PATTERN OF LAND DISTRIBUTION AND TENANCY IN RURAL ANDHRA PRADESH

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Abstract

This paper examines the changes in the pattern of land distribution and tenancy in Rural Andhra Pradesh, during 1953-54 to 1991-92, based on NSS data.

The share of landless (/near landless) households by household ownership holdings has been on the increase since 1960-61. The average size of both ownership holdings and operational holdings has decreased gradually during 1953-54 to 1991-92. There has been decrease in the inequalities (by Gini coefficient), in both the land distributions, as the favourable redistributive changes took place. However, these changes cannot be attributed to ceiling measure of land reforms alone; as other factors, such as demographic pressure and sale/ purchase transactions may also have contributed to the decline.

There has been a perceptible decline in the magnitude of tenancy during 1953-54 to 1981-82. But, by 1991-92, tenants have gained the lost ground. The marginal and small farm tenants have increased their control over the tenanted area overtime. The pure tenants, who were important in 1953-54, lost ground by 1970-71; and their role has begun to rise again since 1981-82. With respect to forms of tenancy, leased-in area under fixed rent terms (fixed money and fixed produce terms together) has risen in dominance over the period.

Policy implications suggested are: (i) Surplus land is to be distributed among the landless, by strict implementation of the ceiling laws; otherwise increasing landlessness/ near landlessness does pose a serious problem for the ruling class and also to the society at large. (ii) As our agrarian institutions (credit, extension, insurance, marketing etc.) are biased to the large farmers, there is a necessity to gear these institutions towards the marginal and small farmers, who have been increasing continuously, so that agricultural extensification, intensification and diversification may take place. Then only, the backward and forward linkages in the agricultural sector would generate impulses for non-agricultural development. (iii) Tenancy laws are to be suitably amended so that there is transparency. On the one hand the lessors within ceiling limits should not fear to give land for lease, on the other the lessees should pay only the regulated rent, while having the security of tenure.

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1. Introduction

The agrarian structure covers the following aspects according to Deshpande (1981):

(i) The average size of (ownership and operational) holdings. (ii) Size distribution of (ownership and operational) holdings and measures of concentration. (iii) Parcellation of holding (iv) Tenure types (self-cultivation, various types of tenancy etc.) (v) Mode of production (family farming, capitalist farming etc., there may be some overlap with the (iv)). (vi) Class composition and occupational distribution of population within rural areas and power relations expressing themselves in control over multiple markets (this may overlap with (iv) and (v)).

Of the six aspects of agrarian structure depicted by Deshpande, the first four deal with the quantitative aspects and the latter two are concerned with the qualitative aspects. Again within the first four aspects, (i), (ii) and (iii) deal with land distribution; whereas (iv) is concerned with tenancy (tenurial conditions). The present paper is intended to study changes only in the pattern of land distribution and tenancy, in respect of Andhra Pradesh, covering the period from 1953-54 to 1991-92.

1.1 Land Distribution and Tenancy

Land distribution and tenancy assume different forms in different modes of production. As regards land distribution, in feudal and semi-feudal conditions land is inequitably distributed and it is in favour of landlords. Hence the land reform as a measure of equitable distribution has been advocated since French Revolution, which gave a death-knell to feudalism. Land reform has continuously been a major issue of national policy in one country or the other ever since French revolution (Tuma, 1963). Similarly, the tenancy also has evolved out of different modes of production. In feudalism and pre-capitalism, tenancy is linked with the labour service, through the operation of extra-economic coercion. In capitalist mode of production, the tenancy depends on the market i.e. demand for and supply of tenanted land. Aparajita

Chakravarthy (1981) says:

Tenancy as an institution has both predated and post – dated with the feudalism; it has coexisted with feudalism both as an integral part of the feudal system as well as an institution of differing on vital points, from feudalism. It existed in the antiquity, when the dominant mode of production was slavery, it existed in the medieval period when the dominant mode of production in Western Europe was feudalism and at least in some countries, it continued in 20th century as an integral part of developed capitalism.

At present, in labour-surplus and land-scarce developing economies, the demand for leasing-in arises mainly from the lack of employment opportunities outside agriculture. In such conditions, if the feudal or semi-feudal relations prevail, technological innovations would not take place. The landlords would not allow the tenants to adopt even land-augmenting technology, like bio-chemical technology, because of the dis-incentive ridden tenurial conditions (Bhaduri (1973), Prasad (1973) and Chandra (1975)).

Even when capitalist development takes place tenancy is bound to exist. In this connection, Khusro (1973) says, " Tenancy is a method of equating the demand for land with the supply. In the absence of tenancy, underground arrangements are bound to subsist." Further, he observes that the tenancy is regarded as a help rather than a hindrance in many parts of the world, once the tenancy loses its exploitative edge. There are three broad factors behind the land lease activities as per Dantwala and Shaw (1971): (i) Ownership of land is not desired by landowners solely or even primarily for self-cultivation. This leads to the difference between the distribution of ownership holdings and operational holdings. (ii) Migration of members of cultivating families to urban area. (iii) Fragmentation of holdings into distant parcels; wherein leasing-in of nearest parcels and leasing-out of distant parcels is opted. The lease market however would depend upon types of tenants (mixed, pure, caste etc), who are on demand side and types of owners of land, on the supply side.

