

## **Land, Labour and the Level of Living in Rural Punjab**

*Sudipto Mundle*

### **1. Introduction**

What happens to the incidence of rural poverty in the context of a dynamic and rapidly growing agrarian sector? As one of the most dynamic agrarian regions of the country, rural Punjab (including Haryana) during the sixties and seventies presents an interesting case for addressing this question of the impact of agricultural growth on rural poverty.<sup>1</sup> In this chapter an attempt is made to measure the incidence of poverty in rural Punjab during the sixties and early seventies and to analyse the factors underlying the level and trend of poverty.

For this purpose, it is useful to note at the very outset that the rural poor do not form a homogeneous category. They are differentiated not only in terms of the intensity of deprivation but also functionally in terms of their roles and positions in the structure of agrarian relations. Accordingly, the factors governing the incidence of poverty among different segments of the rural poor may also vary. The bulk of the rural poor in Punjab may be broadly classified into two strata:<sup>2</sup> The class of *cultivators* who earn their living *primarily* from the produce of their operated holdings (owned or leased in) and the class of

1 The same question of the impact of agricultural growth on rural poverty in the context of a relatively backward and slow growing agrarian region was explored in a companion chapter based on the evidence from rural Bihar (chapter 3). The region described as rural Punjab in this chapter refers, unless otherwise specified, to the rural areas of the present states of Punjab and Haryana. The erstwhile state of Punjab was separated into the two states of Punjab and Haryana since 1st November 1966.

2 I. Rajaraman op. cit.

*agricultural labourers* who earn their living *primarily* by hiring themselves out as wage labourers.

In the case of the cultivating household it is easy to see that its income, or the level of living, would depend not only on the general level of agricultural production but also on the household's command over land — the principal asset in agricultural production — which largely determines the *share* of its own claim out of total production. To the extent that a portion of the household's share of total produce is also marketed, its income would also rise or fall with a rise or fall in agricultural prices. Finally, given a cultivating household's family income, its per capita income or the actual level of living would obviously vary inversely with family size.

In the case of agricultural labourers, the number of persons offering themselves for wage labour may rise directly as the consequence of population growth — the pressure of population on land. The number could also rise, however, as a consequence of changes in the distribution of land independently of the effects of population growth. This rise in the supply of agricultural labourers might be matched by growing demand.

However, if the growth of agricultural production is not proportionate, or takes a form which is less labour intensive, such that the increased labour supply is only partially offset by increased labour demand, then this would adversely affect either the wage rate, or the average man-days of employment available per labourer, or both.<sup>3</sup> The effect of these factors on agricultural labourer's average incomes may be either reinforced or neutralised by a change in agricultural price, depending on the division of wages between that paid in cash or in kind and the relationship of money wages to agricultural prices. Finally, for a given level of real income per agricultural labourer, the *per capita income* of agricultural labour households would vary directly with the number of earners per family and inversely with family size.

The different factors thus identified as affecting the levels of living of the two major sections of the rural poor may be conveniently classified into three broad groups.<sup>4</sup> First, we have factors like the level of agricultural production and agricultural prices which affect the income of both cultivators and labourers — while the effect of increased agricultural production on both classes is expected to be positive, *a priori* the expectations about the net effect of agricultural prices is less clear. The observed effect of these variables in rural Punjab, along with the measured incidence of poverty, is analysed on the basis of time series data in Section 2.

Next, we have factors like the distribution of land, which affect primarily the income of cultivating households, which are examined in Section 3. Factors like the supply of agricultural labourers (which is of course itself

3 It may be mentioned here that so far, in India, organisation of workers and other instruments which enhance the bargaining strength of agricultural labour have mainly had the effect of shifting the burden of demand-supply adjustments to the period of average employment per worker, the wage rate having become less flexible.

4 For a more detailed formulation of the relationship between the incidence of poverty and its underlying determinants for the two classes see the previous chapter.

partly determined by changes in land distribution), wage rates and employment, which primarily affect the incomes of agricultural labour households, are taken up for analysis in Section 4. The main conclusions have been summarised in Section 5.

## 2. Poverty, Production and Prices

The choice of an appropriate measure of the incidence of poverty is an extremely difficult one. The index chosen should presumably be able to capture not only the proportion of population with consumption levels which fall below some minimum norm but also the *extent* to which the consumption of different members, or segments, of the population fall below the minimum norm. Sen's index is an elegant measure which satisfies this criterion.<sup>5</sup> But by the same token it is a fairly complex index especially when applied to grouped data. A measure which is intuitively more appealing, though crude, is simply the proportion of population falling below the minimum norm — the so-called "head count" method. The main disadvantage of this measure is that it fails to capture the amount by which different segments of the poor fall short of the minimum standard of living. The measure is as sensitive to the number of persons with consumption just below the minimum norm as to the number of persons with consumption far below the norm.

This problem is further compounded by the fact that the problem of defining the appropriate minimum consumption norm itself has proved to be intractable.<sup>6</sup> One way of getting around both problems is to conduct the analysis in terms of a set of poverty lines rather than a single norm. The analysis would then be much less sensitive to the specification of a particular consumption norm and the poverty measure would also reflect in some degree the spread of the population between different levels of poverty.

The 26th round consumer expenditure survey of the National Sample Survey gives estimates, by States and by per capita expenditure classes, on the average calorie and protein intake per day per consumer unit. The calorie intake per consumer unit is easily converted to calorie intake per capita since the average number of consumer units and average household size is also given for each household expenditure class. These tables can then be used to work out the required per capita expenditure corresponding to any calorie norm for the given diet patterns and consumer preferences obtaining in a particular state.

In the present exercise the first poverty line was demarcated as that corresponding to the intake of 2,435 calories per head per day, the norm recently adopted by the Planning Commission on the basis of the Nutrition Expert

<sup>5</sup> A.K. Sen, *op. cit.*

<sup>6</sup> For a discussion of these issues and references to the relevant literature in the Indian context, see previous chapter.

Group's recommendations.<sup>7</sup> This works out to about Rs.43 at 1972-73 prices in Punjab in terms of consumer expenditure patterns prevailing in that region. A second poverty line was demarcated at an expenditure level 10 per cent below the first line and a third poverty line at an expenditure level which is 25 per cent below the top line. This lowest line, incidentally, corresponds to Sukhatme's suggestions for reducing the Expert Group's recommended minimum calorie norm which the Planning Commission itself took into account in determining the poverty line.

The three poverty lines were projected to other years for the reference period 1963-64 to 1973-74 using the Agricultural Labourers Consumer Price Index (ACPI) as deflator. It should be indicated here that the choice of a single deflator for different expenditure levels is inappropriate when the prices of different consumer items, with varying weights in the consumption basket of different expenditure classes, have changed at different rates. However, it is easy to see that this is a particularly serious problem while analysing, for example, the changes in inequality of consumer expenditure, etc. For computing the current price values of a given real basket of "poverty line" consumption the ACPI is probably not a bad deflator.

The proportions of rural population with consumption falling below the three poverty lines defined above, which we may describe for convenience as the proportions of population "below" ( $P_1$ ), "well below" ( $P_2$ ) and "far below" ( $P_3$ ) the poverty line, have been shown for each year between 1963-64 and 1973-74 in Table 4.1. The proportion of rural population below the poverty line in Punjab appears to have varied in the range of between 30 per cent to 40 per cent. However, the proportion was exceptionally high (44.58 per cent) in 1967-68 following two years of poor agricultural performance in 1965-66 and 1966-67 and exceptionally low in 1972-73 (25.18 per cent) following the bumper harvest of 1971-72.

