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Are Land Markets Worsening the Land Distribution in Progressive Areas?: A Study of Meerut District in Western Uttar Pradesh

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INTRODUCTION

Land market transactions are driven typically by pressures in the demand and supply of land, within the given constraints and influences of legal conditions. The transactions are usually determined by the need for land either as a productive asset, a place for shelter and housing, a financial investment or as a source of liquidity. Most recent development literature expects land transactions to have a large effect on the distribution of land both in ownership and operational holdings, predominantly towards worsening the distribution (see Bardhan, 1976; Singh, 1982; Santra and Bhoumik, 1986; Chatha and Singh, 1988; Krishnaji 1991). The NSS data do indicate changes in the overall nature of land holding over a period of time, but its examination often hides the underlying variation in this across areas and levels of agricultural development/technology (Sawant, 1990; Thorat and Desai, 1994). What is the extent of land market transactions in present day progressive agricultural areas? What is their impact on land distribution? This study examines and presents results on these using the case of Meerut district of western Uttar Pradesh. The study analyses the effect of permanent land transfers through land sale/purchase, and temporary land transfers through land-lease, on the distribution of land.

BACKGROUND

The Meerut district of western Uttar Pradesh is a relatively progressive agricultural area and is located in the northern green revolution belt. It has a land area of 3,911 sq.km. Table I indicates that 100 per cent of the villages in the district are electrified and the density of government tubewells is almost twice that in Uttar Pradesh and eight times that in the country. Ninety-two per cent of the net sown area is irrigated, and the fertiliser consumption and the cropping intensity are much higher than the national average. The average yields of cereals as well as pulses in the district are twice the national average. The district also has a relatively high degree of concentration of small scale industries. The average size of operational holding at 1.18 hectares is smaller than the national average of 1.69 hectares (1985-86).

These statistics outline some salient characteristics of the area studied. They indicate that the district is clearly high in agricultural development with relatively high agricultural productivity and adoption of modern technology.

DATA

A stratified two-stage random sampling procedure was followed, where each of the four tehsils of the district was treated as a separate stratum. From each tehsil ten patwari circles were selected randomly at the first stage of sampling. At the second stage, ten cases of land sale and six cases of land-lease were selected randomly from each patwari circle. So, a total of 400 sellers, 400 buyers, 240 lessors and 240 lessees were sampled and interviewed. This

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was done during the course of the year 1992 for the year 1991 (see Mani, 1993, for details). Each sale case consisted of one seller and the respective buyer and each lease case consisted of one lessor and the respective lessee.

TABLE I. SOME DEVELOPMENT INDICATORS OF MEERUT DISTRICT COMPARED WITH UTTAR PRADESH AND INDIA

Sr. No. (1)	Indicators (2)	Year (3)	Meerut (4)	Uttar Pradesh (5)	India (6)
1.	Percentage of villages electrified	1990	100.0	71.6	81.3
2.	Canal length per sq. km (km)	1989-90	0.309	0.234	N.A.
3.	Government tubewells per sq. km (No.)	1989-90	0.175	0.091	0.020
4.	Fertiliser consumption (NPK) per ha of total cropped area (kg)	1989-90	110.20	83.00	65.40
5.	Small scale industries per sq. km (No.)	1989-90	1.514	0.073	0.556
6.	Percentage share of electricity consumed in the agricultural sector	1985-86	54.50 (1987-88)	32.20	19.10
7.	Net irrigated area as a percentage of net sown area	1990	92.3	60.0	32.4
8.	Cropping intensity (per cent)	1990	163.8	147.1	129.8
9.	Crop productivity (qtls/ha)	1988-89			
	(i) Total cereals		28.63	18.61	14.91
	(ii) Total pulses		8.57	7.38	4.65
	(iii) Sugarcane		516.48	502.28	606.73
10.	Average size of operational holding (ha)	1985-86	1.18	0.93	1.69

Sources: 1. *Statistical Bulletin, Meerut District, 1990 and 1991*, Division of Economics and Statistics, Government of Uttar Pradesh, Meerut, 1991 and 1992.

2. *Economic Survey, 1990-91*, Ministry of Finance, Government of India, New Delhi, 1991.

3. *Fertiliser Statistics, 1989-90*, Fertiliser Association of India, New Delhi, 1990.

