77550

Interregional Variations in Peasant Differentiation: A Comparison of Punjab and Maharashtra in the Early 1970's

CHIRANJIB SEN

CDSL
TVM

77550

I. Introduction

It is notoriously difficult to generalize about Indian agriculture, and the question of peasant differentiation is no exception. This is not surprising, in view of the enormity of its size, the complexity of social structure, and the great extent of variation among regions in many aspects of agriculture, such as growth experience, irrigation, demographic pressure, tenancy and wage relations. Precisely for this reason, however, it affords a rich opportunity for analyzing, through interregional comparison, the nature of agrarian structure and change. Fortunately a large body of data on major aspects of the agricultural sector within unified sampling and tabulation schemes are available, particularly for the early 1970's, which makes such systematic comparative studies feasible. [1] In this paper, we analyze some aspects of peasant differentiation for two states, Punjab and Maharashtra, which represent polar extremes among all the states in respect of the dynamism and level of agricultural forces of production. They are different in many other respects as well, not unrelated to growth performance, such as the extent of irrigation, the cropping pattern and cropping intensity (See Table I). It is therefore interesting to examine in what respect the nature of economic differentiation in the agrarian economy varies between these two diverse states, and the reasons underlying them. Our analysis is confined to data from the early 1970's. [2]

Some of the important questions in this regard relate to differences in (1) the degree of proletarianization; (2) the proportion and economic status of small and marginal cultivators, and (3) proportion of cultivators who have the capacity to make agricultural investments and be employers of wage labour. How do the two regions vary in these aspects? The answer has significance not only for theoretical understanding of agrarian transformation but is also of practical

Table I

Inter State Indicators Demographic Pressure, Irrigation, Productivity and Assets

	Average Area of Ownership Holdings (Ha)		Average Area of Operational Holdings (Ha)		Net Irrigated Area as percentage of Net cultivated Area 1970/71	Value of output per Ha (Rs./Ha) 1970/73	Average Value of asset per Rural Ha (1971/72) (Rs. 000)
	Per Rural Hh	Per Landowning Hh	Per rural Hh	Per land operating Hh			
	1	2	3	4	5	6	7
Punjab	1.43	1.54	1.64	3.97	74.5		
Maharashtra	2.55	3.03	2.62	3.80	6.8	1761	31.8
Andhra Pradesh	1.48	1.59	1.46	2.29	24.4	494	11.7
Assam	0.88	1.18	0.94	1.31	7.9	1093	8.1
Bihar	0.89	0.93	0.99	1.24	22.3	1227	7.8
Gujarat	2.33	2.69	2.35	3.55	10.7	978	12.8
Haryana	1.67	1.90	1.98	3.80	46.6	937	12.9
Himachal Pradesh	1.30	1.36	1.39	1.49	14.7	1150	27.1
Jammu & Kashmir	1.08	1.09	1.12	1.20	34.7	931	22.6
Karnataka	2.05	2.34	2.24	3.19	10.1	1135	15.3
Kerala	0.42	0.50	0.45	0.51	13.1	940	10.0
Madhya Pradesh	2.77	3.05	2.88	3.47	7.9	1175	11.6
Manipur	0.81	0.86	1.04	1.06	15.5	695	10.5
Meghalaya	1.02	1.09	0.99	1.09	31.7	--	--
Orissa	0.96	1.07	1.03	1.37	12.8	--	
Rajasthan	4.39	4.52	4.44	4.82	13.9	1026	6.0
Tamil Nadu	0.74	0.88	0.77	1.32	34.9	518	12.8
Tripura	0.87	0.98	0.80	0.93	1.1	1770	6.8
Uttar Pradesh	1.08	1.14	1.17	1.54	41.5	--	--
West Bengal	0.70	0.77	0.77	1.12	18.5	1079	13.5
						1442	7.3

Notes & Sources
1. Columns 1-4, NSS Survey on Land Holdings 26th Round 1971-72
2. Column 5, All-India Report on Agricultural Census 1970-71
3. Column 6 as calculated by G.S. Bhalla and Y.K. Alagh, Performance of Indian Agriculture: A Districtwise Study (Sterl Publishers, 1979) for 19 major crops. Average for the three years 1970-71, 1971-72 and 1972-73
4. Column 7, Reserve Bank of India, All-India Debt and Investment Survey 1971-72, Assets of Rural Households as on Ju 30, 1971.

economic and political consequence f r the issues of employment, income distri-
bution and poverty.

What should we expect regarding variations from theories of peasant differe-
ntiation? The Lenin-Kautsky vision of the development of the agrarian economy
under capitalist penetration was one of evolving differentiation leading to class
polarization. Regardless of the 'paths' taken, the destination was an economy
charac terized by a broad division between capitalist farmers and wage labourers.
With regard to the small peasantry, the Marxist hypothesis is one of their disin-
tegration and conversion - initially into semiproletarians and gradually into
landless wage workers. The mechanism of this process is through the advances of
productivity which would open up a technological gulf between the large and the
small farms. Since Punjab is by far the more technologically dynamic and most
closely associated with capitalist penetration via commercialization, and rapid
technological change, and Maharashtra's agrarian economy has been stagnant and
perhaps declining, one might suppose that the proportion of rural labour househol
among rurual households would be higher in Punjab compared to Maharashtra. But
this is not so in fact. By most measures of proletarianisation, the incidence of
wage labour in the rural economy actually is higher in Maharashtra.[3/] Similarly,
from the polarization hypothesis, we might expect that the proportion of cultiva-
tors with small and marginal holdings would be higher in Punjab. This again is
not the case.[4/] Marginal farmers (i.e. those with less 1 hectare of operational
area, according to the Agricultural Census classification) constitute 24% of cul1
vators in Maharashtra compared with 12% in Punjab. Another feature worth noting
is the difference between the two states with respect to landed via-a-vis landles
rural wage labourers. The proportion of rural labour households with land is muc
higher in Maharashtra compared with Punjab. According to some writers, the
existence of semiproletarian farmers is associated with situations where labour
availability is relatively tight, in which employers assure labour supply by
advancing small plots to petty tenants-cum-labourers.[5/] Yet it is clear that no su

mechanism is in operation in Maharashtra, and in any case, of the two states the demand for labour is likely to be much greater in Punjab. All these facts appear as puzzles when we examine the evidence from the viewpoint of polarization hypothesis.

Non-Marxist writers, on the other hand frequently stress demographic pressure as an important determinant of the existence of wage labourers as a result of immiscrization brought about by the pressure of population on land. Yet in this case, the demographic explanation will not suffice, since the demographic pressure, both in terms of population density, and rural population per cultivated hectare is higher in Punjab. [6] But as we saw above, both the incidence of wage labour and of marginal farmers is higher in Maharashtra. Another important determinant generally noted in the literature, is the inequality in the ownership of land. But here too, we find that the Lorentz ratios for ownership holdings (and operational holdings) are higher for Punjab indicating a higher degree of inequality [7] and hence cannot explain the facts satisfactorily

The conclusion to be drawn from all this is that simple monocausal explanations of agrarian differentiation are not very satisfactory. What is required is an approach that allows us to take account simultaneously of different types of determinants which are likely to have a bearing on the question. In the ensuing analysis we have utilized a framework which simultaneously take into account: (a) technological factors; (b) demographic factors; (c) agrophysical factors and (d) socioeconomic factors. [8] The basic determinant of differentiation is the distribution of means of production, and in agriculture this is reflected most closely in the distribution of land. However, when we compare two economies which differ significantly in all these factors, it becomes very difficult to interpret meaningfully the data on land distribution. As can be seen, for instance, from Table I, the yield per hectare of gross cropped area in Punjab exceeds that in Maharashtra by a factor of 3.5. The difference in the

irrigation base is equally stark - in Punjab the ratio of net irrigated area to n

cultivated area is 74.5% compared with 6.8% in Maharashtra. Under such
circumstances it becomes necessary to devise a scheme by which these and other
differences can be adjusted for, before the data on land distribution can be
interpreted in a manner that permits a systematic comparison of peasant
differentiation.

At the heart of the problem is the question of whether peasant cultivators
are able to retain control over the means of production, and this depends on
their resource position in relation to their requirements. It is therefore
useful to draw a distinction between those farm households whose resource
position is secure, and those whose resource position is not so. We shall call
the former category 'viable' and the latter 'nonviable' cultivators.[9] Non
viability, however, does not imply that the cultivator must cease his farm
operations, for there are several mechanisms - such as wage labour - through
which he may continue to survive. It implies economic insecurity, vulnerability
and the inability to accumulate. Most important, it necessitates additional
economic activities under pressure of economic survival, over and beyond crop
production activities. In this sense nonviable farmers are truly 'marginal
farmers'. On the other hand, viable cultivators are secure, have the capacity
to accumulate and also to employ wage labourers, and under certain circumstances
emerges as capitalist profit seeking producers. Thus, the agrarian structure
may be viewed broadly in terms of three groups who differ in the conditions
of economic reproduction which they face -- viable cultivators, nonviable
cultivators and landless agricultural labourers.[10] The household's conditions
of reproduction determine its economic motivation and its labour allocation
between self-employment in agriculture and wage employment. Thus, one aspect
of comparing agrarian economies is to examine the proportions of households in
each of the three broad categories. Though rules of thumb are generally employed
to delineate households into broad acreage categories as 'marginal', 'small',
'large' cultivators etc, for reasons explained later such a procedure is not
satisfactory. A more precise method of empirical estimation is necessary.

Once economic viability is quantitatively estimated it is possible to go a

step further. We can calculate, not only the proportions of households

who are viable and non-viable, but also the *magnitude* of viability

and non viability of each operational holding size class of cultivator house-

holds. This adds an extra dimension to peasant differentiation, making it po-

ssible, for example, to compare the economic status of different nonviable house-

holds and to compare across agrarian economics the economic status of different

nonviable households and to compare across agrarian economies the economic stra-

tegy of households in similar ranges of resource surplus or deficit.