Furthermore, there appears to have been a trend decrease in the proportion of population below the poverty line along with a trend increase in per capita production. The kind of lagged inverse relationship suggested here between agricultural performance and the incidence of poverty seems to be consistent with the analysis of determinants which follows. While the proportions of population well below and far below the poverty line are by definition much lower, the pattern of change at these levels is again similar.

In the regression analysis which follows, we have tried to examine whether there has been a significant trend decrease in the incidence of poverty in rural Punjab and whether the variations in poverty incidence are significantly related to variations in agricultural performance and the level of consumer prices. The variable employed here as an index of agricultural performance is not total production but the per capita production of foodgrains, since it has been pointed out that the latter is really a better measure of the effective pur-

7 See Planning Commission. *Report of the Task Force on Projection of Minimum Needs and Effective Consumption Demand* (Government of India, 1979).

Table 4.1 Poverty, Production and Prices in Rural Punjab  
(including Haryana)

Year	% of Population under the Poverty line			Per Capita <sup>a</sup> Foodgrain Production (kg)	Agricultural Labourers Consumer Price Index (1960-61 = 100)
	Below ( $P_1$ )	Well Below ( $P_2$ )	Far Below ( $P_3$ )		
(0)	(1)	(2)	(3)	(4)	(5)
1963-64	39.49	31.42	20.63	346	114
1964-65	41.12	30.35	18.57	422	139
1965-66	40.89	32.93	19.06	313	138
1966-67	38.52	30.53	18.78	386	174
1967-68	44.58	36.18	24.02	527	193
1968-69	34.03	26.22	15.13	512	193
1969-70	37.86	30.25	16.19	627	196
1970-71	35.44	27.42	13.80	648	194
1971-72	31.31	24.60	15.26	662	205
1972-73	25.18	18.64	9.52	616	228
1973-74	34.00	25.26	13.79	597	273

Sources: *National Sample Survey: Tables with Notes on Consumer Expenditure, various rounds.*

Ministry of Agriculture: *Area and Production of Principal Crops in India* and Directorate of Statistics: *Statistical Abstracts of India.*

Note: <sup>a</sup> Per capita foodgrain production has been calculated by dividing total estimated foodgrain production of Punjab (including Haryana) by its total rural population.

chasing power of the poor.<sup>8</sup> In any case, it will be evident that in a region like the Punjab, which is primarily a grain producing area, movements in the index of total crop production and foodgrain productions are likely to be similar. The index used for consumer prices is the Agricultural Labourers Consumer Price Index (ACPI) which is perhaps the best available index of prices corresponding to a poverty level basket of consumption goods in the rural sector.

The main results of the regression analysis have been summarised in Table 4.3. Sets of four regressions are shown for each of three poverty indices  $P_1$ ,  $P_2$  and  $P_3$ . In the first set of regressions (2.1, 2.5, 2.9) each poverty index was regressed simultaneously on per capita foodgrain production of the Punjab-Haryana region ( $f$ ), the ACPI ( $p$ ) and the index of time ( $t$ ). It will be noticed that while the coefficient of explained variation may be as high as 68 or 70 per cent, none of the coefficients of independent variables are significantly different from zero on a two-tailed  $t$ -test. The first set of regressions is actually not

<sup>8</sup> Centre for Development Studies *Poverty, Unemployment and Development Policy: A Case Study of Selected Issues with Reference to Kerala* (U.N. New York, 1975).

usable at all since there is extremely high multicollinearity between the different independent variables as shown in Table 4.2. Both per capita foodgrain production and prices show a significant trend increase and they are both highly correlated with the time variable as well as with each other. Accordingly, three other sets of regressions are presented in Table 4.3 where the poverty indices have been regressed separately on per capita foodgrain production (2.2, 2.6, 2.10), the ACPI (2.3, 2.7, 2.11) and time (2.4, 2.8, 2.12). In all cases, the results reported here are for the linear forms which are preferred as giving better fits than the semi-log and double-log forms which were also tried.

Table 4.2 Correlation Matrix for Independent Variables

	$f$	$p$	$t$	Slope of Linear Trend Line
$f$	1.000	0.745	0.909	33.6545 (5.3635)*
$p$	0.745	1.000	0.945	12.6818 (8.6955)*
$t$	0.909	0.945	1.000	

Figures in parentheses denote  $t$ -values.

\*denotes significance at 1 per cent level.

The agricultural year for which each year's foodgrain production is reported does not correspond with the annual survey period for which each year's consumption is reported. The consumption of a given year may therefore be related either to the current year's production or the previous year's production. The lagged relationship has been reported here since it gives a slightly better fit. It will be observed that all three poverty indices show an inverse relationship with per capita foodgrain production. The coefficients are all significant at the 1 per cent level in a two-tailed test and  $f$  alone is found to account for as much as 67 per cent of the variations in  $P_1$ , 63 per cent in the case of  $P_2$  and over 70 per cent in the case of  $P_3$ . All three poverty indices also appear to be inversely related to the consumer price index. However, the relationship is much weaker here, being significant only at the 10 per cent level, and the coefficient of explained variation is only around 35 to 38 per cent. Finally, all three poverty indices show a significant trend decline in the incidence of poverty, the coefficient of the time variable having negative sign and being significant at the 1 per cent level.

Thus, as anticipated in our earlier *a priori* reasoning, a change in per capita foodgrain production has shown a strong inverse effect on the incidence of rural poverty in the Punjab region. The actual elasticities turn out to be 0.44, 0.49 and 0.73 for  $P_1$ ,  $P_2$  and  $P_3$  respectively at the mean level of per capita foodgrain consumption, implying that for a given proportionate increase in the latter there is a greater proportionate reduction in the number of persons "well

below" the poverty line than of those "below" the line and an even greater reduction of the proportion "far below" the line.<sup>9</sup> Furthermore, if the true relationship between poverty incidence and per capita production approximates to our fitted linear regression, it then follows that the relevant elasticity rises as we move from lower to higher levels of per capita production i.e. a given increase in production leads to a higher proportionate reduction of poverty incidence at relatively higher levels of production. Both these features of the poverty-production relationship were also noticed in the study of Bihar in the previous chapter.

The effect of a change in the level of prices is more difficult to interpret. This is partly because of inadequacies of the ACPI deflator itself, which we have referred to earlier, but also because the ACPI is employed in defining the poverty line which would tend to build in a positive statistical association between price and poverty quite independently of any real economic relationship. Nevertheless changes in the level of consumer prices seem to have had an inverse effect on poverty incidence, though the effect is much weaker here than in the case of production.

It was indicated earlier that the net effect of consumer prices on rural poverty could not be predicted *a priori*. Other things remaining the same, a rise in prices would reduce the level of living of agricultural labour households but its effect on the lower strata of the peasantry would depend on whether they are net sellers or net buyers of agricultural commodities. If the latter are net sellers and their numbers dominate the ranks of the rural poor, then one would expect the net effect of a rise in grain prices and other agricultural prices on the incidence of poverty to be negative, i.e., a positive income effect.