4. *India: A Reference Annual 1990 and 1991*, Ministry of Information and Broadcasting, Government of India, New Delhi, 1991 and 1992.

RESULTS AND DISCUSSION

It was found that in all the four tehsils of Meerut district, there were a very large number of transactions in land sales (about 5,000 in each tehsil every year) over the past several years. Such a large number of transactions indicated that, contrary to some notions, the land market was very active.

Land Sale Market

The dynamics of land flows across different farm size-groups is examined in Table II(A) for the sellers sample and in Table II(B) for the buyers sample. From both these tables it is evident that the land sale is found to be dominated by marginal farmers which as a group accounted for about 51 per cent of the total sale sample, followed by small farmers (25 per cent), medium farmers (21.2 per cent) and large farmers (3 per cent). These transaction proportions, however, correspond broadly with the overall distribution of land holder groups in the district which accounted for about 59, 22, 16 and 3 per cent respectively in the total number of holdings *(Statistical Bulletin, Meerut District, 1991)*. Thus the supply side in the land market appears to be in conformity with the current land holder pattern, each group contributing broadly according to its current holder numbers.

TABLE II(A). CHANGES IN THE SIZE-GROUP OF SELLERS AFTER LAND SALE

Sr. No.	Size-group	Before sale		Change in numbers after sale					Change in the average holding size (ha)	
		No. (Per cent)	Average holding	Landless	Marginal	Small	Medium	Large	Pre-sale	Post-sale
				No.	No.	No.	No.	No.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Landless	0	0.000	0	0	0	0	0	0.766	0.000
2.	Marginal (0-1 ha)	203 (50.75)	0.501	79	124	-	-	-	0.769	0.460
3.	Small (>1-2 ha)	100 (25.00)	1.464	17	39	44	-	-	1.972	1.424
4.	Medium (>2-5 ha)	85 (21.25)	2.937	3	2	35	45	-	3.352	3.013
5.	Large (>5 ha)	12 (3.00)	6.246	1	-	-	3	8	6.567	6.148
	Total sample (Per cent)	400 (100.0)	1.432	100 (25.00)	165 (41.25)	79 (19.75)	48 (12.00)	8 (2.00)	1.432	0.956

TABLE II(B). CHANGES IN THE SIZE-GROUP OF BUYERS AFTER LAND PURCHASE

Sr. No.	Size-group	Before purchase		Change in numbers after purchase					Change in the average holding size (ha)	
		No. (Per cent)	Average holding	Landless	Marginal	Small	Medium	Large	Pre-sale	Post-sale
				No.	No.	No.	No.	No.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Landless	58 (14.50)	0.000	31*	19	8	-	-	0.000	0.000
2.	Marginal (0-1 ha)	118 (29.50)	0.662	-	64	52	2	-	0.440	0.616
3.	Small (>1-2 ha)	84 (21.00)	1.504	-	-	54	30	-	1.017	1.413
4.	Medium (>2-5 ha)	118 (29.50)	2.990	-	-	-	99	19	2.479	2.966
5.	Large (>5 ha)	22 (5.50)	9.975	-	-	-	-	22	7.310	8.552
	Total sample (Per cent)	400 (100.00)	1.942	31 (7.75)	83 (20.75)	114 (28.50)	131 (32.75)	41 (10.25)	1.942	2.378

Notes: 1. * Purchased the agricultural lands for non-agricultural uses.
2. Figures in parentheses are percentages to the total sample.

However, the demand or purchase pattern is quite different. The marginal and medium farmers each constitute 29.5 per cent of the total purchase sample, followed by small (21 per cent), landless (14.5 per cent) and large (5.5 per cent). Thus the marginal farmers contribute to only half the number of purchases as compared to their proportion in land holders - however, they do constitute quite a large proportion of buyers. The medium farmers constitute much more to the demand than their proportion in land holders. The small and the large farmers contribute close to their proportion in land holder numbers - the large farmers contributing only 5-6 per cent, indicating that they do not make a major contribution to the demand. The landless actually make a larger contribution of 14 per cent, though the purpose is mainly non-agricultural.

