to help the poor, 49 to 86 per cent of the privatised common property resources in the surveyed 21 districts of dry regions of seven States ended up in the hands of non-poor in different areas. Furthermore, most of the land received by the poor households was also given up by them as they do not have complementary resources to develop and use the newly received lands. The study also revealed that per household annual income derived from common property resources ranged between Rs. 530 and Rs. 830 and is much higher than the income generated by the anti-poverty programmes. The rapid decline of common property resources and the deprivation of free access to fuel in particular, combined with rapid depletion of forests to meet urban commercial and household requirements has been placing enormous burden particularly on rural women apart from the ecological damages that such developments have been leading to.

Commercialisation and market integration of tribal areas, coupled with the replacement of tribal systems of tenure by individual system has been leading to growing landlessness, loss of food security, and increasing deprivation of the access of tribals to employment and incomes in forests (Prakash Reddy, 1983). The new developments are also creating a sub-stratum of new classes among the tribals aligned with the elite from non-tribal groups.

Trends in Productivity of Marginal and Small Farms

Recent trends in productivity of marginal and small farmers as compared to other groups require attention in the context of growing proportions of small and marginal farms. Farm data of the fifties and sixties showed that there was an inverse relationship between farm size and yield per operated hectare. These data have become the basis for the beneficiary oriented policy of small and marginal farm development, which it is hoped, will achieve equity while simultaneously contributing to growth. A large number of field studies from different parts of the country suggest that the relationship has been weakening for some time. More recent studies lend further evidence. The NCAER data referred to earlier also showed negative rates of growth of productivity of marginal farms and lower rates of growth of productivity of small farms. Recent findings pertaining to several parts of the country (Bhalla and Chadha, 1983 for Central Punjab Plains; Ghosh, 1986, for West Bengal; Krishna Mohan for Nagarjuna Sagar Project area, Andhra Pradesh, 1985; Ramana and Sharma for West Godavari delta, 1980) show that the inverse relationship is being weakened considerably.

A healthy trend in the seventies is the decline in the share of primary sector and of agriculture in the total labour force as seen in the data of Census as well as NSS. V.K.R.V. Rao characterised this as an arresting of 'structural retrogression'. The NSS data show an increase in the share of non-agricultural to total workers from 17 per cent in 1972-73 to 23 per cent in 1983 among males and 10 to 13 per cent among females in the rural areas. A major share of this increase is due to the extension of social and economic infrastructure on public account to the rural areas. Growing rural-urban trade and shifts in consumer preferences due to increased urban contacts resulted in increased proportion of traders. Manufacturing *per se* accounted only for less than one-fourth of the increase in non-agricultural proportions between 1972-73 and 1983. It needs also to be noted that even while the percentage of people occupied in agriculture declined from 69.78 in 1971 to 66.69 in 1981 as per the Census, there was even more rapid rate of decline in the share of agriculture in Net Domestic Product (NDP) from 42.76 in 1970-71 to 35.52 per cent in 1980-81. The rate of absorption of labour from the agricultural sector does not correspond to the rate of growth of the non-agricultural sector as judged by the changing contribution to NDP. As a consequence, the per capita NDP in the agricultural sector has risen only marginally from Rs. 405.66 in 1951-53 to Rs. 415.61 in 1976-83 at 1970-71 prices (Dandekar, 1986, p. A-93).

Impact of Specific Anti-Poverty Programmes on the Poor

We may now turn to the impact of specific anti-poverty programmes which have gained significance especially since the Sixth Five Year Plan period. The two major programmes are employment programmes and the asset development programmes. During the five years from 1980-81 to 1984-85 additional employment created under the employment programmes was of the order of 1.4 million man-units (man-unit=300 days) per annum. The estimated unemployed persons by daily status measure in 1980, considering labour house-