There is some evidence to suggest that this is indeed the case in Punjab. Even small farmers in this region have a net marketable surplus and while the number of agricultural labourers in the region has been growing faster than that of cultivators, in absolute terms they still form a much smaller section of the rural population than cultivators as shown in Table 4.7. On the other hand if we take the population, below the poverty line only, agriculture labour households would account for about half of this category.<sup>10</sup> Hence, even though the positive income effect of a price change for cultivators is dominant, it tends to be offset by the opposite effect on agricultural labourers, such that the net effect of price on incidence of rural poverty is negative but weak.

Since changes in both per capita foodgrain production as well as consumer prices are inversely related to the incidence of rural poverty, and since both these variables have shown a significant trend increase (See Table 4.2) in

9 The elasticities are calculated from equation (2.2), (2.6) and (2.10) which give the highest *t*-values of the coefficient of per capita foodgrain production within each set of equations corresponding to  $P_1$ ,  $P_2$  and  $P_3$  respectively.

10 See I. Rajaraman op. cit. For 1970-71, Rajaraman estimated that *agricultural labour* households accounted for about 40 per cent of all households below her poverty line for Punjab state (not including Haryana) while our estimate for Punjab (including Haryana) indicates that all *rural labour* households together accounted for 49 per cent of the population below our poverty line (see footnote 20 and related section in the main text). Since then these proportions would have risen since the population of labour households has grown faster than the rest.

the Punjab region, it is not surprising that the incidence of poverty has shown a significant decline. What this does indicate is that the other secular effects which might have been at work have either reinforced the effect of production and price changes or, at any rate, not offset these effects.

It is interesting to compare these results with other analyses of the incidence of poverty in rural Punjab. In her earlier study, Rajaraman compared the data for 1960-61 with that of 1970-71 and concluded that the incidence of poverty was increasing. This seemed to conflict with available evidence which suggested that the average real incomes of both cultivators as well as agricultural labourers may have actually gone up in Punjab. Rajaraman herself interpreted the evidence to suggest that while average incomes for both strata increased, the distribution of income within each strata became more unequal.

It was, however, not quite clear why, for instance, the inequality of income distribution *within* the class of agricultural labourers should have increased. One reason for this could be the large scale immigration of labour into Punjab. It is possible that the rural labour market is segmented, with migrant labour being paid lower wages. In any case Ahluwalia<sup>11</sup> subsequently showed that there was no trend increase or decrease in the incidence of poverty in Punjab if one estimated trend on the basis of several observations instead of comparing only two points of time. It now appears from our own estimates, based on continuous time series for the period 1963-64 to 1973-74, that in this particular region, there was actually a significant trend decline in rural poverty.<sup>12</sup>

These differences in results underline the need for extreme caution in drawing inferences about secular tendencies on the basis of only a pair of observations or a few observations. The differing sets of observations would also seem to account for the fact that, while here we find a strong inverse relationship between production performance and poverty incidence in rural Punjab, Ahluwalia found this relationship to be either insignificant or extremely weak depending on how the poverty measure was defined. Our estimates for a dynamic agrarian region like the Punjab, when compared with estimates for the relatively backward and slow growing state of Bihar, also underline the importance of sharp inter-regional variations which make it difficult to draw any simple generalisations about rural trends in the Indian economy as a whole.

Finally, it should be noted that in all the usable regression results

11 M. Ahluwalia op. cit.

12 It should be emphasised however that the Rajaraman estimates pertain only to the state of Punjab and not Punjab plus Haryana as in the case of the Ahluwalia exercise and the present one. There are also other differences in the definition of variables, methods of estimating poverty etc. which actually preempt any strict comparison between the three studies. At the same time it needs to be noted that our findings seem to be confirmed by a cross section analysis of cultivating households in Punjab State just published by Bhalla and Chadha "Green Revolution and the small Peasant: a study of income distribution in Punjab Agriculture" *Economic and Political Weekly* May 1982. This study indicates that all cultivators, including small and marginal farmers, have recorded substantial gains in real income levels following the Green Revolution. The gains of the new technology, however, have been distributed more or less in proportion to the highly skewed distribution of land such that the big farmers have gained much more than the small peasants.



presented in Table 4.3 the constant term is large, positive and highly significant. What this indicates, and in this the Punjab results are quite similar to that for Bihar, is that there are important effects, apart from production and price, which we have not analysed here but which account for the high incidence of poverty even in Punjab. The evidence on some of these other factors such as the distribution of land, or wage rates and employment, is taken up for discussion in the following sections.

### 3. The Distribution of Land

It was indicated at the outset that the distribution of land is one of the important factors setting the basic conditions of the agrarian system within which the actual incidence of poverty may rise or fall in response to changes in the level of production or prices. The results of the regression analysis are consistent with this perspective for they do indicate that there are strong influences other than production and prices which make for a high incidence of poverty even in a relatively dynamic agrarian region like the Punjab.

Unfortunately the effect of land distribution could not be explicitly captured in the preceding quantitative analysis since we do not have the necessary time series data on changes in the distribution of land. We do have, however, the three land holding surveys conducted by the National Sample Survey for the years 1953-54, 1961-62 and 1971-72 which enable us to say something about changes in the distribution of land over time. But it is important to repeat here our earlier remark about the need for extreme caution in drawing inferences about secular trends from bench mark observations at a few selected points of time.

The distribution of area owned and area operated by size class of holdings has been shown for the three years 1953-54, 1961-62 and 1971-72 in columns 1 to 6 of Table 4.4.<sup>13</sup> The close correspondence between the share of area owned and share of area operated for most size classes is evident for all three years. This would indicate that the net leasing *across* size classes of holdings has been quite limited all along. However, this evidence by itself should not be taken as indicating a very low incidence of tenancy since, as shown in columns 7 to 10 of the same table, the actual incidence of land leasing is by no means negligible.

On the average about 30 per cent of total area owned was leased out in 1953-54, though it was much lower than this proportion for some size classes

<sup>13</sup> The data for 1953-54 includes the PEPSU region which was amalgamated to Punjab in the States reorganisation of 1956, but it also includes a small portion of erstwhile Punjab which were transferred to Himachal Pradesh in the same reorganisation and therefore excluded in later years. Also, the definition of ownership in 1953-54 was narrower and did not cover ownership like possession as in later years. For these and other reasons the comparability of the 1953-54 survey with the later years is impaired. The data for 1971-72 includes Haryana State which was a part of Punjab prior to 1966.