Twenty-five per cent of total sale sample farmers have become completely landless from different size-groups. The majority of these new landless are from marginal size-group - 79

per cent. However, 58 (14.5 per cent) among the 400 buyers have become newly landed after purchase activity. Out of these, 27 purchased land for agricultural purposes, whereas 31 purchased agricultural land for non-agricultural purposes.

Table III, which gives the net effect of these transactions, shows that these land market operations have created 73 new landless who have either become landless agricultural labourers or have sought non-agricultural employment. This amounts to about 9.1 per cent of all sampled participants in the land market, which is somewhat but not exceedingly large. Both the number of holdings and total land owned have increased for the small as well as large farmers, and both have decreased in the case of marginal and medium farmers. Thus the distribution of farmers is showing a bi-modal shift away from marginal and medium farmers and towards small and large farmers, both in farmer numbers and land holding. The shift is particularly large in the case of proportion of marginal farmers which reduces from 40 per cent to 31 per cent, and in the proportion of land holding of the large farmers which increases from 22 to 30 per cent. The average size of holding in any of these farmer groups does not show much change, the direction in general being towards a slight reduction in size.

The effect on equality in the distribution of land holding ownership is objectively analysed through the Lorenz curves and Gini concentration ratio. The Lorenz curve for the pre- and post-sale situation is presented in Figure 1 and the results of Gini concentration ratio analysis are presented in Table III. The measures indicate only a slight increase in the inequality of land ownership. The Gini coefficient increases from 0.4395 to 0.4589. Thus the data do not indicate a very dramatic change in the inequality through the land market transactions.

TABLE III. EFFECT OF SALE AND PURCHASE TRANSACTIONS ON THE PATTERN OF OWNERSHIP OF AGRICULTURAL HOLDINGS OF THE SAMPLE

Sr. No.	Size-group	Number of owned holdings		Average size of owned holdings (ha)		Total land owned by the group (ha)	
		Pre	Post	Pre	Post	Pre	Post
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Landless	58 (7.3)	131 (16.4)	0.000	0.000	0.000	0.000
2.	Marginal (0-1 ha)	321 (40.1)	248 (31.0)	0.560	0.512	179.987 (13.3)	127.007 (9.5)
3.	Small (>1-2 ha)	184 (23.0)	193 (24.1)	1.482	1.422	272.691 (20.2)	274.405 (20.5)
4.	Medium (>2-5 ha)	203 (25.4)	179 (22.4)	2.968	2.978	602.550 (44.7)	533.178 (40.0)
5.	Large (>5 ha)	34 (4.2)	49 (6.1)	8.659	8.160	294.426 (21.8)	399.940 (30.0)
6.	Gini concentration ratio	-	-	-	-	0.4395	0.4589
	Total sample	800 (100.0)	800 (100.0)	1.687	1.668	1,349.654 (100.0)	1,334.531 (100.0)

Note: Figures in parentheses show the percentages of respective total.