In the Indian literature there are several notions of viability of the

farm, which arose in connection with land reforms. 11/ We shall define economic via-

bility in terms of whether the amount of land possessed by a cultivator household

is sufficient to yield a net income which permits the attainment of subsistence

level of consumption. The precise procedure adopted is explained in a subsequ-

ent section. If this is so, the household is defined as viable, otherwise non-

viable. Economic viability thus becomes a function of the following variables -

size of holding, yield attained per hectare, cost of production, household size,

and the subsistence consumption norm prevailing in the region. Thus, as mentio-

ned earlier, technological, demographic, agrophysical and socioeconomic factors

are involved in the calculation. 12/ Here, we may mention that the subsistence norm

taken is not the physiological floor, but one which reflects a social and moral

norm that farmers in the region might regard as the minimum acceptable, i.e. the

standard of living of agricultural labourers in that state. For each size class

of farm household, the minimum necessary operational holding size is calculated,

given its household size, technological and economic capability. This is then

compared with the actual holding size operated. From this the extent of land sur-

plus or deficit is obtained. By normalising, an **index** of viability, expressed as

a percentage, is then calculated in order to make the notion free of units, since

a deficit of 1 hectare in one region is not comparable with another region. Now

we are able to make a systematic comparison by examining the distribution of the

index over operational size class of holdings. Such a comparison of peasant differentiation applied to Punjab and Maharashtra serves to raise the question of the effect of differences in irrigation and land productivity on agrarian structure. While this is not examined directly, their effect enters implicitly through the index.

In the remaining sections, the paper is organised as follows. Section II covers in some detail the key differences between the two states, with particular reference to agriculture, which serves as background. Section III examines the distribution of landholdings and presents the main results. The assumptions and methodology adopted in our empirical estimation of viability indices are also explained, and peasant differentiation in the two states is compared and its in

implications explored. Section IV is the conclusion. The Appendix gives some of the details of the estimation procedure.

<div align="center">II</div>

In this section some basic features of the agrarian economy of Punjab and Maharashtra are discussed and contrasted to provide a background for our subsequent analysis. We shall briefly outline first the demographic characteristics, the relative importance of agriculture in the state's economy, the nature of land utilisation, irrigation and land base. This is followed by a comparison of agricultural growth rates, and cropping pattern. The entire discussion deals with conditions prevailing in the early 70's. What has happened subsequently 13/ in the two states is not considered in this paper.

(a) Demographic Features:

According to the Census, the total area of Punjab and Maharashtra were 50,362 and 307,762 sq.kms respectively. This implies a population density of 268 and 164 in 1971. These and other notable features of the two states along with corresponding All-India figures are shown in Table II. Maharashtra is, of course, much larger in population and size. This fact heightens the possible

extent of intra-state variations there so that our state level findings need to
be interpreted with caution. The proportion of rural population in the total
(line 5) is quite a bit higher in Punjab, but both are below the national avera-
ge. This reflects the relative importance of agriculture in the states,on which
we shall comment below. The low worker participation rate in Punjab (line 7)
is most probably a reflection of the fact that a significant portion of female
work is counted as domestic work, and hence not recorded. For Maharashtra, the
relatively high figure compared to All-India reflects in part the higher incidence
of agricultural labour, particularly for females. 14/

(b) Share of Agriculture in State Economy

Table III also shows the relative share of agriculture in the net state dome-
stic product and the corresponding all-India figure. The importance of this se-
ctor in Punjab stands out sharply in contrast with Maharashtra. The latter, on
the other hand, ranks as the most industrialized state in the nation, both in
terms of share of manufacturing in SDP as well as the per capita value of manufa-
cturing (1970-71). As for Punjab, its rank was as low as 13th among states in
the share of manufacturing in SDP. However, this is partly because the absolute
value of income originating in agriculture here is very high. In absolute terms,
Punjab may be considered as having a fairly substantial industrial sector, as
shown by the fact that its rank was 4th in per capita value of manufacturing.
Thus, the overall picture we gather is that Maharashtra has a very strong indu-
strial base, but an agricultural sector backward in several respects, whereas
Punjab has a highly productive agricultural base with a fairly strong industrial
sector, but with agriculture quite clearly the mainstay of the economy.

(c) Land Utilization

An important factor in the difference between the two states is in the
agrophysical character of the land base which in turn is reflected in the pattern
of land utilization. These are presented in Table IV. Most noticeable is the 15/

Table II

Area, Production and Density

		Punjab	Maharashtra	All-India
1.	Geographical Area (sq.km)	50,362	307.762	3.280.483
2.	Population Density (Persons/sq.km)	268	164	182 [1]
3.	Size of Rural Population (millions)	10.33	34.70	438.86
4.	No. of Rural Households (000)	1702	6300	79565
5.	Rural Population as % of total population	76.20	68.80	80.13
6.	Rural Population per operated ha	1.98	1.13	2.17
7.	Workers as % of Total population	28.81	37.21	33.54

Notes & Sources:

1. Excludes Jammu and Kashmir and NEFA
2. Sources for table are - Census of India 1971, Agricultural Census 1970-71, All India Report.

Table III

Relative Importance of Agriculture

in State Economy (1970-71)

Current Prices

	Punjab	Maharashtra
1. Share of Agriculture in Net State Domestic Product (1970-71), Current Prices %)	60.75	26.14
2. Per capita value of manufacturing (Rs)(registered and unregistered)	85	214
3. Per capita value of agriculture (Rs)	646	210
4. Per capita net state domestic product (Rs)	1063	803

Source: C.S.O. data represented in Regional Dimensions of India's Economic Development (Planning Commission & State Planning Institute, U.P.) and Census of India 1971. The figures are in current prices.

difference between the states in the proportion of net sown area in total area, as also the proportion of area sown more than once. These figures indicate the much higher intensity of utilization of land in Punjab. This is clearly due to irrigation. Part of the reason, however, for the low share of net sown area in Maharashtra is the much greater extent of forests, but partly it is due to the higher incidence of 'other uncultivated land, excluding fallow land' and 'fallow land other than current fallow', indicating the low efficiency of agricultural use. However, the extent of land under permanent pastures is quite significant for Maharashtra. The proportion of 'land not available for cultivation' (which includes land put to nonagricultural uses and barren and uncultivated land) is somewhat higher in Punjab.

The low efficiency of land utilization in Maharashtra is closely related to water availability. Large areas receive highly uncertain rainfall. Out of 26 districts as many as 13 are regarded as prone to drought. These districts account for 62% of the net sown area in the State. If we assume that irrigated areas in these districts are not affected by drought and count only the rainfed area, this amounts to 40% of the NSA in the State. This, however, is still a fairly substantial proportion. In these regions, the frequency of rain defici-ent years is reported to be 0.62 on the average. ^{16/} Punjab also is not a high rain-fall state. In fact, as much as 80% of its NSA receives rainfall below 750 mm per year (which is officially classified as low rainfall). But this is countera-cted effectively by irrigation and the cropping intensity remains very high. According to latest available figures (1978-79), 85% of NSA in Punjab fell in the low rainfall category. But since the ratio of gross irrigated area to gross sown area in these regions was 88.3%, the cropping intensity was high at 158. ^{17/} These features of the land base and its utilization find reflection in the diffe-rential growth performance and cropping pattern of the two states.

Table IV.

Land Utilisation in Punjab and Maharashtra

1969-70

(Thousand Hectares)

		Punjab	Maharashtra
1.	Total Geographical Area	5030 (100)	30768
2.	Area under Forests	120 (2.4)	5409 (17.5)
3.	Land not available for cultivation	635 (12.6)	2456 (8.0)
4.	Other uncultivated land, excluding fallow land	98 (1.9)	2254 (7.3)
5.	Fallow land other than current fallow	(-)	1105 (3.6)
6.	Current Fallow	150 (2.9)	1082 (3.5)
7.	Net sown Area	4027 (80.1)	18462 (60.0)
8.	Area sown more than once	1472 (29.3)	(3.2)
9.	Total Cropped Area	5499	19435

Sources: Statistical Handbook of Punjab 1971-72 (Publication No. 167, The Econo-
mic Adviser to the Government of Punjab) Handbook of Basic Statistics
1972 (Bureau of Economics and Statistics, Government of Maharashtra)

Notes: (a) Figures in parenthesis are percentages to total geographical area

(b) Total geographical area (line 1) pertains to reporting area for land
utilisation purposes.

(c) Land not available for cultivation includes barren and uncultivable
land and land put to nonagricultural uses. This breakdown was not
available to the author for Punjab. In Maharashtra the breakdown
between these two subcategories was 72% and 28% respectively.

(d) Line 4 (other uncultivated land) includes culturable waste permane-
nt pastures and land under miscellaneous tree crops. The breakdown
was available for Maharashtra - viz, 7.08, 13.51 and 1.95 lakh
hectares respectively.

13

(d) Growth Performance:

As may be expected from the above, the growth performance of agriculture over the decade of the 1960's (which immediately precedes the period under consideration) were a marked contrast as far as the two states are concerned. The agricultural growth of Punjab under the Green Revolution is too/well known to require any comment. According to Bhalla and Alagh (1979), the compound growth rate of agricultural output over the period 1962-65 to 1970-73, was the highest among all the states in Punjab at 7.91% per year. Yield grew at 5.45% and area at 2.33%. The lowest figures were for Maharashtra. They were sharply negative, at - 3.77% per year, with yield declining at -2.74% and area at -1.08%, signalling a deep decline in the agricultural sector. The contrast between a buoyant and regressive agrarian economy could hardly be more vivid than in the case of these two states. However, it should be noted that the Bhalla-Alagh figures tend to overstate the decline in Maharashtra, because in the terminal period, 1970-73, two of the years 1971-72 and, particularly, 1972-73 were bad years due to drought. Khare (1979) reports some alternative results on regression-estimated annual compound growth rates for Maharashtra between 1960-61 to 1971-72, deleting certain "unusual" years. Though the magnitude of the decline is lower, the overall impression is unaltered.