Table 4.3 Regression of Poverty Incidence on Selected Explanatory Variables

Equation Number	Dependent Variable	Constant Term	Coefficient of the Independent Variable				R <sup>2</sup>	F
			Foodgrain Production per capita ( <i>f</i> )	Agricultural Labourer's Consumer Price Index ( <i>p</i> )	Time ( <i>t</i> )			
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
2.1	P <sub>1</sub>	39.6603 (1.5417)	-0.0158 (0.4121)	0.0771 (0.5245)	-1.6068 (0.5087)	0.681849	5.0007	
2.2	P <sub>1</sub>	52.8112 (13.4486) <sup>a</sup>	-0.0330 (4.2683) <sup>a</sup>			0.669349	18.2183	
2.3	P <sub>1</sub>	49.8811 (8.0420) <sup>a</sup>		-0.0715 (2.1989) <sup>d</sup>		0.349474	4.8350	
2.4	P <sub>1</sub>	43.8289 (17.9125) <sup>a</sup>			-1.2075 (3.3472) <sup>a</sup>	0.554534	11.2036	
2.5	P <sub>2</sub>	39.3443	-0.0237	0.0174	-0.3961	0.63167	4.0016	
2.6	P <sub>2</sub>	42.4832 (11.5559) <sup>a</sup>	-0.0284 (3.9210) <sup>a</sup>			0.630753	15.3740	
2.7	P <sub>2</sub>	40.3492 (7.3567) <sup>a</sup>		-0.0715 (2.2107) <sup>d</sup>		0.351931	4.8874	
2.8	P <sub>2</sub>	34.7880 (15.5834) <sup>a</sup>			-1.0435 (3.1702) <sup>b</sup>	0.52756	10.0500	
2.9	P <sub>3</sub>	24.5936 (1.3503)	-0.0191 (0.7010)	0.0257 (0.2470)	-0.5346 (0.2391)	0.703448	5.5349	
2.10	P <sub>3</sub>	28.9726 (10.5776) <sup>a</sup>	-0.0248 (4.5920) <sup>a</sup>			0.700863	21.0866	
2.11	P <sub>3</sub>	26.9411 (6.0588) <sup>a</sup>		-0.0545 (2.3402) <sup>c</sup>		0.378302	5.4765	
2.12	P <sub>3</sub>	22.2276 (12.7525) <sup>a</sup>			-0.9054 (3.5229) <sup>a</sup>	0.579655	12.4110	

For each regression the number of observations is eleven. Figures in parentheses denote *t*-values; the letters 'a' to 'd' denote significance at 1 per cent level (<sup>a</sup>), 2 per cent level (<sup>b</sup>), 5 per cent level (<sup>c</sup>) and 10 per cent level (<sup>d</sup>).

and it was much higher, over 57 per cent, for holdings belonging to the largest size class of over fifty acres. Apart from this, no clear association is evident between size of holding and proportion of the owned area leased out (column 7). In the case of operational holdings also no clear association is evident between holding size and proportion of area leased in. But on the average the proportion was as high as around 40 per cent in 1953-54 (column 9).

The proportion of owned area leased out and operated area leased in cannot obviously be directly compared. However, the fact that the area leased out forms a lower proportion of owned area than the area leased in as a proportion of area operated implies that the *owned area operated* — a common subset — forms a larger proportion of area owned than of area operated. In other words, the total area operated would appear to be larger than the area owned. This is both possible in principle and actually true since we are here dealing with only rural households who could be leasing in land from urban owners of land. However, it is doubtful whether the total area operated could have been, for instance, around 28 per cent more than the area owned in 1971-72.<sup>14</sup> It is likely therefore that the extent of owned area leased out was under-reported in the surveys, though it is not possible to quantify which items have been under-reported to what extent in the surveys.

While the incidence of tenancy is not small a comparison of the leasing proportions for 1953-54 with that of 1971-72 would suggest that it has actually been declining. Thus, the proportion of owned area leased out came down from about 30 per cent on the average in 1953-54 to about 13 per cent in 1971-72 while the proportion of operated area leased in declined from about 40 to 32 per cent over the same period. Partly this decline may simply reflect a change in the definition of ownership whereby some portion of operated area shown as "leased in" in the 1953-54 survey would be shown under owned area operated in the later surveys. But partly it may also reflect a real shift away from tenant cultivation to self cultivation as a result of the increasing profitability of agriculture in the Punjab region.

Turning now from the tenurial aspects to the purely distributional aspects of land structure, it will be evident from Table 4.4 that the size distribution of both operational and ownership holdings has remained highly skewed in favour of relatively large holdings. Thus, for the moment ignoring variations over time, we see that between 40 to 50 per cent of area owned belonged to relatively large holding size classes of between 7.5 acres to 25 acres in the three years for which we have data. Another large chunk of about 20 to 40 per cent belonged to very large holdings of over 25 acres. At the other end, a large number of small and medium sized holdings of between one acre to 7.5 acres accounted for about 18 to 25 per cent of area owned while very small ownership

<sup>14</sup> It can be easily verified that if  $x$  is the proportion of owned area ( $A$ ) leased out and  $y$  is the proportion of operated area ( $B$ ) leased in then  $B = \frac{1-x}{1-y} A$ . The ratio  $B/A$  works out to around 128 per cent in 1971-72 by this procedure as compared to the ratio of actually reported operational area to area owned which is about 116 per cent.

plots of size less than an acre accounted for hardly 1 per cent. The pattern of distribution of operational holdings is very similar, except that here the share of the size classes between 7.5 acres to 25 acres has been still larger while that of size classes between one acre and 7.5 acres has been slightly lower.

To get a full grasp of the inequality of land distribution, the distribution of *holdings*, which is skewed in favour of larger holding size classes as shown in Table 4.4, must actually be compared with the distribution of *households* which is skewed in the opposite direction as shown in Table 4.5. For convenience the size distribution of operational holdings has again been shown here (columns 7 to 9) along with the distribution of households by size of operational holding (columns 4 to 6) and ownership holding (columns 1 to 3).

The extreme inequality of the pattern of land distribution can now be seen very clearly. At the bottom of the scale, roughly half the total number of households, in size class of one acre or less, own barely 1 per cent of the total area and operate even less. At the other end, less than 5 per cent of all households own as well as operate about 30 per cent of the total area or roughly 20 to 25 per cent of all households own or operate around 80 per cent of the total area. The Gini index of inequality in land distribution has throughout remained well above 0.7 for both operational holdings as well as ownership holdings. The extreme inequality of land distribution is thus obvious. But it needs to be added here, by way of qualification, that the distribution of land per head of population is not quite as unequal as the distribution of land per household since a larger size holding tends to be partly offset by a larger family size at the upper end (Table 4.5, column 10).

While the general picture of a highly unequal pattern of land distribution has remained unchanged over the period of reference, interesting changes have occurred within this overall structure which are quite crucial for an understanding of the dynamics which are at work. The first of these changes is what we might describe as a downward shift of the entire holding size distribution of land. Thus the proportion of area owned in holdings of size 25 acres or more declined quite sharply from over 37 per cent to less than 23 per cent.

The corresponding share of this size class of holdings in total operated area declined equally sharply from around 35 per cent to less than 21 per cent (Table 4.4). In contrast we find that the share of every size class of operational holdings between 2.5 acres and 25 acres actually rose. The pattern of change is broadly similar in the case of ownership holdings and this downward shift in the distribution of land is reflected also in the average holding size. As shown in Table 4.6, the average holding size declined between 1953-54 and 1961-62 and again between 1961-62 and 1971-72 both in the case of ownership holdings as well as in the case of operational holdings.