holds alone in which the total unemployed formed 54.9 per cent, were around 11 million. As such, the contribution of National Rural Employment Programme (NREP) to the reduction of unemployment may be inferred to be small. The Integrated Rural Development (IRD) Programme was much vaster in scope and coverage than the NREP. After a meticulous review of the evidence on the implementation of IRDP, Rath (1985, p. 240) concluded that at the end of seven years of operation of IRDP, only about three per cent of the poor households in rural India would have been helped to rise above poverty, even if for a while only. The quantitative magnitudes could be debated; but the essential point is that despite achievement of targets in other respects, the programme's impact on the poor was inadequate. Dandekar (1986, p. A-95) estimated the share of the expenditure on these programmes for this period taking into account also the bank credit to the beneficiaries under the IRDP in the estimated Net National Product of agriculture, forestry, fishery and unregistered manufacturing sector. The share was put at 2.15 per cent. It was concluded that this was unlikely to make any visible impact on the situation. The expenditure on specific anti-poverty programmes was found to be inadequate also when it was related to the needs. After a careful estimation of poverty proportion for four years, *viz.*, 1971-72, 1972-73, 1977-78 and 1983, Dandekar concluded (1986, p. A-98): "The proportion of population below the poverty line, namely, 44.4 per cent in 1983 is, of course, below the same in 1971-72, namely, 46.0 per cent. But the decline is too small, only about 1.6 percentage points in 11 years, to derive comfort from. The size of the problem is simply too large compared to the size of the anti-poverty programmes. Incidentally we may note that the small decline in poverty since 1977-78 is partly due to the prices of primary food articles not rising to the same extent as the rise in prices of other commodities."

POLICY THRUSTS FOR ELIMINATING POVERTY AND FOR ACHIEVING GROWTH WITH EQUITY

I am conscious that a whole range of institutions have been expanded and strengthened especially since the mid-seventies, and these have the potential to contribute to growth as well as reduction in poverty. But this is in future, and given right policies. I also recognise that foodgrain production has been maintained at high levels in recent years despite floods and droughts in several parts of the country, and this is an index of the resilience that has been built into the system. But this should not blind us to unmitigated rate of unemployment and to stagnation in real wages affecting the poorest sections of the society. I would have liked to present firmer, more systematic and comprehensive evidence on aspects relating to unemployment and real wages within agriculture. The overall indications, however, appear to be clear: there is a stubborn persistence of rural poverty at high levels, and the challenges ahead in eliminating poverty within less than a decade and a half, before we enter into the 21st century, are great.

The demographic context of growing total and rural population, and also of labour force, and the short time-frame call for effective and mutually rein-

forcing thrusts of policy. There is need for fusion of growth and equity policies and for orienting the range of institutions that have been built up over the period to achieve this end. Eminent scholars from this august body will be presenting keynote papers on these aspects and I do not consider it either wise or appropriate to dwell on these issues except to highlight very briefly some critical aspects of policy which flow from my earlier presentation.

The role of technology is recognised to be important in achieving the objectives of growth with equity. It could ease the hard options in the area of agrarian reforms and also in relation to macro policies. But it is the policy thrusts that guide the direction of technology, *i.e.*, towards the benefits of poorer regions and poorer people. An increased emphasis on agricultural development in the Eastern part of the country and on dryland development, which is now a recognised aspect of agricultural policy, has the potential to contribute to growth and equity simultaneously, and also towards resolving the imbalances in crop production. In both groups of regions there is need to forge effective linkages among technology, infrastructural development and institution building for bridging the gap between the laboratory and the farm. Such linkages could be effective only in the context of decentralised structures which could transmit micro signals derived from location-specific research and recommendations. Micro signals are also needed to ensure that mechanical technology which is found to follow biological technology is promoted only when it has the potential to break the constraint to land augmenting technology and is consistent with the goal of augmenting employment. Credit institutions have a vital role in showing sensitivity to the differential effects of mechanical technology on employment under varying agro-economic conditions.

In the North-Western region the progress of technology associated with green revolution has sharpened the social differentiation between landowners and the landless wage labour, but has not resulted in deep contradictions in the context of relatively high land-man ratios. High growth rates in agriculture, significantly above the rates of growth of population, resulted also in the reduction of poverty. This has created a feeling in some quarters that solutions to growth with rapid poverty alleviation could be achieved even in the absence of attention to redistribution of the existing assets.