(e) Cropping Pattern and Input Use

The 1970-71 cropping pattern of principal crops expressed as a fraction of GCA in the two states is presented in Table V. The main differences in the cropping pattern can be easily noticed. While the overall share of foodgrains is roughly equal amounting to about 70%, Punjab has a higher component of this as cereals (66% compared to 55%), and Maharashtra has a corresponding higher share of area under pulses. Among cereals, of course wheat is the dominant crop for Punjab (41%) followed by maize(11%) and rice (8%). Jowar predominates in Maharashtra (31%), followed by bajra (11%) and rice (7%). The impact of soil and water

conditions on crop composition is thus evident. Among pulses, gram is more important in Punjab, whereas Maharashtra grows a wider range of pulses though tur is relatively important. Cotton is quite important in Maharashtra accounting for 15% of area. Punjab devotes 8% of area to cotton. Finally, we notice the relative importance of oilseeds, (mainly groundnut) in Maharashtra.

Thus, to sum up Punjab agriculture is dominated by wheat, while Maharashtra produces coarse cereals, cotton and pulses. The crop composition reflects the agroclimatic characteristics of the two states noted earlier.

With regard to input use, the picture is as may be expected. The average fertilizer consumption in 1970-71 was 37.58 kgs per hectare of GCA for Punjab compared to which the Maharashtra figure was 8.72. Of this the major share (25%) is devoted to sugarcane despite its accounting for a very small fraction of GCA in Maharashtra. Punjab, being at the heart of the green revolution, had high proportions of area under HYV. Thus, for wheat 69%, for rice 33%, maize 9% and bajra 61% of GCA was under HYV. The figures for Maharashtra were negligible

This brief overview of conditions bearing on the agrarian economy of the two states in the early 70's indicates that the contrasts between them were many and sharp. In the next section we take up the examination of agrarian structure in these two states. Our preceding discussion provides a background against which land distribution data may be interpreted. It is clear that because of differen in productivity, land distribution statistics provide an imperfect indicator of variations in peasant differentiation. Furthermore, the significance of a particular distribution of land for economic behaviour depends also on the level of consumption and cost of cultivation prevailing. Keeping in mind these considerations the next section attempts to construct estimates of the inciden of nonviable and viable households among the cultivators and the extent of their land deficit (or surplus) for the two states on a comparable basis.

Table V

Cropping Pattern, 1970-71 (% of GCA)

	Punjab	Maharashtra
Total Foodgrains	71.90	68.54
Cereals (total)	65.66	55.33
Rice	7.99	7.41
Jowar	0.49	30.83
Bajra	3.93	10.95
Maize	10.98	0.21
Wheat	41.40	4.06
Barley	0.84	--
Ragi	--	0.99
Pulses (total)	6.24	13.20
Gram	5.29	1.42
Tur	0.26	3.30
Oilseeds (total)	4.58	9.14
Groundnut	2.82	4.78
Other oilseeds	1.76	4.36
Sugarcane	1.96	1.04
Cotton	8.25	14.80
Vegetables	0.31*	0.48
Fruits	0.24	0.48
Other Crops	13.03	5.49
GCA	100	100

Notes

* Does not include potato

Source : All India Report on Agricultural Census 1970-71

III

In this part of the paper, we shall analyze the agrarian structure of the
two states. We begin with an examination of data on land distribution from the
N.S.S. 26th Round. The size distribution of both ownership holdings and opera-
tional holdings and associated inequality indicators are first discussed. Next,
we explain the assumptions and methodology employed in our empirical estimation
of viability indices by size class of operational holding. Next, we present our
empirical results and comment on their significance for understanding peasant
differentiation in the two states, and the issue of wage labour. Finally, we
examine the relationship between the viability index and (i) ownership of draught
animals and ploughs and (ii) incidence of attached labourers.

Size Distribution of Ownership and Operational Holdings

If we accept the definition of 'cultivator household' used in the NSS land
holdings survey and the RBI Debt and Investment Survey, as those households havi-
ng an operational holding of .002 hectare or more, then the proportion of cultiva-
tors in rural households in Punjab and Maharashtra amount to 42.9 and 68.6 percent
respectively. [21/] The corresponding all-India figure is higher at 72.4 per cent.
Thus, the difference in the proportion of cultivators between the two states is
rather striking. Table VI and VII show the data on the distribution of ownership
and operational holdings. From Table VI if we consider first the percentage
distribution of households by size class of ownership holdings, we notice the fo-
llowing: (a) Landless households are far more prevalent in Maharashtra compared
to both Punjab and all India. (b) For Punjab, the proportion of households with
very tiny ownership holdings below 0.2 ha is extremely large (51%), whereas for
Maharashtra the figure (17%) is small, even compared to all India (28%) (c) The
All-India figures show a generally higher incidence of small holdings between
0.21 to 0.50 hectares. This pattern continues for the two next size classes.
Punjab has a rather low figure. (d) In the two size categories, (1.01 - 3.03 ha)

there is a clustering of households for both states, though it is more marked in
Maharashtra. A similar clustering occurs, but over a size class range of slight
smaller holdings in the country as a whole (c) Beyond 3 hectares, the percentage
households tapers off. But there are a relatively high percentage in these
larger size classes in Maharashtra.

In terms of the quantum of area owned, there appears to be a large share of
area in Maharashtra above the 10 hectare classes. Punjab, on the other hand, has
a higher proportion of owned area in holdings below 5 hectares. Thus in the 1.0
to 5.05 hectares range, Punjab has 44% of owned area against 37% in Maharashtra.
In this range, the corresponding all India magnitude is comparable with Punjab,
but the distribution within the range (ie. between 1.01 - 3.03 and 3.04 - 5.05 h
is quite different. Because of the large concentration of households with tiny
holdings(below C.20 ha) in Punjab, the Lorentz ratios indicate a higher degree
of inequality in Punjab. If this category is excluded, the degree of inequality
among the remaining households would come down sharply.

Table VII presents the data for operational holdings. The picture is broad
similar to that observed for ownership holdings. One striking difference, howev
is that the 0 size class is now much larger. This implies that the bulk of hous
holds who own tiny holdings do not operate them. Comparison of Tables VI and VI
also suggests a similar but weaker tendency among the next few size classes as
well. This is more marked for Punjab where the proportion of households as well
as area operated, as compared with area owned, is noticeably smaller upto the 1
ha range, and this pattern actually continues upto 3 hectares. In Maharashtra
this pattern is much weaker, but continues into much higher size categories. At
the very high end of the spectrum, beyond 8 hectares, the two states show an
opposite pattern -- namely a slight weakening of the importance of these categori
in the Punjab (where the range between 3 to 8 hectares gets more important) as
opposed to a slight strengthening in Maharashtra. This reflects the working of 1
lease market. Though the patterns are somewhat muted, the picture is one of a

Table VI

Size Class Distribution of Ownership Holdings
by Percentage of Households and Area Owned

Size Class of Ownership Land Holding (Ha)	Punjab Percentage of		Maharashtra Percentage of		All-India Percentage of	
	Households	Area Owned	Households	Area Owned	Households	Area Owned
Landless*	7.14	–	15.83	–	9.64	–
0.00 – 0.20	50.78	0.60	17.03	0.13	27.78	0.69
0.21 – 0.40	1.94	0.39	3.16	0.33	7.45	1.38
0.41 – 0.50	2.44	0.80	3.99	0.64	4.47	1.28
0.51 – 1.00	5.20	2.68	8.35	2.38	13.28	6.41
1.01 – 2.02	8.37	8.37	14.94	8.59	15.49	14.68
2.03 – 3.03	8.02	13.60	10.15	9.90	7.89	12.70
3.04 – 4.04	4.69	11.46	6.13	8.44	4.05	9.22
4.05 – 5.05	3.42	10.55	5.55	9.68	3.03	8.84
5.06 – 6.07	2.42	9.29	2.83	6.18	1.59	5.73
6.08 – 8.09	1.76	8.44	4.61	12.54	2.04	9.26
8.10 – 10.12	1.59	9.68	2.00	7.05	1.17	6.90
10.13 – 12.14	1.10	8.35	1.80	7.74	0.67	4.80
12.15 – 20.24	0.88	9.69	2.75	16.26	1.04	10.25
20.25 & above	0.25	5.60	0.88	10.14	0.41	7.86
	100	100	100	100	100	100

Lorentz Ratios:

Excluding Landless	0.7703	0.6654
Including Landless	0.7867	0.7001

* Landless group includes those owing less than .002 hectare.

Sources: National Sample Survey, 26th Round, 1971–72
   Chandan Mukherjee and Sujana Bai, Working Paper No. 94, Centre for
   Development Studies, Trivandrum.

Table VII

Size Class Distribution of Operational Holdings by Percentage of Households and Area Operated

Size class of Operational Holdings (Ha)	Punjab Percentage of		Maharashtra Percentage of		All India Percentage of	
	Hh	Area Op	Hh	Area Op	Hh	Area Op
0*	58.61	–	30.97	–	27.41	–
0.00 – 0.02	0.93	0.06	2.90	0.08	8.04	0.47
0.21 – 2.40	0.74	0.12	3.15	0.31	5.89	1.22
0.41 – 0.50	1.11	0.31	3.13	0.50	4.11	1.12
0.51 – 1.00	2.21	1.05	7.63	2.16	13.83	6.44
1.01 – 2.02	7.85	7.25	14.98	8.44	16.49	14.91
2.03 – 3.03	6.82	10.30	10.04	9.65	8.66	13.31
3.04 – 4.04	7.02	15.00	5.95	7.89	4.28	9.30
4.05 – 5.05	4.28	11.82	5.88	10.04	3.08	8.60
5.06 – 6.07	3.04	10.16	2.70	5.72	1.64	5.62
6.08 – 8.09	3.44	14.47	4.71	12.44	2.15	9.30
8.10 – 10.12	1.68	8.97	2.07	7.14	1.23	6.88
10.13 – 12.14	0.90	5.95	2.07	8.66	0.71	4.84
12.15 – 20.24	1.07	9.90	2.92	16.78	1.12	10.49
20.25 & above	0.30	4.56	0.92	10.19	0.41	7.50

Lorentz Ratios

Excluding 0 class	0.7538	0.6655
Including 0 class	0.8981	0.7961

* 0 includes those not operating or operating less than .002 ha

Source: Same as in Table VI

of a slight polarization tendency between the very large farmers and the rest in
Maharashtra, whereas the intermediate (3 to 8 ha) categories are more important
at the expense of the extremes in Punjab. This is reflected in the slight dec-
rease in the Lorentz ratio for Punjab (excluding the 0 size class as compared with
ownership holdings. The above discussion considers the distribution of holdings
using percentages of total rural households, i.e. including those who are land-
less or do not operate land. In assessing the extent of differentiation, it is
useful to examine also the distribution among only land operating households.
Utilizing the broad classification adopted by the Agricultural Census, we have
grouped the NSS data into 5 classes: Marginal (.002-1.0ha) small (1.01-2.02 ha)
semi-medium (2.03 - 4.04 ha), medium (4.04-10.12 ha) and large (10.12 ha and
above) farmers. The percentage distribution of land operated and of households is
shown in Table VIII.