This downward shift would seem to be, by and large, the direct consequence of population growth for it is obvious that, other things remaining the same, an increase in the number of households would reduce the average size of holding in all strata of holdings. Further, the demographic pressure reveals itself not only in the average size of holding, i.e. increasing number of house-

Table 4.4 Estimated Share Distribution of Area Owned and Area Operated by Size of Holdings  
in Rural Punjab (including Haryana)

Size Class (acres)	Distribution of Area Owned				Distribution of Area Operated				Owned Area Leased Out		Operated Area Leased In	
	1953-54	1961-62	1971-72	1953-54	1961-62	1971-72	1953-54	1971-72	1953-54	1971-72	1953-54	1971-72
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
0.01- 0.99	0.59	1.02	0.91	0.32	0.56	0.21	34.09	18.29	29.74	2.68		
1.00- 2.49	2.69	2.86	3.63	1.62	1.92	1.80	27.05	24.57	35.64	22.86		
2.50- 4.99	6.23	6.99	8.22	5.79	5.08	7.10	23.07	13.25	36.30	37.96		
5.00- 7.49	9.13	10.40	13.19	7.37	9.31	11.48	26.80	18.36	48.63	39.26		
7.50- 9.99	8.16	9.92	9.12	9.42	9.03	11.63	18.92	12.12	48.09	45.41		
10.00-14.99	14.37	14.56	19.80	16.94	18.10	21.12	24.89	14.76	44.25	28.13		
15.00-19.99	11.63	14.42	11.76	14.16	15.09	15.33	26.67	5.59	35.53	33.40		
20.00-24.99	9.81	9.55	10.42	9.51	9.86	10.51	25.02	11.49	37.86	32.67		
25.00-29.99	7.40	7.30	6.61	7.45	7.47	5.09	19.15	15.28	34.66	12.85		
30.00-49.99	13.40	15.88	11.03	17.39	15.22	10.95	27.74	5.91	46.18	24.57		
50 and above	16.58	7.10	5.27	10.04	8.36	4.78	57.08	23.50	28.40	35.38		
All sizes	100.00	100.00	100.00	100.00	100.00	100.00	30.09	13.36	39.78	32.28		
Sample Size (No. of households)	4,782	2,017	1,826	4,782	2,017	1,826	4,782	1,826	4,782	1,826		

Source: *National Sample Survey Reports* for 8th, 17th and 26th rounds.

The data for 1953-54 and 1971-72 are respectively inclusive of PEPSU and Haryana.

Table 4.5 Estimated Share Distribution of Households by Holding Size in Rural Punjab (including Haryana)

Size Class (acres)	Distribution of Households by Area owned (%)			Distribution of Households by Area Operated (%)			Distribution of Area Operated (%)			Average Household Size by Area Operated	
	1953-54	1961-62	1971-72	1953-54	1961-62	1971-72	1953-54	1961-62	1971-72	1953-54	1971-72
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Below 0.00	36.86	12.33	9.10	28.97	39.09	54.25	0.00	0.00	0.00	4.74	5.11
0.01- 0.99	13.90	40.94	48.55	16.24	10.23	1.96	0.32	0.56	0.21	4.18	5.33
1.00- 2.49	8.84	8.26	8.38	6.16	7.30	4.72	1.62	1.92	1.80	4.36	5.45
2.50- 4.99	9.29	9.22	8.61	10.12	8.46	8.56	5.79	5.08	7.10	5.10	5.73
5.00- 7.49	8.38	8.06	8.27	7.82	8.78	8.34	7.37	9.31	11.48	5.25	6.47
7.50- 9.99	5.25	5.61	4.01	7.14	6.09	5.89	9.42	9.03	11.63	5.75	6.95
10.00-14.99	6.68	5.78	6.29	9.40	8.74	7.69	16.94	18.10	21.12	6.33	7.50
15.00-19.99	3.78	4.09	2.64	5.55	4.89	3.96	14.16	15.09	15.33	6.59	8.10
20.00-24.99	2.49	2.09	1.83	2.83	2.45	2.15	9.51	9.86	10.51	7.00	8.69
25.00-29.99	1.55	1.28	0.93	1.85	1.48	0.83	7.45	7.47	5.09	7.00	9.85
30.00-49.99	2.00	2.04	1.13	3.10	1.96	1.33	17.39	15.22	10.95	6.80	8.74
50 and above	0.98	0.40	0.27	0.83	0.52	0.32	10.04	8.36	4.78	8.37	8.26
All sizes	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	5.19	5.88
Gini index	0.7005	0.7512	0.7669	0.7574	0.7346	0.7446					

Source: National Sample Survey Rounds, 8, 17 and 26.

The data for 1953-54 and 1971-72 are respectively inclusive of PEPSU and Haryana.

holds, but also in the average size of households. This appears to have increased for all size classes of holdings except the largest (see Table 4.5, columns 10 and 11).

Table 4.6 Average Size of Holdings in Punjab  
(including Haryana)

	(acres)		
	Average holding size in:		
	1953-54	1961-62	1971-72
Ownership	5.6	4.8	3.8
Operational	6.5	5.5	4.5

Source: NSS Surveys of Landholding: 8th, 17th and 26th rounds.

The second important change which is notable over time is the sharp decline in the proportion of households which do not own any land from 36.86 per cent in 1953-54 to only 12.33 per cent in 1961-62 and further down to 9.10 per cent in 1971-72. At the same time, we find that the proportion of households in the lowest land owning size class, i.e. those owning tiny bits of land of less than an acre in size, went up equally sharply from only 13.9 per cent in 1953-54 to 40.94 per cent in 1961-62 and again to 48.55 per cent in 1971-72.

Partly the change may be purely definitional, some of those who were classified as lessees in the 1953-54 survey having been classified as owners in the later surveys. But the change must also reflect a real tendency for we see the same direction of change between 1961-62 and 1971-72 as recorded between 1953-54 and 1961-62 and there was no change in definition between the two later surveys. This decline in the proportion of rural households not owning any land is possibly one of the positive consequences of land reform.

The third important change is a movement in the opposite direction in the case of operational holdings. The proportion of households operating tiny plots of land, of size less than one acre, decline drastically from 16.24 per cent in 1953-54 to 10.23 per cent in 1961-62 and further to only 1.96 per cent in 1971-72. At the same time, the proportion of landless households, or the proportion of households not operating any land at all, went up from 28.97 per cent in 1953-54 to 39.09 per cent in 1961-62 and still further to 54.25 per cent in 1971-72. By the end of the sixties, therefore, a substantial proportion of all rural households in Punjab would appear to have joined the ranks of rural labour; though it is not possible to judge what the actual proportions were from the landholdings data alone since we have to make allowance here for landless households engaged in non-labour activities in rural areas such as trade, professions, etc. This increase in the supply of rural labour would no doubt have had a deep impact on wage rates and employment in the rural sector.

These, however, are issues taken up for discussion in the following section. Here it is perhaps enough to note that a number of factors may have been

at work behind the sharp increase in landlessness. Partly, it may be a negative consequence of the land reform, the eviction of tenants to pre-empt their acquisition of the rented land. Partly, it may reflect the collection of households at the bottom in the downward shift of the size distribution of holdings — the consequence of increasing pressure of population on land which we have discussed. Partly, the increase in landlessness as well as the decline of tenancy and the negligible incidence of really small operational units, which we have examined earlier, may all be aspects of the development of capitalist farming as a consequence of the increasing profitability of agriculture in the Punjab.

#### 4. Wages, Income and Employment of Agricultural Labour

The sharp increase in the proportion of rural households not operating any land, we have suggested, reflects an increase in the proportion of agricultural labour households. The latter inference cannot be drawn on the basis of the land holding survey data alone since the category of households shown as not operating any land in these surveys includes not only agricultural labour households but also households of labour engaged in other activities and households which are not labour households at all e.g. professionals, traders, artisans etc. However, the fact of a significant increase in the number and proportion of agricultural labourers or agricultural labour households also shows up in two independent sources of data, i.e., the decennial population census and the labour enquiry surveys of the NSS, both of which have been reproduced here in Table 4.7.