Emerging Problems

The developments in the North-Western region are unlikely to be repeated in the Eastern region of the country or in the dry regions. In the Eastern region even with developments in irrigation infrastructure, the progress of technology is likely to be halting and slow in the context of widely prevalent share-cropping, small sized and extremely fragmented holdings, 'forced commerce', low levels of development of credit and marketing, and small sized rural communities with inadequate marketing facilities. For the progress of technology, security to the share-cropper, record of rights in land and consolidation of holdings will be found necessary. As technology opens up prospects of higher return to investment with development in irrigation infrastructure, it may also be expected to induce changes in the agrarian structure

towards the emergence of a class of entrepreneurs who will squeeze out the share-croppers, and we should expect a larger class of landless labour and a higher degree of casualisation. Intensification of rural conflicts as privatisation begins to sweep away the traditional systems of survival, could also be expected. Even in dry areas, irrigation and infrastructural development are likely to result in speculation in land, a much more skewed distribution and trends towards capitalist development. While public investments combined with technological advances lead to the emergence of an entrepreneurial class within agriculture, the consequent proletarianisation has negative effect. Where the latter effects are dominant, progress in poverty alleviation is bound to be slow. In the context of possibility of such trends, even when radical land reforms are considered infeasible on political grounds, there is need for effective implementation of provisions of existing ceiling and of tenancy laws especially in areas which benefit from public investments in irrigation.

As demographic pressures become more intense, small and marginal farmers in all regions need to be assisted to raise the levels of intensity of cropping, to shift to labour intensive and high value crops, and to enterprises such as dairy and poultry. These will be facilitated if the rural development programmes shift from individual to group oriented approaches and enable these groups to overcome the constraints in factor, product and credit markets. The more intractable problem relates to landless labour. The bulk of them belong to socially backward groups, such as Scheduled Castes. They will also gain by higher rates of agricultural growth. But as the elasticity of employment with respect to agricultural output is likely to be lower, even at higher rates of agricultural growth, crop production is unlikely to absorb them. Much vaster and bolder employment programmes will be necessary. A bolder programme, *i.e.*, of the order of Rs. 5,000 crores per annum as against the current outlay of around Rs. 1,000 crores per annum on these in the Seventh Five Year Plan, is suggested (Dandekar, 1986). Such a programme is recommended on several grounds: it will meet the employment needs of the wage earners and simultaneously it will strengthen the position of rural markets, as agriculture shifts to relatively higher price and income elastic commodities like vegetables, milk, poultry products, etc. Integration of employment programmes with social forestry programmes, with programmes for development of land and water resources and with the development of social and economic infrastructure will help eco-development, agricultural development and also improve the quality of life in the rural areas. Larger buffer stocks, now available, provide an opportunity for launching such a programme. There are no doubt organisational and resource problems; even the current outlays on the employment programmes have not been found to be fully utilised and even where utilised are not always found to create durable assets; there will be a need to recover at least a part of the incremental gains from the big and large landowners who gain from the rise in the capital value of their assets; and, there is also a need for obtaining a better understanding of the employment pattern and labour markets at a disaggregated level, and to match such understanding with the requirements of developmental projects within the area.

These problems are not difficult to resolve with commitment : we have adequate lessons from our experiences with the programme. At the root of the problem is a socio-economic structure which is slow to respond to the needs of the unemployed.

It is also important to strengthen forms of economic organisation which will not result in the drain of rural resources for the consumption of the elite and for investment for meeting the needs of the elite in the urban areas. Such organisations should enable investment of rural surpluses for generation of rural employment by creating effective forward and backward linkages. As agriculture moves into the stage of development in which agro-processing becomes more dominant, the control of big business over agriculture is likely to be much more pervasive. It drains rural resources through its control over markets. It is public policy which should shape social transformation consistent with the needs of agricultural growth and the generation of non-agricultural employment for agricultural households in manufacturing, trade and services in the vicinity of rural areas.

Finally, the tasks of social transformation for sustained and rapid reduction of rural poverty are not easy without the poor gaining control over rural economic and social institutions and over state, particularly in the context of unequal distribution of assets both in the rural and urban areas. Anti-poverty programmes are likely to result in considerable leakages to the non-poor without exercise of informed group power of the poor. It will be necessary to build into the anti-poverty programmes the conditions for facilitating the emergence and exercise of the group power of the poor at the grass-roots level and also for influencing state policies.

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