This table summarizes and brings out more sharply our earlier observations
on the distribution of operated area. We can see that the incidence of small
farmers is much greater in Maharashtra and so is the area under large farms, com-
pared to Punjab. But both states are much lower than all-India with regard to
marginal farmers. The importance of medium farmers in Punjab relative to elsewh-
ere is also clearly evident. Without additional information, however, it is not
possible to draw many further conclusions regarding the extent of peasant diffe-
rentiation, nor of the significance of this for economic behaviour. Because of
agroclimatic and productivity differences noted in Part II, there is no real com-
parability between the economic condition of such 'marginal farmers' in the two
states. It is likely for instance, that households with higher sizes farms also
face a land deficit. In the remainder of this section, we shall attempt to con-
struct estimates of the proportion of land-deficit and land-surplus households,
and the magnitude of their deficit in the two states on a comparable basis, for
each of the NSS size classes. Before presenting our results, we shall briefly
explain first the logic, assumptions and methodology underlying our calculations.

Table VIII

Distribution of Operated Area
by Broad Size Categories

Size Group	Punjab Percentage of		Maharashtra Percentage of		All India Percentage of	
	Hh	Area	Hh	Area	Hh	Area
1. Marginal	12.06	1.54	24.35	3.05	44.49	9.25
2. Small	18.97	7.25	14.98	8.44	22.65	14.91
3. Semi Medium	33.44	25.30	23.13	17.54	17.83	22.61
4. Medium	30.06	45.42	22.25	35.34	11.16	30.40
5. Large	5.48	20.41	8.56	35.63	3.09	22.83

Notes:

(1) Source: NSS 26th Round, 1971-72

(2) Following the broad classifications suggested in Agricultural Census

      ie. Marginal .002 to 1.0 ha

         Small   1.01 to 2.02 ha

         Semi medium   2.03 to 4.04 ha

         Medium   4.05 to 10.12 ha

         Large   10.12 and above

The details of the calculations and sources used are given in the Appendix.

Assumptions and Methodology of Estimation Procedure

(1) We assume that in order to judge the existence and magnitude of land deficit or surplus (and by implication economic status) of cultivators under Indian conditions, we should compare the net income from land operated with the household's subsistence consumption requirements. Those whose net income from cultivation is insufficient are regarded as land-deficit or nonviable households. Thus, though alternative notions of economic viability (e.g. generation of 'normal' profit rates or ability to fully employ household labour or bullock resources) are conceivable, our calculations are based on the consumption norm.

(2) Both the level of subsistence consumption and the net income generating capacity of land are defined taking local conditions into account. We assume that an important indicator of the social and moral norm of subsistence consumption in the agrarian sector is the percapita consumption expenditure of non cultivating wage earner households in the state. Similarly the calculations for net income generated from cultivation is based on state level differences in productivity (which takes account of physical yield differences and the value composition of crops) as well as the cost of production (and thus input use). To take care of year to year fluctuations 3 year averages are taken.

(3) The net income calculations are made for each NSS size class of holding by deducting from the value of gross output the operating cost of production. The value of gross output includes the 19 principal crops used in the Bhalla-Alagh study plus fodder and byproducts. The returns from animal husbandry are not included mainly because our focus is on land deficit and the viability of crop production as an activity. This amounts to assuming that animal husbandry is a supplementary activity, among others. In cost of production have been included the major flow items - costs on seeds, manures and fertilizers, irrigation charges, the feed component of maintenance cost of owned and hired draught animals, rent paid and the interest on working capital. The difference is taken

as the net value of output available for consumption, accumulation, and payment to wage workers, if any. We have not included any imputed costs for owned reso urces, including land and labour, nor any depreciation as there is some doubt a to what extent these imputed costs are relevant in the peasants' decision making We have also not included the cost of hired labour for two reasons: (a) It is assumed that for nonviable farmers, the cost on account of hired labour is insig ficant, even though it is known that some peak season casual labour may be employed by them; and (b) for viable farmers, it is intended that the viability index reflect the capacity of the household to employ wage workers. Inclusion of wage cost incurred would obscure this aspect of their resource position.

(4) Net income estimates are generated separately for each of the NSS size classe of households. These are computed in the following manner. We start with the state level yield per GCA for 1970-73 given in Alagh-Bhalla (1979). These figure are taken as the base level. From these, the value of gross output per hectare of operated area in each size class is calculated by adjusting for the difference between each size class and the state level averages with respect to the following

(i) proportion of NSA to the total operated area, (ii) the index of the intensity of cropping; and (iii) the proportions of irrigated and non-irrigated NSA, and by also taking into account the state level average productivity difference be tween irrigated and unirrigated land. Finally, these gross output per hectare figures are adjusted upwards by the percentage of value of byproducts and fodder in gross output uniformly for all size classes. For this, state level figures of the byproducts and fodder in the total output are obtained from the latest available FMS reports. As for (i) and (ii), these are available by size class of holding in the Agricultural Census 1970-71. However, since these size classes are not identical with those in the NSS, care has been taken to match them to the extent possible. Thus, we obtain for each state, the value of gross income from cultiva- tion per hectare of operated area for each NSS size class of operational holding.

From these, the costs are to be deducted. On the cost side, the most reliable size class wise information available to us were the FMS Reports. For Punjab, we utilized the state level combined report (1967-1970) but for Maharashtra, we relied on the Ahmednagar District 1967-68 and 1969-70 Reports. The procedure has been to estimate the cost as a proportion of the value of output in each size class, for each of the following items: maintenance of draught animals, seed, manures and fertilizer, irrigation, rent and interest on working capital. The FMS size groups are not identical with the NSS size classes, nor are they identical between the states. We have allocated these percentages to the NSS size classes appropriately, as far as the data allow.[22] For each size class these percentages, when added, yield the cost of operation, expressed as a fraction of the gross value of output. Deducting this percentage from the gross income figures gives us the net income from cultivation per hectare of operated a areas for each NSS size class.

(5) As mentioned earlier, on the consumption side we have taken as the subsistence norm, the state level annual consumption expenditure of noncultivating wage earner households as given in NSS 25th Round (1970-71).[23] These are converted into percapita terms. Using these, estimates for "necessary" subsistence expenditure are built up for each size class by multiplying the percapita value with the corresponding average household size.

(6) Next, we calculate the "necessary holding size" by computing the land size which would be required to generate an income equivalent to the necessary subsistence expenditure. For this, the size-specific net income per hectare (obtained as mentioned above) are utilized. Thus, our estimates have taken into account all the size-specific features relating to productivity and irrigation, nonlabour input use, and household size.

(7) These estimates of necessary holding size are compared with the actual holding size are compared with the actual holding size,i.e. the average size operational holding, to provide estimates of the extent of land deficit or surplus

Finally, two alternative unit-free indices of viability are constructed by normalising the land surplus or deficit or deficit figures by the necessary holding size and by the state average operational holding size.

Comparative Analysis - Empirical Results:

Tables IX to XII present our results. These, however, should be accepted with some caution, given the constructive nature of the estimates. Care has been taken to ensure that our estimates of nonviability are not likely to be biased upward. It should be reiterated that these estimates of land deficit are built up with reference to the income generated in crop production only. The total income of these households are obviously higher, as part is drawn from other sources, including wage labour. As explained earlier, the logic of our definition rests on the presumption that land is the key agricultural asset, and we are trying to measure the extent to which the return from this key asset suffices to meet the reproduction necessities of peasant households. In the case of land deficit households, the allocation of household labour to other activities are undertaken by these households largely in response to the land deficit. The pattern of these noncultivation activities is examined in a follow-up paper. A final caveat relates to the fact that these results are open to problems inherent in using averages of grouped data. Hence our empirical results should be taken as indicative.

On the significance of these computations for comparative analysis of Punjab and Maharashtra, the following comments could be made. From Tables IX and XI we observe that:

(a) Because of productivity differences, the net value of output available per hectare of GCA and of operated area is substantially higher in the Punjab, by a factor of between 3 to 4 times, as compared to Maharashtra, for each size class of holding. This indicates how misleading simple comparisons of distribution of households by size class of land holdings may be.

Table IX: Variables Relevant to Viability Computations, Punjab

Size Class of Operational holding (ha)	Net Value of Output/GCA (ha) (Rs/Ha)	Net Value of Output per Ha of Operated Area (Rs/Ha)	Household Size	Necessary Consumption Expenditure (Rs)	Necessary Holding Size (Ha)	Actual size of Oper Holding (Ha)
0	--	--	5.08	--	--	
0.00 - 0.20	1344	2102	5.01	2599	1.24	0.11
0.21 - 0.40	1445	2261	4.20	2179	0.96	0.26
0.41 - 0.50	1410	2205	5.79	3004	1.36	0.47
0.51 - 1.00	1384	2118	3.78	1961	0.93	0.78
1.01 - 2.02	1301	1951	5.25	2723	1.40	1.52
2.03 - 3.03	1334	1975	6.63	3440	1.74	2.48
3.04 - 4.04	1292	1888	6.80	3528	1.87	3.53
4.05 - 5.05	1395	2020	7.35	3813	1.89	4.54
5.06 - 6.07	1395	1950	7.18	3725	1.91	5.50
6.08 - 8.09	1354	1892	7.60	3943	2.08	6.91
8.10 - 10.12	1401	1958	8.78	4555	2.33	8.77
10.13 - 12.14	1454	1888	9.48	4918	2.62	11.00
12.15 - 20.24	1432	1852	8.52	4420	2.39	15.20
20.25 +	1295	1438	6.02	3123	2.17	25.26
All sizes			5.68			3.97

Notes: 1. The net value of output per hectare of operated area is obtained from the preceding column by adjusting for cropping sity and the proportion of net sown area in operated area.