The census figures show that while the rural male work force in Punjab region increased by around 10 per cent between 1961 and 1971, the number of rural male cultivators actually declined during the period. On the other hand the number of rural male agricultural labourers increased by 141 per cent.<sup>15</sup> The total number of rural male labourers in agriculture plus other services increased by about 68 per cent. These numbers, unfortunately, are not entirely reliable since they are not adjusted for changes in definition and classification between the two censuses. In the 1961 census the emphasis was more on land holding status rather than employment and a person was classified according to his major source of income. In the 1971 census, however, the emphasis was on employment and a person was classified according to the activity in which he spent the maximum time. It is believed that for these reasons some workers who were classified as cultivators in the 1961 census may have got reclassified as agricultural labourers in the 1971 census.<sup>16</sup> However, in spite of this tendency to over-estimate agricultural labourers in the 1971 census, it will be noticed that they still accounted for only a little over 10 per cent of the rural male population in 1971 as compared to cultivators who accounted for almost 30 per cent.

<sup>15</sup> The analysis in this section is mainly confined to male workers only since the quality of information in the case of women workers is believed to be extremely unreliable.

<sup>16</sup> For a more detailed analysis of these issues, see P. Visaria op. cit.



Table 4.7 Growth of Rural and Agricultural Labour Households and Labourers in Rural Punjab (including Haryana)  
RURAL LABOUR ENQUIRY

Category	1964-65	1974-75	Per cent change
(1)	(2)	(3)	(4)
A Rural Households (000)	2,657	3,192	20.14
B Rural Labour Households (000)	462 (17.39)	687 (21.52)	48.70
C Landless Rural Labour Households (000)	404 (15.21)	608 (19.05)	50.50
D Agricultural Labour Households (000)	380	505	32.89
E Landless Agricultural Labour Households (000)	334 (12.57)	452 (14.16)	35.33
F Male Agricultural Labourers in Rural Labour Households (000)	510	707	38.63

## POPULATION CENSUS

Category	1961	1971	Per cent change
(5)	(6)	(7)	(8)
Rural Households (000)	2,760	2,965	7.43
Rural Male Population (000)	8,637	9,954	15.25
Rural Male Workers (000)	4,616 (53.44)	5,074 (50.97)	9.92
Rural Male Cultivators (000)	2,913 (33.73)	2,844 (28.54)	-2.47
Rural Male Agricultural Labourers and Workers in Other Services (000)	913 (10.57)	1,531 (15.38)	67.69
Rural Male Agricultural Labourers (000)	466 (5.40)	1,124 (11.29)	141.2

Sources: *Rural Labour Enquiry 1974-75*, Final Report Vol. II — Wages and Earnings of Rural Labour Households.

*Census of India 1961*, Vol. XIII Punjab, Pt. II-A General Population Tables.

*Census of India 1971* series 17 Punjab, Pt. II-A General Population Tables.

*Census of India 1971* series 6 Haryana, Pt. II-A General Population Tables.

Note: Figures in parentheses give percentage of Rural Households (columns 2 and 3) and percentage of Rural Male Population (columns 6 and 7).

The broad qualitative picture conveyed by the Census i.e. that the class of cultivators remain predominant in Punjab but that the supply of agricultural labourers has increased at a rapid rate, is confirmed by the Rural Labour Enquiry (RLE) surveys conducted by the NSS. According to the RLE surveys, agricultural labour households formed only about 16 per cent of all rural house-

holds, and rural labour households in general formed a little over 21 per cent in 1974-75. However, in terms of growth, agricultural labour households increased by over 30 per cent and rural labour households in general by nearly 50 per cent between 1964-65 and 1974-75 as compared to only a 20 per cent increase in the case of all rural households.

It was pointed out at the very outset that a rapid increase in the supply of agricultural labourers was likely to adversely affect the period of employment of labourers, or their wage rates, or both if the growth of agriculture itself was not commensurate or if it took a form which is less intensive in the use of labour. The impact of agricultural growth, embodying the new bio-chemical technology and some mechanisation, on the demand for agricultural labour remains a controversial issue. However, we do have data which enable us to say something about the actual trends in wage rates, employment and income of agricultural labour households.

In Table 4.8 two alternative time series of real wage rates in the Punjab region are shown. The series compiled by Jose relates to Punjab plus Haryana and is based on the Ministry of Agriculture's official series *Agricultural Wages in India* (AWI).<sup>17</sup> The limitations of the AWI series are well known. The data is put together in a completely unsystematic manner, on the basis of one or two villages from each district, without any proper sample design and on the basis of records filled by village level functionaries not trained for the job.<sup>18</sup> On the other hand, it is not clear whether the series compiled by Bhalla for Punjab State only,<sup>19</sup> from wage rate data in the *Punjab Statistical Abstracts* (PSA), is based on more reliable and independent sources of information. The PSA series gives data by major operations for each calendar year. These were averaged by Bhalla over operations and across two consecutive calendar years to get the average wage rate for each agricultural year.

The Bhalla series has been further adjusted here for some discrepancy between the ACPI deflator used by her and those used by Jose to arrive at the real wage rate for each year. It will be noticed that the Bhalla series for Punjab State alone shows no sustained tendency of rising or falling real wage rates. Rather, wage rates appear to have been fluctuating roughly in the range of Rs.2.50 to Rs.3.50 at 1960-61 prices. This picture of real wage rates fluctuating in a narrow range without a sustained tendency to rise or fall is confirmed by the Jose series for Punjab including Haryana.

The main advantage of the Bhalla and Jose series is perhaps not so much their accuracy as the fact that they are the only time series available which enable us to say something about secular trends. Fortunately, alternative estimates based on scientifically designed surveys conducted by the National Sample Survey are also available for a few years. These estimates, which enable

17 A. V. Jose "Trends in Real Wages of Agricultural Labourers" *Economic and Political Weekly* 30 March 1974.

18 For a detailed evaluation of the different sources of agricultural wage rate data in India, see papers by V.M. Rao, K. Bardhan and A.V. Jose cited in the previous chapter.

19 S. Bhalla "Real Wages of Agricultural Labourers in Punjab, 1961-77: A Preliminary Analysis" *Economic and Political Weekly* 30 June 1979.

Table 4.8 Real Wage Rates for Male Agricultural Labour in Rural Punjab  
Rs., 1960-61 prices

Years	PSA Series Bhalla (Adjusted)	AWI series Jose (Punjab/Haryana)
(0)	(1)	(2)
1961-62	2.60	2.76
1962-63	2.66	2.78
1963-64	2.96	—
1964-65	2.53	2.36
1965-66	2.69	3.00
1966-67	2.63	2.34
1967-68	2.39	2.69
1968-69	2.93	3.24
1969-70	3.33	3.51
1970-71	3.56	3.55
1971-72	3.50	3.38
1972-73	3.38	
1973-74	3.19	
1974-75	2.54	
1975-76	2.79	
1976-77	3.16	

Sources: Column 1 adjusted and recomputed from S. Bhalla op. cit. Column 2 from Jose (1974) op. cit.