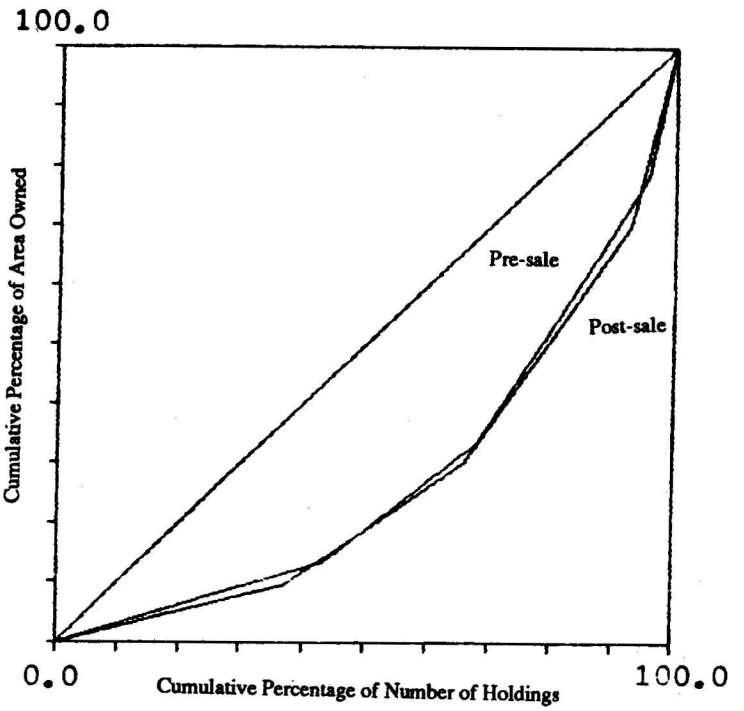

Figure 1. Lorenz Curves for Sale Market

Land-Lease Market

The Meerut district also showed a large number of lease transactions - indicating that even this market is highly active. In effect, the lease transactions typically convert owned holdings to operational holdings. The dynamics of land flow due to land-lease operations from each size class to different farm size-groups is presented in Table IV(A) for lessor sample and in Table IV(B) for lessee sample.

Table IV(A) indicates that every size-group of farmers participates in the supply of leased land. Particularly, the marginal and small farmers also participate substantially, each contributing about one-third of the participants. It is interesting to note that of all those leasing out, about 47 per cent lease out all their land and become landless. Of the marginal farmers leasing out land, 87 per cent lease out all of it becoming landless. Even 41 per cent of the small farmers leased out land do the same. The leasing-out participation does not follow the distribution of land holding in the district statistics.

TABLE IV(A). CHANGES IN THE SIZE-GROUP AND AVERAGE HOLDING SIZE OF LESSORS AFTER LAND-LEASE

Sr. No.	Size-group	Before leasing out		Change in numbers after leasing out					Change in the average holding size (ha)	
		No. (Per cent)	Average holding	Landless	Marginal	Small	Medium	Large	Pre-leasing	Post-leasing
				No.	No.	No.	No.	No.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Landless	0	0.000	0	0	0	0	0	1.064	0.000
2.	Marginal (0-1 ha)	84 (35.00)	0.710	73	11	-	-	-	1.349	0.671
3.	Small (>1-2 ha)	80 (33.33)	1.459	33	14	33	-	-	1.974	1.486
4.	Medium (>2-5 ha)	72 (30.00)	3.204	6	3	24	39	-	3.782	2.895
5.	Large (>5 ha)	4 (1.67)	5.760	1	-	-	3	-	-	-
	Total sample (Per cent)	240 (100.0)	1.791	113 (47.08)	28 (11.67)	57 (23.75)	42 (17.50)	-	1.791	0.804

TABLE IV(B). CHANGES IN THE SIZE-GROUP AND AVERAGE HOLDING SIZE OF LESSEES AFTER LAND-LEASE

Sr. No.	Size-group	Before leasing in		Change in numbers after leasing in					Change in the average holding size (ha)	
		No. (Per cent)	Average holding	Landless	Marginal	Small	Medium	Large	Pre-leasing	Post-leasing
				No.	No.	No.	No.	No.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	Landless	41 (17.08)	0.000	-	17	21	3	-	-	-
2.	Marginal (0-1 ha)	148 (61.67)	0.616	-	48	90	9	1	0.364	0.822
3.	Small (>1-2 ha)	28 (11.67)	1.313	-	-	15	13	-	0.628	1.394
4.	Medium (>2-5 ha)	21 (8.75)	3.112	-	-	-	16	5	2.712	3.097
5.	Large (>5 ha)	2 (0.83)	5.440	-	-	-	-	2	3.893	6.604
	Total sample (Per cent)	240 (100.0)	0.850	-	65 (27.08)	126 (52.50)	41 (17.08)	8 (3.33)	0.850	1.460

Notes: Figures in parentheses are percentages to the total sample.

The lessee sample [Table IV(B)] shows a very different pattern. The group is dominated by marginal farmers who constitute 61.7 per cent of the lessees. The next in importance are the landless who constitute 17.1 per cent, and therefore, the landless and the marginal farmers constitute over 75 per cent of the those leasing in land. Sixty-four per cent of the marginal farmers and 51 per cent of the landless who lease in land come into the size class of small farmers in operational holding after leasing in land. Significantly, the mode of the leasing-in sample shifts from the marginal to the small class after leasing in. Among those leasing in, there are relatively few small and medium farmers, and besides, both in leasing out and leasing in there are very few large farmers.