2. Necessary consumption equals per capita expenditure of non cultivating wage earner households to multiplied by house size

3. Necessary holding size equals necessary consumption divided by net output per operated hectare.

Table X

Distribution of Viability Indices, Punjab

Size Class of operational holding (ha)	Land Surplus (+) or Deficit (−) (ha)	Viability Index		Percent of Households	
		V1	V2	All Hh	Cultivated Hh
0				58.61	−
0.00 − 0.20 (1)	− 1.12	− 0.91	− 0.28	0.93	2.25
0.21 − 0.40 (2)	− 0.70	− 0.73	− 0.18	0.74	1.79
0.41 − 0.50 (3)	− 0.89	− 0.65	− 0.22	1.11	2.68
0.51 − 1.00 (4)	− 0.15	− 0.16	− 0.04	2.21	5.34
1.01 − 2.02 (5)	0.12	0.09	0.03	7.63	18.97
2.03 − 3.03 (6)	0.74	0.42	0.19	6.82	16.48
3.04 − 4.04 (7)	1.66	0.89	0.42	7.02	16.96
4.05 − 5.05 (8)	2.65	1.40	0.67	4.28	10.34
5.06 − 6.07 (9)	3.59	1.88	0.90	3.04	7.34
6.08 − 8.09 (10)	4.83	2.32	1.22	3.44	8.31
8.10 −10.12 (11)	6.44	2.77	1.62	1.68	4.06
10.13 −12.14 (12)	8.38	3.20	2.11	0.90	2.17
12.15 −20.24 (13)	12.81	5.37	3.23	1.07	2.59
20.25 + (14)	23.09	10.63	5.82	0.30	0.72
				100	100

Notes: 1. Figures in parentheses are size class codes.

2. Land Surplus/deficit equals actual holding size less necessary holding size.

   V1 is defined as the ratio of land surplus/deficit to the necessary holding size in each class.

3. V2 is defined as the ratio of land surplus/deficit to the state level average size of operational holding.

Table XI. Variables Relevant to Viability Computations, Maharashtra

Size class of operational Holding (Ha)	Net Value of Output/GCA (Rs/Ha)	Net Value of Output per Ha of operated Area (Rs/Ha)	Household Size	Necessary Consumption Expenditure (Rs)	Necessary Holding Size (Ha)		Actual size of Operational holding (Ha)
					Estimate I	Estimate II	
0			4.47	—	—	—	—
0.00 – 0.20	434.5	413.8	4.21	1334	3.22	2.68	0.10
0.21 – 0.40	441.1	420.1	4.08	1293	3.08	2.57	0.26
0.41 – 0.50	447.8	426.4	4.31	1366	3.20	2.67	0.42
0.51 – 1.00	438.4	418.4	4.46	1414	3.38	2.82	0.74
1.01 – 2.02	425.3	395.4	5.02	1591	4.02	3.35	1.48
2.03 – 3.03	419.9	382.3	5.54	1756	4.59	3.83	2.52
3.04 – 4.04	412.9	370.70	5.58	1767	4.77	3.98	3.49
4.05 – 5.05	429.2	380.4	6.33	2006	5.27	4.39	4.48
5.06 – 6.07	428.2	373.7	6.34	2010	5.38	4.48	5.56
6.08 – 8.09	413.5	360.9	7.16	2269	6.28	5.23	6.93
8.10 –10.12	387.6	338.3	7.51	2380	7.03	5.86	9.05
10.13 –12.14	402.9	341.5	7.72	2447	7.17	5.98	10.98
12.15 –20.24	407.2	345.1	7.78	2466	7.14	5.95	15.09
20.25 +	410.1	308.3	10.00	3360	10.89	9.08	29.04
All Sizes			5.27				3.80

Notes: Same as Table IX. Unlike the figures shown for Punjab, in the case of Maharashtra we have generated 2 alternative estima for necessary adding size. Estimate I is the base case based on average yield figures for the 3 years 1970-71 to 1972-73 However, 2 of these were drought years, with unusually poor performance. We have made Estimate II, based on Yields preva ling in 1969-70 which was a normal year. On an average, these were about 20% higher. Estimate II is based on this assum

29

Table XII

Distribution of Viability Indices, Maharashtra

Size class of Operational Holding (ha)/(code)	Land Surplus (+) or Deficit (-) in ha		Viability Index V1		Viability Index V2		Percent of Households in Group	
	Est I	Est II	Est I	Est II	Est I	Est II	All hh	Cultivat hh
0	-	-	-	-	-	-	30.97	-
0.00 - 0.20 (1)	- 3.12	- 2.58	- 0.96	- 0.96	- 0.82	- 0.68	2.90	4.20
0.21 - 0.40 (2)	- 2.82	- 2.31	- 0.91	- 0.90	- 0.74	- 0.61	3.15	4.56
0.41 - 0.50 (3)	- 2.78	- 2.25	- 0.87	- 0.84	- 0.73	- 0.59	3.13	4.53
0.51 - 1.00 (4)	- 2.64	- 2.08	- 0.78	- 0.74	- 0.69	- 0.55	7.63	11.05
1.01 - 2.02 (5)	- 2.54	- 1.87	- 0.63	- 0.56	- 0.67	- 0.49	14.98	21.70
2.03 - 3.03 (6)	- 2.07	- 1.31	- 0.45	- 0.34	- 0.54	- 0.34	10.04	14.54
3.04 - 4.04 (7)	- 1.28	- 0.49	- 0.27	- 0.12	- 0.34	- 0.12	5.93	8.59
4.05 - 5.05 (8)	- 0.79	0.09	- 0.14	0.02	- 0.21	0.02	5.88	8.52
5.06 - 6.07 (9)	0.18	1.08	0.03	0.24	0.05	0.28	2.70	3.91
6.08 - 8.09 (10)	0.65	1.70	0.10	0.32	0.17	0.45	4.71	6.82
8.10 -10.12 (11)	2.02	3.19	0.29	0.54	0.53	0.84	2.07	3.00
10.13-12.14 (12)	3.81	5.00	0.53	0.84	1.00	1.32	2.07	3.00
12.15-20.24 (13)	7.95	9.14	0.90	1.54	2.09	2.41	2.92	4.23
20.25 + (14)	18.15	19.96	1.67	2.20	4.77	5.25	0.92	1.33
							100.0	100.0

Notes: Same as for Table X

The assumptions underlying Estimates I and II are explained in notes to Table XI.

(b) The superior productivity of land is partly reflected in the higher house-
holds size for each land size category, for Punjab compared to Maharashtra. This
is generally true, barring one or two exceptions. On average, household size in
Punjab is 8% higher, though for many land size categories the difference is much
greater.

(c) Partly because of higher household size, but more so because the level of
per capita expenditure/earnings of noncultivating wage earner households in Pun-
jab is much higher than Maharashtra (Rs. 518 as compared with Rs. 317), the figures
for necessary consumption expenditure in the two states differ accordingly.
These differences are substantial. Thus, our results would vary considerably
from those which use a common poverty or minimum calorie requirement specifica-
tion to measure subsistence requirements. As explained earlier, the logic of our
procedure stems from the assumption that the 'social and moral norm of subsiste-
nce is closely associated with the average level attained by rural wage earner
households in the particular region. This seems to be a reasonable norm below
which peasants would experience social and economic pressure towards proletaria-
nisation.

(d) This Tables also present estimates of necessary holding size for each size
class of household. These are the size classes of operational holdings beyond
which households would be able to generate sufficient net income to meet the ne-
cessary consumption expenditure. For this calculation the size specific net re-
turn per hectare of operated area have been made. The difference between the two
estimates lies in the assumption underlying yield of output per GCA. Estimate I
has been constructed on the basis of 3 year average yields for 1970-73. Normally
this procedure is meant to smooth out year to year fluctuations. However, in this
particular case, 2 of the 3 years were exceptionally bad years on account of drou-
ght. To avoid a bias arising from this we have constructed Estimate II on the
basis of yield figure obtaining in 1969-70, which was more in line with yields
achieved in the 1960's, and during which the yield was approximately 20% higher.

As is to be expected, in both states the necessary holding size gradually increases with land holding size due both to rising household size and falling net return per hectare. Comparing the two states across similar land holding size, we not that both sets of estimates for Maharashtra are substantially higher than for Punjab. These estimates for necessary holding size may be compared with the actual average holding size corresponding to it. For both states, there are several size classes of households at the lower ranges for which the necessary holding size exceeds the actual size of operational holdings. For Punjab, the cut off comes in size class 5 (below 1.01 ha). As for Maharashtra, the cut off is siz class 8 (below 5.05 ha) according to estimate I, and size class 7 (below 4.05 ha) according to Estimate II. The households in these size classes are, by our defi-nition, nonviable households.

(e) Further details on this are available in Tables X and XII, which present the computed values for our indices for viability. By and large, the deficits and sur-pluses in land holdings expressed in hectares differ in pattern between the two states. Maharashtra has rather high deficit figures among the nonviable households whereas these are low for Punjab. However, the land surpluses for Punjab among the viable farmers are much greater than the corresponding figures among Maharashtra farmers. To make the figures comparable we have computed two indicators V1 and V2. In the first, we have normalised the deficit/surplus using the corresponding nece-ssary holding size. In the case of the second indicator V2, we have normalised the surplus/deficit using the average size of operational holding in the state. As explained above, for Maharashtra two sets of estimates have been generated.