Note: The AWI series is for Punjab including Haryana whereas the PSA series is for Punjab only. Both series have been deflated using ACPI as deflator. For details of adjustment of the PSA series, see the main text.

us to check the hypothesis of a more or less constant real wage rate, have been shown in Table 4.9. Of the five years for which NSS data is available, the estimates for the years 1950-51 and 1970-71 are not comparable with the estimates for the other three years. The kind component of wages in these two years were converted to cash at retail prices which are much higher than the wholesale prices at which the conversion was done for the other observations. There are also some differences in coverage in these two years. For instance, the 1970-71 observation is from the NSS survey of Weaker Section Households in Rural Areas in the 25th round and pertains to "non-cultivating wage earning households". This corresponds to rural labour in general, for whom the average wage rates are somewhat higher than for the subset of agricultural labourers.

We are thus left with only three comparable observations for the years 1956-57, 1964-65 and 1974-75. While this is clearly not adequate to discern *trends* independently, they do seem to confirm the picture conveyed by the

Bhalla and Jose time series of fluctuations around a more or less constant real wage rate. Thus, in the case of agricultural operations, the real wage rate in 1964-65 was slightly lower than that of 1956-57 but the real wage rate of 1974-75 was slightly higher than that of 1964-65 and only marginally lower than the 1956-57 wage rate. In the case of non-agricultural operations the real wage rate of 1964-65 was marginally higher than that of 1956-57 and that of 1974-75 was again marginally higher than that of 1964-65.

Table 4.9 Real and Money Wage Rates (Average Daily Earnings) of Male Labour Belonging to Agricultural Labour Households in Rural Punjab (including Haryana) as estimated in NSS Surveys (Rupees)

Years	Agricultural Operations		Non-Agricultural Operations	
	Money Wage	Real Wage	Money Wage	Real Wage
(0)	(1)	(2)	(3)	(4)
1950-51	1.84	—	1.82	—
1956-57	1.98	1.98	1.38	1.38
1964-65	2.13	1.52	2.07	1.48
1970-71	4.19	2.99	4.05	2.89
1974-75	6.05	1.78	5.42	1.59

Sources: *Agricultural Labour Enquiries* of 1950-51 and 1956-57.  
*Rural Labour Enquiries* of 1964-65 and 1974-75.  
*National Sample Survey*, 25th Round Report No. 237.

Note: Real Wage rates have been calculated using ACPI as deflator and 1956-57 as base. The figures for 1950-51 and 1970-71 are not comparable with other years because of differences in concepts and coverage. For details, see the main text. For the year 1974-75 Punjab and Haryana data were combined using number of male agricultural labourers in agricultural labour households as weights. For the year 1970-71 the wage data were combined using number of male labourers in wage earning households as weights.

The level of average real wage rates shown in Table 4.9 have been decomposed into wage rates by individual operations in Table 4.10. It will be noticed that for most of the major operations the pattern is again similar to that of the average daily earnings, i.e., real wage rates in 1964-65 were slightly lower than real wage rates in 1956-57 and those of 1974-75 were slightly higher than the 1964-65 wage rates but marginally lower than the wage rates of 1956-57. On the basis of the different sets of agricultural wage rate data pieced together here it seems reasonably safe to conclude, therefore, that on the average real wage rates in the Punjab region have neither shown a trend increase or trend decrease. Since this happened during a period in which both per capita production as well as the price index showed a significant trend increase (see Table 4.2), it follows that the real wage rate is not sensitive to either or possibly that the opposite effects of these two variables on the wage rate tended to offset each other.

Table 4.10 Daily Wage Rates of Male Agricultural Labour by Selected Operations in Rural Punjab (including Haryana)

Category		1950-51	1956-57	1964-55	1974-75
(0)		(1)	(2)	(3)	(4)
Ploughing	M	1.84	2.08	2.05	5.27
	R		2.08	1.46	1.55
Sowing	M	NA	NA	1.89	6.11
	R	NA	NA	1.35	1.80
Transplanting	M	1.60	1.34	2.12	5.87
	R		1.34	1.51	1.73
Weeding	M	1.69	1.73	2.21	6.21
	R		1.73	1.58	1.83
Harvesting	M	2.68	2.47	2.66	6.64
	R		2.47	1.90	1.95
Other Operations	M	NA	NA	NA	5.82
	R	NA	NA	NA	1.71

Source: First and Second *Rural Labour Enquiry* Reports.

Notes: Data for 1950-51 is not comparable to other years because of differences in concepts and coverage. For details, see main text. M & R stand for money and real wages respectively.

Real wages have been computed using ACPI as deflator and 1956-57 as base.

In any case, it is not possible on the basis of wage rate data alone to draw any inferences about trends in *annual* wage incomes and still less about the incidence of poverty among agricultural labour. The annual real wage income depends, in addition to real wage rates, on the period of employment available per labourer in a given agricultural year. Unfortunately, we have data on this only for the NSS survey years. The wage rate, employment and annual wage income estimates of the NSS surveys have been brought together in Table 4.11. The year 1950-51 is left out of the comparison for the reasons indicated earlier.

In 1964-65, as we have seen, real wage rates in agricultural operations were lower than in 1956-57; but the number of days of employment available per labourer was more, such that the annual real wage income from agriculture was only marginally lower than in 1956-57. In 1974-75 the real wage rate was again slightly higher, but the number of days of employment available per head was less, such that the annual wage income was a little less than in 1964-65. The picture for total annual wage income per head from agricultural as well as non-agricultural activities is similar, the weight of non-agricultural wage employment being very low in the case of agricultural labour households.

The estimate of annual real wage income per agricultural labourer is still not enough to judge whether *per capita real incomes* of agricultural labour

Table 4.11 Annual Wage Employment and Wage Income of Male Labourers of Agricultural Labour Households in Rural Punjab (including Haryana)

		1950-51	1956-57	1964-65	1974-75
(0)		(1)	(2)	(3)	(4)
Annual Wage Paid Employment in Agricultural Operations (days)		185	229	282	226
Wages Paid in Agricultural Operations	M	1.84	1.98	2.13	6.05
	R	—	1.98	1.52	1.78
Annual Wage Income in Agricultural Operation (A × B)	M	344.00	453.42	600.66	1,367.30
	R	—	453.42	428.64	402.28
Annual Wage Paid Employment in Non- Agricultural Operations (days)		29	15	23	16
Wages Paid in Non- Agricultural Operations	M	1.82	1.38	2.07	5.42
	R	—	1.38	1.48	1.59
Annual Wage Income in Non- Agricultural Operations (D × E)	M	52.78	20.70	47.61	86.72
	R	—	20.70	34.04	25.44
Annual Wage Income (C + F)	M	396.78	474.12	648.27	1,454
	R	—	474.12	462.68	429

Source: Reports and unpublished data from the *Rural Labour Enquiries* of 1964-65 and 1974-75.

Note: Data for 1950-51 is not comparable with other years because of conceptual and coverage differences. For details, see main text. The ACPI has been used as deflator for real wage and real income computations with 1956-57 as base. Punjab and Haryana data have been combined using number of male agricultural labourers in Agricultural Labour Households as weights.

M = money wage R = Real wage

households have increased or decreased over time. In addition to wage incomes, agricultural labour households may have some supplementary income from other activities including cultivation since all agricultural labourers' households are not purely landless. Moreover, the average wage income of a household would itself depend on the average number of earners per household in addition to the average wage income per labourer. Finally, for any given level of real income per household, the per capita income would vary inversely with average family size. The data on these items for the three years for which we have comparable NSS survey estimates have been brought together in Table 4.12.