Table V gives the net effect of leasing for the total lease in/out sample. The table shows that whereas the proportion of landless increases by 15 percentage points to 23.5 per cent,

the proportion of marginal farmers falls sharply by nearly 29 percentage points to 19.4 per cent. There is, however, an increase in the proportion of small farmers by about 15 percentage points to 38.1 per cent. Broadly, therefore, there is a 30 percentage point drop in the proportion of marginal farmers - about half of them lease out land and become landless, and about half of them lease in land and become small farmers in operational holding. The mode shifts from marginal to small farmers. There is little change for medium and large farmers. The average land holding size remains about the same in each group. The distribution of total land changes substantially, with the share of small farms increasing from 24 to 41 per cent, becoming the highest among all groups, exceeding the medium farmers' share of 39 per cent. The share of marginal farmers reduces from 23.5 to 11.4 per cent.

These transitions possibly reflect the underlying economic viability or advantage of different operational farm sizes under the given technology and economic environment. The marginal farm size seems to be low on this and the results show considerable movement away from it. However, this is only partly towards landlessness. About half of it is towards the small farm group which becomes the largest in proportion of numbers as well as land, indicating that the viability of this group may be quite strong.

What is the overall impact on the equity of the distribution? This is objectively analysed through Lorenz curves and Gini concentration ratios and the results are presented in Figure 2 and Table V respectively. The results indicate a considerable improvement in the equity, the Gini falling from 0.3689 to 0.2851 after the lease operation. Thus the results of the study indicate that whereas the sale market may somewhat worsen the land equity, the lease market seems to considerably improve the equity for the operational land holding.

TABLE V. EFFECT OF LEASING ON PATTERN OF OPERATED HOLDINGS IN THE SAMPLE

Sr. No.	Size-group	Number of holdings		Average size of holdings (ha)		Total land holdings by the group (ha)	
		Pre (Owned)	Post (Operated)	Pre (Owned)	Post (Operated)	Pre (Owned)	Post (Operated)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Landless	41 (8.5)	113 (23.5)	0.000	0.000	0.000	0.000
2.	Marginal (0-1 ha)	232 (48.3)	93 (19.4)	0.650	0.777	150.73 (23.5)	72.22 (11.4)
3.	Small (>1-2 ha)	108 (22.5)	183 (38.1)	1.419	1.420	153.28 (24.2)	259.98 (41.0)
4.	Medium (>2-5 ha)	93 (19.4)	83 (17.3)	3.178	2.924	295.55 (46.7)	248.54 (39.2)
5.	Large (>5 ha)	6 (1.3)	8 (1.7)	5.653	6.604	33.92 (5.4)	52.83 (8.3)
6.	Gini concentration ratio					0.3689	0.2851
	Total sample	480 (100.0)	480 (100.0)	1.320	1.320	633.48 (100.0)	633.48 (100.0)

Note: Figures in parentheses are percentages to the respective total.