Some Implications

From these figures, the following may be observed:

(i) Regardless of the indicator, the overall level of viability is much greater in Punjab compared to Maharashtra, for each size class of operational holding. This

combined with the fact that the proportion of landless rural households (0 size class) is approximately twice as high in Punjab suggests that the major form of economic differentiation in Punjab is between the landed and the landless. In Maharashtra it tends to take the form of a broad division between viable and non viable cultivators, with the latter spread over a large range of land holding si

(ii) Also fairly striking in the difference between the two states in the patt of variation in the viability indices across size classes of operational holdin The viability indices rise rather sharply in the case of Punjab, whereas the ind ces move upward gradually for Maharashtra. Thus, not only are the ranges of non viability much greater in the latter, the incremental impact of additional land on viability status is much weaker in Maharashtra compared to Punjab. This ref cts the impact on differentiation of irrigation and more productive agricultural technology. This means also that productivity differences dominate over the dif rences due to demographic characteristics (i.e. family size) with regard to viab lity status. Thus, among cultivator households, we find that only about 12% of them are nonviable in Punjab, while for Maharashtra the figure is 69% (Estimate or 78% (Estimate II). Thus regardless of the particular estimate considered, th difference in the proportion of non viable cultivators is quite striking. If however, we consider all rural households by including the size class 0, then th following fact emerges. The proportion of nonviable households plus the landless (size class 0) together comprise 61% of total rural households in Punjab. For Maharashtra, the corresponding figure is 79% (Estimate II) and 85% (Estimate I). The difference in this case is not nearly as significant.

This has interesting implications for the question of differentiation within the agrarian economy. It suggests that in a region where the agricultural forces of production are relatively advanced, particularly where land productivity is hi the relative incidence of nonviable peasantry (whose status as peasant is thereby under pressure) is much less significant. The principal focus of polarization oc rs in the division between landed and landless households. On the other hand, in

region where agricultural productivity is low and stagnant, a more gradual diffe-rentiation amongst the cultivators is evident. A very large majority of house-holds who operate land are nevertheless deficit households and this continues over a wide range of operational holding size. This important and striking difference in the nature of differentiation is not evident from a simple compari-son for the size distribution of ownership and operational holdings. This picture is further confirmed by looking at the extent of area under nonviable hol-dings. In Punjab the proportion of operated area under nonviable holdings, is only 1.5%, (or at most of 9% if we include the next size class which has a positive but low surplus), whereas in Maharashtra, between 29% to 39% of area is under nonviable holdings.

(iii) Our results have a direct bearing on the issue of wage labour in the rural sector. Table XIII presents the main features. The usual presumption in the ma-tter, based on the conventional interpretation of the differentiation thesis, is that the degree of proletarianisation would be higher in a more advanced agrarian economy. This, however, is not borne out by the data. On the basis of our calcu-lations, we can see that this need not follow so simply. As we saw in the previous paragraph, 65% of rural households in Punjab and about 80% in Maharashtra, are un-der pressure to generate at least some fraction of their subsistence requirements from sources other than cultivation. In a more prosperous and diversified rural economy as in Punjab, the scope for non agricultural self-employment and employ-ment are greater, while at the same time the demand for agricultural labour is high. On the other hand in a state like Maharashtra, our calculations indicate that the supply side pressure on the labour market due to the higher incidence of non-viability is also very much higher. Thus, it is not be surprising to find that inspite of the fact that there is this wide difference in the proportion of house-holds in the O size class (with Punjab roughly double the Maharashtra figure), the proportion of rural labour households (adopting an income definition) is greater in Maharashtra than in Punjab, according to the Rural Labour Enquiry (1974-75)[24].

Table XIII

Estimates of Rural Labour Force

		Punjab	Maharashtra
1.	Rural Labour Hh as % of Total Rural Hh[*]	25.8	36.6
2.	Agricultural Labour Hh as % of Total Rural Hh[*]	20.9	32.0
3.	Non Agricultural Labour Hh as % of Total Rural Hh[*]	4.9	4.6
4.	Rural Labour Households with land as % of Rural Labour Hh without Land[*]	9.5	85.8
5.	Male Agricultural Labourers as % as Rural Work Force[1]	26.0	30.0
6.	Male Agricultural labourers as % of Male Agricultural Workers[1]	31.0	37.0

Sources:

[*] Rural Labour Enquiry 1974-75

[1] The Census of India 1971.

The ratio of rural labour households to total rural households was 26% in Punjab and 37% in Maharashtra. The corresponding proportions of agricultural labour households are 21% and 32% respectively. In other words, of the rural labour households, 81% were agricultural labour households in Punjab compared with 87% in Maharashtra, indicating the higher extent of non agricultural wage labour opportunities available in Punjab. The impact of alternative occupational opportunities may also be glimpsed from the figures reported in the RBI Debt and Investment Survey, viz, that the proportion of artisans plus 'others' among non-cultivators (i.e. those operating less than 0.002 ha) was 55% in Punjab compared with 37% in Maharashtra. Thus, it appears from our interregional comparison, that the supply side factors, i.e. the subsistence pressure bearing on the non viable peasantry, are more crucial determinants of the incidence of wage labour in the rural sector It is interesting to note moreover, that this subsistence pressure does not arise from demographic pressure, with which such arguments are typically associated. As we have seen in Table I an II all indicators of demographic pressure show that the difference in rural proletarianization between the two regions is attributable to the ability to generate subsistence from crop production which is a function simultaneously of technological, demographic, socioeconomic and agrophysical factors.

Another feature of the agricultural labour force which is easily explained in terms of our findings is the fact that there exists a very significant difference in the relative proportions of landed vis-a-vis landless rural labour households. According to the Rural Labour Enquiry, the ratio of rural labour households with land to rural labour households without land were as follows: Punjab - 9.5%, and Maharashtra 85.8%. This difference corresponds closely to the difference in the incidence of nonviable cultivator households in the two states as shown in Table X and XII. As we might expect, reliance on rural labour force participation to generate a significant or major portion of income is likely to occur among landed households only in the case of those whose land

resources are deficit. This is borne out by the data.

(iv) Finally in Table XIV and XV we present some additional data to see how far our estimates of nonviability correlate with some generally expected characteristics — the possession of ploughs and drought animals and the incidence of attached farm workers. Information on these are available in the NSS Land Holdings Survey. In the early literature on viability of farms three district notions of viable farm size evolved, viz, the 'income unit', the 'employment unit' and the 'plough unit' (Khusro 1973). Our own calculations correspond to the income notion of viability. Nevertheless, one would expect that nonviable holdings would not be able to maintain draught animals and farm equipment to the same extent as their viable counterparts. Naturally, the use of state level grouped data means that there will be intra-group variations which might considerably weaken the expected correspondence. Nevertheless, the data strongly

support the reliability of our calculations. The Tables XIV and XV clearly show the close association in the two states between an index of viability and the other variables. In each case we notice particularly the sharp change in the indicators in the range where the switch occurs from nonviability to viability. For examples, the percentage of households not having working animals, drops sharply from 61% to 12% between size classes 3 and 5 in Punjab, and from 38% to 16% over size classes 6 to 9 in Maharashtra, which is precisely where the switch in viability status takes place. In general, of course, there is the large difference between the nonviable and the viable categories as a whole, in the expected manner. The same observation also holds for the pattern regarding the percentage of households not reporting ploughs, though the pattern is more marked in the case of Punjab. In general the possession of ploughs appears to be lower in Maharashtra.

With regard to the percentage of holdings reporting attached farm labourers once more the observed pattern is broadly in conformity with our expectations based on the viability index. We notice that in Punjab, expect for size class 3

Table XIV

Incidence of Draught Animals, Ploughs and Attached Labourers by Viability Class, Punjab

Size class of operational holding (code)	Viability Index (V2)	Percentage of Hh not having working cattle and buffalo	Percentage of Hh not having Ploughs	Percentage of holdings reporting attached form works
0	–	98.50	96.82	–
1	– 0.28	83.77	83.77	–
2	– 0.18	100.00	100.00	–
3	– 0.22	60.87	67.93	8.24
4	– 0.04	24.11	17.26	–
5	0.03	12.33	11.02	15.08
6	0.19	13.40	2.93	8.61
7	0.42	7.84	1.29	13.49
8	0.67	7.63	1.98	28.93
9	0.90	3.98	1.59	27.59
10	1.22	13.36	1.58	43.33
11	1.62	5.04	2.16	49.61
12	2.11	12.24	6.12	59.87
13	3.23	20.34	5.08	78.28
14	5.82	–	–	77.78

Sources: Table X above and NSS Survey on Landholding 26th Round

Table XV

Incidence of Draught Animals, Ploughs
and Attached Labourers by Viability
Class, Maharashtra

Size class of Operational holding (code)	Viability Index (V2)		Percentage of Hh not having Working cattle and buffalo	Percentage of Hh not having Ploughs	Percentage of holdings reporting attached workers
	Est I	Est II			
0	–	–	97.29	99.72	–
1	– 0.82	– 0.68	97.93	82.80	–
2	– 0.74	– 0.61	73.35	75.25	2.13
3	– 0.73	– 0.59	69.68	65.20	–
4	– 0.69	– 0.55	53.04	63.22	4.23
5	– 0.67	– 0.49	39.39	47.18	5.75
6	– 0.54	– 0.34	38.32	36.84	10.05
7	– 0.34	– 0.12	32.88	38.20	10.05
8	– 0.21	0.02	19.08	40.49	14.64
9	0.05	0.28	16.30	27.45	24.60
10	0.17	0.45	12.84	26.50	22.94
11	0.53	0.84	9.39	32.39	33.17
12	1.00	1.32	3.60	16.37	44.01
13	2.09	2.41	3.71	14.38	57.63
14	4.77	5.25	1.59	8.10	80.16

Source: Table XII above, and NSS Survey on Landholding 26th Round.

none of the other nonviable cultivator categories report attached farm servants
There is a sharp break at the point where viability status changes size class
5. Further, the incidence of households reporting attached labourers rises
with viability status. The data for Maharashtra also confirm this, though we
do observe a small percentage of households in the nonviable category reporting
attached labourers. However, around size class 8 and 9 where the status shift
occurs, we again observe a clear break in the magnitude. Comparing the two
states, we find (as may be expected from the overall difference in viability
status) that Punjab has more holdings in each operational holding size class
reporting attached farm servants. It is also interesting to observe that the
magnitude of percentage of holdings employing attached farm servants are
roughly similar for comparable viability classes in the two states, expecially
when we consider the Estimate II for V2 in Maharashtra (which represents more
normal conditions). For example, size class 5 (Punjab) has V2 = 0.03, and
15.05% in this group report attached farm workers, which compares well with size
class 8 (Maharashtra) with V2 (II) = 0.02 and incidence of attached laboure-
rs = 14.64%. Similarly size class 10 (Punjab) with the parameters V2=1.22 and
percent of holdings reporting attached workers = 43.33, compares with size class
12 (Maharashtra) which has V2 (II) = 1.32 and percent of holdings with attached
farm workers equalling 44%. Other comparable categories may also be noted.
This further suggests that the normalisation procedure adopted in our calcula-
tions is reasonable, in that holdings with similar viability index values may
have similarities in organisational set up. However, this is only suggestive,
and no firm conclusions in this matter are possible without a close analysis
of household level data.