As expected the real income of agricultural labour households with land,

Table 4.12 Annual Income of Agricultural Labour Households in Punjab (including Haryana)

		1956-57	1964-65	1974-75
(0)		(1)	(2)	(3)
Earning Strength		2.10	1.85	2.25
Money Income of Households: (Rs. current)	With Land	626	987	4,773
	Without Land	656	917	3,388
	All Households	731*	928	3,508
Real Income of Households: (Rs. 1956-57 prices)	With Land	626	705	1,404
	Without Land	656	655	996
	All Households	731*	663	1,032
Average Size of Households:	With Land	NA	5.9	6.6
	Without Land	NA	5.4	5.6
	All Households	5.2	5.5	5.7
Per capita Real Income of Households (Rs. 1956-57 prices)	With Land	NA	119	213
	Without Land	NA	121	178
	All Households	141	121	181

Source: Reports and unpublished data from the *Rural Labour Enquiries* of 1964-65 and 1974-75.

Note: The annual income of All Households in 1956-57(\*) is larger than for households with and without land because the latter pertain to casual labour households only. The real incomes have been calculated using ACPI as deflator and 1956-57 as base. For the year 1974-75 Punjab and Haryana data have been combined using the number of households in the relevant category as weights.

Rs.705 at 1956-57 prices, was slightly higher than the real income of Rs.655 in the case of those without any land. By 1974-75, the real incomes of these two categories had gone up to Rs.1,404 and Rs.996 respectively. It is interesting to note in this context that the annual income of all rural household (defined as non-cultivating wage earning households) was estimated to be Rs.1,228, at 1956-57 prices, in the NSS 25th round weaker sections survey for 1970-71 as compared to Rs.1,275 for the poorest decile of cultivating households. We may therefore infer that persons belonging to rural labour households accounted for the poorest 17.43 per cent of the population of rural Punjab (including Haryana) in 1970-71.<sup>20</sup> This works out to about 49 per cent of those below the poverty line according to our estimates (see Table 4.1). In her study on Punjab state (not including Haryana) Rajaraman<sup>21</sup> had calculated that *agricultural* labour households alone would account for about 40 per cent of households below the poverty line as estimated by her for the same year.

<sup>20</sup> The population belonging to rural labour households in 1970-71 is estimated by interpolation from the RLE surveys of 1964-65 and 1974-75.

<sup>21</sup> I. Rajaraman op. cit.

Looking at the same table for the pattern of changes over time, we see that the average family size has increased over time, but only marginally, such that the pattern of change in per capita real incomes for the class of agricultural labourers is similar to the pattern of change in real incomes per household. The estimates are interesting. In 1964-65, the year just preceding the advent of the new biochemical technology, the per capita real income of agricultural labourers and their dependents was about 14 per cent lower than in 1956-57. A decade later, in 1974-75, the per capita real income of this class was about 50 per cent higher than in 1964-65 and around 28 per cent higher than in 1956-57.

### 5. Some Concluding Remarks

The main conclusions of our analysis of the incidence of rural poverty and its underlying determinants may now be brought together in a brief summary.

The incidence of rural poverty, measured as the percentage of rural population below the poverty line, showed a significant trend decline in the Punjab region during the sixties and early seventies. This result is not specific to any particular strata of the rural poor, or sensitive to the choice of a particular minimum consumption norm, for the same pattern of change is found for a number of different poverty lines. A comparison of this result with earlier studies of the region, which indicated either that the incidence of poverty had increased or at best not declined, suggests the need for extreme caution in drawing inferences about secular tendencies from a pair or only a few observations over a time period.

The principal factor accounting for the decline of rural poverty in Punjab would appear to be the improving production performance of agriculture, measured here as the level of per capita foodgrain production. The positive income effect of agricultural performance has been reinforced by the positive income effect of rising foodgrain prices and related items reflected in the consumer price index. However, the latter effect is quite weak. This is because rising foodgrain prices have a positive income effect on the class of net-selling cultivators, but this positive effect is offset to a large extent by the negative income effect of rising grain prices on agricultural labourers who may have to buy at least a part of the family's grain requirements from the market.

The opposite effects of a rise in grain prices on the incomes of cultivators and agricultural labourers raise the possibility of similar differences in the impact of agricultural growth on the two classes. The observed inverse relationship between poverty incidence and agricultural growth, it could be argued, reflects only the beneficial effects of growth on the class of cultivators which dominates, and thereby conceals, its adverse effect on the class of agricultural labourers. It has sometimes been suggested that agricultural growth has had an adverse effect on this latter class because, by its very nature, the growth process



has embodied a technology which is labour displacing in a context where the supply of labour has been increasing rapidly.

The question is crucial to an assessment of the long term welfare implications of agricultural growth, for agricultural labourers are indeed the fastest growing segment of the rural population and they account for about half of all the rural poor, even though as late as 1971 they still formed only about 15 per cent of all rural households. The labour intensity of the new technology and its implications for total labour demand remain controversial issues. The available data on wage rates, employment and income are also too limited to permit any firm answers.

However, at least on the basis of such data as is available, it would be difficult to argue that agricultural growth has had an adverse effect on the real incomes of agricultural labour households. The real wage has remained roughly constant, fluctuating in a relatively narrow range, while the number of days of wage employment may have declined e.g. wage employment in agriculture was available for 226 days per head in 1974-75 as compared to 282 days in 1961-65 and 224 days in 1956-57. Thus the income per labourer from wage employment may have in fact declined. However, this would seem to be more a consequence of the increasing supply of labourers rather than shrinking demand.

Moreover, income from other sources including cultivation — remembering here that all labourers are not purely landless — may have increased and also the earning strength per agricultural labour household has gone up. On the eve of the so-called green revolution, in 1964-65, per capita real incomes of agricultural labour in Punjab were 14 per cent lower than in 1956-57. But a decade later, in 1974-75, per capita real incomes were about 50 per cent higher than in 1964-65 (or 28 per cent higher than in 1956-57) for this class.

There is much therefore that is positive about Punjab's growth experience and the fact of declining poverty in the region. At the same time it must be recognised that while the incidence of poverty is declining, it is still very high. In terms of norms recently defined by a Planning Commission task force, roughly one third of Punjab's rural population is still below the poverty line. This is indeed an extremely dismal situation, for Punjab and Haryana are two of the most dynamic and fast growing states of the country.

Our analysis shows that there are strong influences making for a high level of poverty even in this region. Of these, the most important is perhaps the extremely unequal distribution of land. Even as recently as in 1971 about 5 per cent of all households operated about 30 per cent of the land, or 80 per cent of the land was operated by the top 20 per cent of households, while over 50 per cent of households did not operate any land at all. The Gini index of land distribution has throughout remained well over 0.7. Over time the proportion of area operated in tiny units of one or two acres has gone down while the proportion of households not operating land has increased rapidly. This, along with the declining incidence of tenancy, may reflect partly the symptom of developing capitalist production in an increasingly profitable agricultural sector in the

Punjab region. But equally important here would appear to be the increasing pressure of population on land which has caused a downward shift in the entire size distribution of operational holdings and has pushed a large section of the population out of operating any land at all.