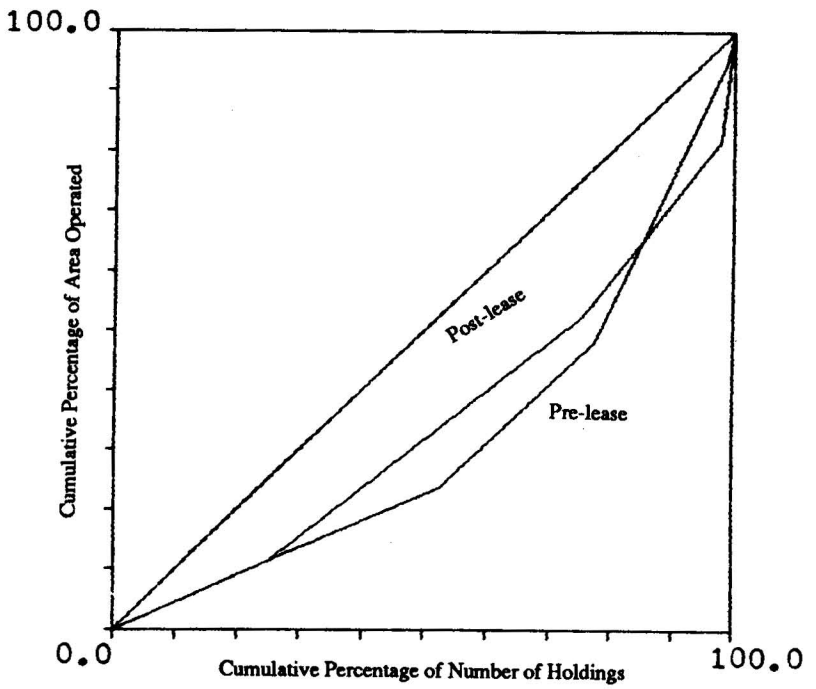

Figure 2. Lorenz Curves for Lease Market

CONCLUSIONS

The study shows that land market transactions both for sale and lease of land are very frequent and common in the agriculturally progressive district of Meerut of western Uttar Pradesh. Thus even within the substantial legal and other constraints faced by buyers and sellers, the market is very active.

Land transactions are leading to a bi-modal shift away from marginal and medium farmers, and towards small and large farmers. Whereas the different size-groups of farmers contribute to the supply (sale) in about their proportion in landholders, the demand (purchase) is skewed away from this, the marginal farmers contributing much less than their proportion and the medium farmers contributing more than their proportion. Yet, the marginal farmers contribute over one-fourth of the purchases. There is some increase in the landless, some of which could be due to distress sales.

The sale-purchase transactions are, however, not having a large impact on the objective measures of inequality such as the Gini coefficient and the Lorenz curve. The Gini coefficient in the sample of 800 changes from about 0.44 to 0.46. This evidence indicates that the land market transactions in this area are not drastically worsening the land distribution.

The lease transactions are also large in number, indicating an active lease market. The

marginal and small farmers contribute to the bulk of the transactions, both on the supply side and the demand side. The major impact of these transactions is that they result in a sharp reduction in the marginal farms, and a large increase in the small farms. About half of marginal farmers participating seem to lease out and become landless but about half seem to lease in and become small farmers in operational holdings. After the lease operation, the small farmers become the largest group in numbers as well as operational land area. The net effect of the lease operation is a considerable improvement in the equity of the operational land distribution, the Gini coefficient of the sample falling to 0.28.

These results indicate that in progressive agricultural areas such as in Meerut district, economic viability and advantage, under the environment of technology, markets and legal constraints may be favouring small farms, and not so much the marginal or the large farms. Whereas many marginal farms sell or lease out and become landless, many buy and frequently lease in to become small farmers which becomes the most important farming group in numbers and area. The land sale-purchase transactions do not greatly worsen the land distribution, and land lease transactions considerably improve the operational land distribution.

REFERENCES

Bardhan, Pranab (1976), "Variations in Extent and Forms of Agricultural Tenancy - I and II: Analysis of Indian Data Across Regions Over Time", *Economic and Political Weekly*, Vol. 11, Nos. 37 and 38, September 11 and 18, pp. 1505-1512 and 1541-1546.

Chatha, I.S. and Joginder Singh (1988), "Farm Size Distribution and Land Tenurial Pattern in India: A Case Study of Punjab", *Land Reform, Land Settlement and Cooperatives*, No. 1/2, pp. 53-62.

Krishnaji, N. (1991), "Land Market - On Dispossession of Peasantry", *Indian Journal of Agricultural Economics*, Vol. 46, No. 3, July-September, pp. 328-334.

Mani, Gyanendra (1993), *Study of Sale and Lease Markets in Agricultural Land in Western Uttar Pradesh*, Thesis submitted to G.B. Pant University of Agriculture and Technology, Pantnagar, Nainital (U.P.).

Santra, B. and B. Bhoumik (1986), "Land Transfer in West Bengal - Its Nature, Causes and Consequences", *Economic Affairs*, Vol. 31, No. 4, pp. 225-234.

Sawant, S.D. (1990), "Distributions of Land Holdings from the National Sample Survey", *Indian Journal of Agricultural Economics*, Vol. 45, No. 2, April-June, pp. 134-140.

Singh, Baldev (1982), *Land Market: Theory and Practice in Rural India*, Agricole Publishing Academy, New Delhi.

Thorat, Sukhadev and Gunvant M. Desai (1994), "Emerging Agrarian Structure in India and Its Policy Implications, 1953-54 to 1982-83", Paper presented at International Food Policy Research Institute/Indian Council of Agricultural Research Workshop on Agricultural Growth in India, May 1-6, 1994, New Delhi, India.