Thus, the data summarised in Tables XIV and XV conform closely with our
expectations, and thus support the plausibility of the empirical estimates of
viability status reported in this paper. Indeed, it can be claimed that viability

indices actually explain the observed patterns with respect to the possession of working animals, ploughs and the employment of attached farm workers by size class of holdings in the two states.

IV. Conclusion

This paper has sought to examine peasant differentiation as measured by the degree of resource control in Punjab and Maharashtra in a comparative perspective. In doing so, we have focussed on the viability index associated with the resource position of different land holding size classes. This way of looking at the problem integrates the technological, agrophysical, demographic and socioeconomic factors underlying differentiation, which differ significantly between the two states. The variation of the distribution this index over size classes in the two states reveals some interesting patterns - for example, in the relative proportion of nonviable cultivator households. The comparison reveals the very significant impact of productivity (and underlying it, irrigation) on agrarian structure. We have related also these differences in the distribution of the index to: (a) incidence of wage labour (b) the relative portion of landed vis-a-vis landless wage labourers. (c) the incidence of attached wage labourers by size class of holding and (d) the ownership of draught animals and ploughs. In all these aspects the viability index appeared to explain the observed patterns of variation between states and also between size classes.

In a following paper we consider more closely the question of how nonviable households cope with the problem of economic survival in the two states, by examining their pattern of labour allocation between alternative income earning activities, and also the structure of their assets and liabilities. By comparing the economic reproduction pattern of households in similar ranges of viability index magnitudes, this would complement the empirical analysis reported here.

Notes

1/ For an early study of interregional variations of the distribution ownership and operational holdings in India, see Raj (1970). Among more recent discussions are Laxminarayan and Tyagi (1982), and Bardhan (1983). Trends in rural wage labour in India, their determinants and implications, are discussed in Vaidyanathan (1983)

2/ This is the latest period for which comprehensive data, such as the NSS Land holdings Survey, the RBI Debt and Investment Survey are available. We have also utilized the Farm Management Surveys which were carried out till 1970, and discontinued thereafter. Detailed information by size class of holdings on irrigation and cropping pattern is also available in the All-India Agricultural Census, 1970-71.

3/ See Table XIII. Rural Labour households as percent of total rural households is 28.5 in Punjab and 36.6 in Maharashtra.

4/ See Table VIII. This fact need not necessarily constitute a paradox for the polarization view, since it may be argued that the lower proportion of marginal farmers reflects a more advanced stage of differentiation. However, combined with the fact that the incidence of wage labour is also lower in Punjab, it does seem paradoxical.

As shown in Table VIII, rural labour households with land as percent of rural labour households without land is 9.5% in Punjab and 85.5% in Maharashtra.

5/ See de Janvry (1981). The idea of 'allotment holding' peasant appears also in Lenin (1974).

6/ See for example, Hayami (1981) on the demographic explanation using Asian data. As shown in Table II, population density in Punjab and Maharashtra, in person per square km are 268 and 164 respectively. Rural population per operated hectare is 1.98 and 1.13 respectively.

7/ The Lorentz ratios for ownership holdings (including the landless households) are 0.7867 in Punjab and 0.7001 in Maharashtra. When only landowning households are considered the values are 0.7703 and 0.6654 respectively. See Chandan Mukherjee and Sujana Bai (1979)

8/ The theoretical considerations underlying this approach have been explained elsewhere. See Sen (1981)

9/ The existence of nonviable cultivators is not unique to India—Lenin and Kautsky noted their existence in Europe. Even in contemporary economies as diverse as those of North and South America, they are to be found see Krishnaji (1984) Buttel and Newby (1980), de Janvry (1981). Vaidyanathan (1983)

10/ In this paper we shall not discuss the relationship between this way of conceptualizing agrarian structure, and those which view in terms of conventional Marxist class categories. The scope of this paper is limited to cross-section comparisons and we shall not deal with the dynamics of change. These issues are dealt with at length in C. Sen op.cit. Broadly, our approach concentrates on control over means of production, rather than concentrating on relations of production as the operating criterion for analysing differentiation. The two approaches naturally are interlinked. For alternative approaches, see Patnaik (1976) and Bharadwaj (1979)

11/ These included the 'plough unit', the 'employment unit' and the 'income unit'. See Khusro (1973). Our approach is closest to the 'income unit' notion.

12/ Agrophysical characteristics enter through the explicit treatment of the irrigation base and its effect on yields and technological factors enter through yields and cost of production.

13/ There has been, however, a remarkable turnaround in Maharashtra's agricultural performance during the decade of the 70's. It appears to have registered rapid growth. Punjab's growth rate on the other hand, appears to have been slowing down. G.S. Bhalla (1983)

14/ See Gita Sen, "Women's work and Agricultural Labourers: a study of the Indian Census", Working Paper No. 159, Centre for Development Studies. The worker rate for men hardly differs — Punjab and Maharashtra both have 52%. For women, however, the picture is very different. For Punjab it is 1.18% whereas Maharashtra records 19.70%.

15/ Figures for 1969-70 are presented because there are some unresolved questions regarding the data for 1970-71 and 1971-72 for Maharashtra with respect to 'fallows' and 'culturable waste'. Sen Khare (1979) p. 28

16/ M.P. Khare, Agricultural Development Maharashtra (1960-61 to 1971-72), Agro-Economic Research Unit, Gokhale Institute of Politics and Economics, December 1979. Here, a rain deficient year is defined as one in which rainfall is less than normal in more than 11 weeks out of 22 weeks (between June and October), during which between 85% to 98% of annual rainfall occurs in Maharashtra. The figure 0.62 cited in the text has been calculated by Khare from 15 year - data (1958-72).

17/ Indian Agriculture in Brief (19th Edition), Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi

18/ G.S. Bhalla and Y.K. Alagh, Performance of Indian Agriculture: A District-wise Study, (1979) Table 12.

The growth rates are calculated on the basis of 19 principal crops (cereal: rice, wheat, jowar, bajra, maize, ragi and barley; pulses: gram and tur; oilseeds: groundnut rapeseed and mustard, sesamum, linseed and castorseed; fibre crops: jute, mesta and cotton; and other crops: sugar cane and tobacco).

19/ Khare's results are shown in the table below:

Compound Annual Growth Rates
(1960-61 to 1971-72)

	Total Production (B)	Foodgrains (B)	Foodgrains (SCR)
1. For all 12 years	– 1.55	– 1.63	– 2.30
2. Deleting 1970-71 & 1971-72	– 0.96	– 1.17	– 1.21
3. Deleting 1965-66	– 0.78	– 0.74	– 1.00
4. Deleting 1960-61	– 0.07	– 0.23	– 0.14

Notes: (B) Source of data in Bureau of Economics and Statistics, Government of Maharashtra.

(SCR) Source of data in Season and Crop Reports.

20/ Khare (1979), and G.K. Chadha Dynamics of Rural Transformation : A Study of Punjab 1950-80, Centre for the study of Regional Development, Jawaharlal Nehru University, 1983.

21/ All-India Debt and Investment Survey (1971-72), Assets of Rural Households as on June 30, 1971, Reserve Bank of India, 1976, Table 1.2

The RBI data also indicates that among the remaining, non-cultivator households the break up is as follows:
Punjab – Non cultivators 57.1% (agricultural labourers 25.8%, artisans 5.1% other 26.2%), Maharashtra – Non cultivators 31.4% (agricultural labourers 19.8%, artisans 2.9%, others 8.7%). However, it is instructive to compare these figures with those reported in the Rural Labour Enquiry, 1974-75, which adopts an income definition for agricultural labourers. Agricultural labour households as per cent of total rural households are 20.9 in Punjab and 32.0 in Maharashtra.

22/ For example, if the FMS size group 1 coincides with the much finer NSS size classes 1-5, then all five NSS classes are assumed to have the same value as the FMS size group 1. This seemed less arbitrary than other possible procedures.

23/ The value of annual consumer expenditure was 12% higher than the annual income in the case of Maharashtra for 1970-71 according to 25th Round data. In the case of Punjab, the difference is much smaller (income exceeding expenditure by 3.5%).

24/ The Rural Labour Enquiry defines a rural labour household as a household whose major source of income was from wage-paid manual labour (agricultural and /or nonagricultural), and larger than income from either paid non manual employment or self employment, in the 365 days preceeding the survey.

Appendix

This appendix provides some details of the empirical procedure reported in the text.

1. The subsistence expenditure norms adopted were as follows:

   Punjab – per capita   Rs. 518

   Maharashtra – per capita   Rs. 317

Based on annual consumer expenditure of noncultivating wage earner households (NSS 25th Round Paper No. 233) and the average household size reported in NSS 26th Round, Survey on Landholding. Operational area size class wise figures were generating by multiplying the state level per capita figures by the respective household sizes. These constitute the figures for necessary consumption expenditure shown in Table IX and XI of the text.

Gross output per gross cropped hectare is taken as Rs. 2095 for Punjab and Rs. 573 for Maharashtra for the States as a whole. These are obtained by adding on an adjustment factor to the Alagh-Bhalla yield per GCA figures (which is the average for 1970-73 based on 19 principal crops). The adjustment factor allows for fodder and by-products and has been estimated at 19% for Punjab and 16% for Maharashtra based on the FMS Reports. In order to obtain operational size class specific yield per GCA, the variation in the proportion of irrigated area between the size classes was taken into account. Comparing the relative yields of irrigated and unirrigated land from the FMS reports, it was estimated that 1 hectare of irrigated land was 1.82 times more productive than 1 hectare of unirrigated land in Punjab and 2.25 times more productive in Maharashtra. This implied that the gross productivities of irrigated and unirrigated land were Rs. 2321 and Rs. 1275 respectively in Punjab, and Rs. 1179 and Rs. 524 in Maharashtra per GCA. From these, utilizing the size class wise ratios of gross irrigated area to gross cropped area, the respective gross output figures per GCA for each NSS size class was calculated. The irrigation acreage ratios were those given in the

Agricultural Census 1970-71.

3. The next step was the estimation of the value of net output per GCA. To
obtain this, deductions were made on account of operating costs due to
bullock labour, seed cost, manures and fertilizers, irrigation, interest
on working capital and rent. From the FMS data, these were estimated as
percentage of the value of gross output. As explained in the text, human
labour costs and depreciation were not considered. For bullock labour,
which comprises a very significant portion of the cost of production, only
the maintenance component (i.e. feed and fodder) was taken. Given the fact
that for Maharashtra, the FMS Reports available dealt only with Ahmednagar
District, which has a much higher irrigation level -- the cost on account of
irrigation was appropriately adjusted downwards taking the actual irrigation
ratios into account. The manures and fertilize costs include fertilizer
costs only, since manures were mostly home produced and their value was not
included in the gross output value. Since the FMS size class categories are
not as fine on the NSS size class, the figures utilized have been so taken
as to match as closely as possible. For overlapping classes, weighted
averages have been employed. The deductions actually used in the calcula-
tions, expressed as a percentage of gross output are given below. Further
details concerning each of the individual items of cost are available from
the author on request.

Table A1

Deductions of calculation of net output per GCA (as % of value of gross output)

I. PUNJAB

Size class	Bullock Labour	Seed Cost	Manures & Fertilizer	Irrigation	Interest on Working Capital	Rent	Total
1	19.36	3.6	3.26	2.84	1.00	3.05	33.11
2	19.36	3.6	3.26	2.84	1.00	–	28.06
3	19.36	3.6	3.26	2.84	1.00	1.77	29.83
4	19.36	3.6	3.26	2.84	1.00	4.18	32.24
5	19.36	3.6	3.26	2.84	1.00	8.92	36.98
6	19.36	3.6	3.26	2.84	1.00	7.91	35.97
7	19.36	3.6	3.26	2.84	1.00	10.37	38.43
8	15.32	4.1	3.77	3.85	1.00	5.72	33.78
9	15.32	4.1	3.77	3.85	1.00	6.14	34.20
10	15.32	4.4	4.52	4.16	1.00	8.10	36.16
11	15.32	4.7	5.27	4.47	1.00	5.85	33.91
12	15.32	4.7	4.65	4.47	1.00	2.92	30.02
13	15.32	4.7	4.65	4.47	1.00	3.96	32.02
14	15.32	4.7	4.65	4.47	1.00	9.15	37.21

II. MAHARASHTRA

Size class	Bullock Labour	Seed Costs	Manures & Fertilizer	Irrigation	Interest on Working capital	Rent	Total
1	17.53	5.3	2.23	0.88	1.0	3.86	30.80
2	17.53	5.3	2.23	0.88	1.0	2.81	29.75
3	17.53	5.3	2.23	0.83	1.0	1.75	28.69
4	17.53	5.3	2.23	0.73	1.0	1.73	28.52
5	17.53	5.3	2.23	0.57	1.0	2.11	28.74
6	17.53	5.3	2.23	0.48	1.0	1.89	28.43
7	17.53	5.3	2.23	0.43	1.0	2.35	28.84
8	14.95	4.1	2.68	1.02	1.0	1.39	25.14
9	14.95	3.8	3.12	0.89	1.0	1.11	24.87
10	14.95	4.9	4.21	0.89	1.5	1.00	27.45
11	14.95	6.0	5.30	0.89	2.0	2.84	31.98
12	14.95	6.0	2.58	0.76	2.0	2.13	28.42
13	14.95	6.1	2.41	0.76	2.0	1.44	27.66
14	14.95	6.2	2.24	0.76	2.0	0.97	27.12

These size class specific deductions are made from the value of gross output per hectare to obtain magnitudes of the net value of output per GCA (Rs/Ha) which are reported in column 2 of Tables IX and XI.

3. The relevant magnitudes to be used in the viability calculations are those of net value of output per hectare of _operated_ area in each size class. These are obtained using the following relation:

$$\text{Net Value of Output} = \frac{\text{Net Value of Output}}{\text{GCA}} \times \frac{\text{GCA}}{\text{NSA}} \times \frac{\text{NSA}}{\text{Operated Area}}$$

The second team on the RHS of the identity in the Cropping intensity. In other words, we adjust our net output per GCA calculated as above by cropping intensity and the proportion of net sown area in operational area to allow for fallows and uncultivated land. The figures thus obtained as shown in Col. 3 of Tables IX and XI.

The figures for cropping intensity and the proportion of net sown area in operational area are obtained from the All India Report on Agricultural Census 1970-71. Here again, however, the Census farm size classes are not exactly consonent with the NSS farm size categories, and appropriate matching has been done. In a study by Ifzal Ali, B.M. Desai, R. Radhakrishna and V.S. Vyas (1980), the procedure of going directly from Census farm size classes to the NSS size classes has been questioned on the grounds that the definition of operational holding is not identical in the two surveys. They have proposed a method using an estimated lognormal distribution to match the Agricultural Census with NSS data. However, we have not adopted their procedure in this paper.

The remaining details and definitions of the viability indices are explained in the footnotes to Tables IX through XII.

References

J. Banaji (1976) : "Summary of Selected Parts of Kautsky's, The Agrarian Question", Economy and Society, February

P. Bardhan (1983) : "Regional Variations in the Rural Economy", Economic and Political Weekly, July 23.

G.S. Bhalla and Y.K. Alagh (1979) : Performance of Indian Agriculture: A Districtwise Study, Sterling Publishers.

G.S. Bhalla and G.K. Chadha (1981) : Structural Changes in Income Distribution A Study of the Impact of Green Revolution in the Punjab, Centre for the Study of Regional Development, School of Social Sciences, Jawaharlal Nehru University.

G.S. Bhalla (1983) : "Peasant Movement and Agrarian Change in India", Social Scientist, Vol II, No. 8

K. Bharadwaj (1979) : "Macroeconomic Framework for a Developing Economy : The Indian Case," Manchester School of Economic and Social Studies, Vol XiVII, No. 3.

H. Buttel and H. Newby ed, (1980) : The Rural Sociology of Advanced Countries Critical Perspective, Allanheld, Osmun & Co. Publishers.

G.K. Chadha (1983) : Dynamics of Rural Transformation - A Study of Punjab 1950-1980, Centre for the Study of Regional Development, School of Social Sciences, Jawaharlal Nehru University.

Y. Hayami (1981) : "Understanding Village Community and the Direction of Agrarian Change in Asia", Institute of Economic Growth, Occasional Papers, New Series, No. 1.

A. de Janvry (1980) : The Agrarian Question and Reformism in in Latin America, The Johns Hopkins University Press.

M.P. Khare (1979) : Agricultural Development of Maharashtra (1960-61 to 1971-72), Agro-Economic Research Unit, Gokhale Institute of Politics and Economics.

A.M. Khusro (1973) : The Economics of Land Reforms and Farm Size in India, Macmillan India.

N. Krishnaji (1984) : "Agrarian Relations and the 'Small' Peasa-nt" Andhra Pradesh Economic Association Conference Papers.

H. Laxminarayan and S.S. Tyagi (1982) : Changes in Agricultural Structure in India , Agricole Publishers.

V. Lenin (1974) : The Development of Capitalism in Russia, Progress Publishers.

U. Patnaik (1976) : "Class Differentiation within the Peasantry", Economic and Political Weekly, Review of Agriculture, September

C. Mukherjee and S. Bai (1979) : "Lorentz Ratios for Distribution of Rural Ownership and Operational Holdings, India, 1971-72" Working Paper No. 94, Centre for Development Studies.

K.N. Raj (1970) : "Ownership and Distribution of Land", Indian Economic Review, April 1970.

C.R.M. Reddy (1982) : "Interregional Differences in the Incidence of Agricultural Labourers in India", Centre for Development Studies.

C. Sen (1981) : "Viability and Economic Reproduction: A Framework for the Analysis of Peasant Differentiation", Paper presented at Workshop on Current Economic Issues, University of Utah.

G. Sen (1983) : "Women's Work and Women Agricultural Labourers: A Study of the India", Working Paper No. 159, Centre for Development Studies.

A. Vaidyanathan (1983) : "Impact of Development on Rural Wage Labour in India", Centre for Development Studies.

Afzal Ali, B.M. Desai, R. Radhakrishna & V.S. Vyas (1980) : India 2000 : Agricultural Production Strategies and Rural Income Distribution, Indian Institute of Management, Ahmedabad.

Official Sources

Government of India, Ministry of Agriculture and Cooperation, Directorate of Economics and Statistics, Indian Agriculture in Brief, Various editions.

Government of India, Ministry of Agriculture and Irrigation, Studies in the Economics of Farm Management – Ahmednagar District – 1967–68 and 1970–71 (Maharashtra State)

Government of India, Ministry of Home Affairs, Office of the Registrar Gener: Census of India

Government of India, Ministry of Labour, Labour Bureau. Report of the Rural Labour Enquiry, 1974–75

Government of Maharashtra, Bureau of Economics and Statistics, Handbook of Basic Statistics, 1972.

Government of Punjab, Economic and Statistical Organisation, Economics of Agri cultural Production and Farm Management in Punjab, Combined Report 1967–68 to 1969–70.

Government of Punjab, Office of the Economic Adviser, Statistical Handbook of Punjab, 1971–72 (Publication No. 167)

Government India, Planning Commi sion and State Planning Institute, Uttar-Pradesh, Regional Dimensions of India's Economic Development, 1983.

tional Sample Survey Organisation, N.S.S. 25th Round, Report No. 233. (Tables ith Notes on Earnings, Indebtedness Cultivated Holdings and Assets of Weaker Sections   Rural India,(1970–71)

National Sample Survey Organisation; Survey on Land Holding 26th Round 1971–72 Sarvekshana, January – April 1982.

Reserve Bank of India, All-India Debt and Investment Survey (1971–71), Assets of Rural Households as on June 30, 1971