Two forms of rent payment have been differentiated, viz: fixed rent and share crop. The fixed rent may be in terms of cash rent or rent-in-kind. Share cropping may be with or without cost sharing. The fixed rent tenancy has been found to be efficient and has been treated on par with owner cultivation, as this form may have incentive to increase productivity as it does not involve transfer of the increased produce to the owner of land (landlord). But share crop tenancy is inefficient, as the tenant may

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not have the incentive to increase land-productivity (Marshall (1974), Bhaduri (1973), Ip and Stahl (1978), Chadha (1976)).

In the immediate post-Independence period, the land reform measures were implemented in India to bring changes in the semi-feudal and feudal agrarian structure. As a part of these measures, in Andhra Pradesh also, the land reform legislations were undertaken to bring changes in the land distribution and tenancy conditions. Now, a very brief review of land reforms implemented in India and Andhra Pradesh is made.

1.2 Land Reforms : Initiatives at the All-India Level

In India, on the eve of independence, in almost all the states, there were semi-feudal relations. To transform this agrarian structure, three land reform measures were implemented in phased manner:

(i) abolition of intermediaries in the immediate post-Independent period, late 1940s to mid-1950s,

(ii) tenancy reforms throughout 1950s,

(iii) enactment of land ceilings in first phase (early 1960s) and in second phase (early 1970s onwards).

Though abolition of intermediaries was implemented somewhat successfully, the implementation of tenancy laws was not considered much successful, though to some extent tenancy was reduced[1], for the following reasons:

(i) the burden of proof lies with the tenant (NAC,1976), while the tenant cannot establish his right over land in the absence of recorded rights and he is evicted

(ii) forceful eviction of tenants took place in the name of voluntary surrenders (Khusro, 1959)

(iii) personal cultivation was not properly defined (Appu, 1975)

(iv) only larger tenants could benefit by purchases (Dandekar,1962)

(v) post green revolution impact in rising productivity of the land led to resumption for self-cultivation by the landowner (Khusro ,1973).

Dandekar and Rath (1971) observe "Abolition of intermediaries was basically a reform of revenue administration rather than a measure of land redistribution."

The rural labour were aspiring for the redistribution of land through land reform measure and as it was not done, there was a lot of discontentment among the rural masses. Therefore, the then ruling Congress Party, in its Nagpur AICC of 1959, resolved for land redistribution by enacting ceiling laws only half heartedly to pre-empt the efforts of CPI that was highlighting the issue of land redistribution (Kotovosky, 1964). The laws enacted by the early 1960s were quite ineffective because, each member in a family was a unit for ceiling and many exemptions were there. This attitude towards land reform of the Indian ruling class was attributed to its strategy of 'reactionary programme' despite its 'radical ideology' (Joshi, 1974). Only on the rise of naxalism and other violent movements, a second round of ceilings were enacted (Joshi,1982), with some important modifications, that yielded some effective results.

The agricultural sector being the state subject, the Government of India could indicate and issue the guidelines to implement land reforms in different states; and the states framed laws and implemented in their own. Though the laws were similar, the implementation has yielded different results in different states.

1.3 Land Reforms in Andhra Pradesh

Andhra Pradesh state was carved out from Andhra state (formed in 1953, on separation from Madras presidency) and Telangana region of erstwhile Nizam's Hyderabad state, on November 1,1956. The agrarian and land relations in these two regions were different. Andhra region, being under British rule, had somewhat better agrarian relations and conditions compared to those of the Telangana region, which was under the Nizam's feudal rule. Therefore, land reform measures were separate for these two regions for abolition of intermediaries and tenancy legislations (Parthasarathy and Prasada Rao, 1969). For abolition of intermediaries, Andhra region was covered by "The Madras Estates Abolition and Conversion into Ryotwari Act, 1948", and Telangana region by "The Hyderabad (Abolition of Jagirs) Regulation Act, 1358 Fasli (1948)." Similarly tenancy laws were also different in the two regions. For Telangana, "The Hyderabad Tenancy and Agricultural Lands Act, 1950" was enacted in 1950 when it was still part of Hyderabad State. For Andhra region, the tenancy problem was recognized only in 1956, and "the Andhra Tenancy Act 1956" was enacted. However the implementation of reforms, for both abolition of intermediaries and tenancy laws, was more effective in Telangana. In Andhra

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region abolition of intermediaries was successful but Tenancy laws could not achieve any of its objectives and therefore required amendment of Tenancy Act as " Andhra Pradesh (Andhra Area) Tenancy (Amendment) Act 1970" (Parthasarathy and Suryanarayana, 1971).

Ceiling laws were common for both the regions. The first phase of ceilings on landholdings were imposed through " The A.P Ceiling on Agricultural Holdings Act 1961." However, ceiling laws were not at all effective in redistribution of land. Originally, in Telangana alone 6 lakhs acres of surplus land was expected to be declared surplus. But, by 1970, the surplus land acquired in entire Andhra Pradesh was only 191 acres (Dandekar and Rath, 1971). Ineffective implementation of the ceiling law is considered one of the main factors behind agrarian unrest and the rise of naxalite movement in Andhra Pradesh. In fact, the Government of India received report from its Home Department, confirming the causes of agrarian unrest in 1969. By 1972, the national guidelines for new round of land ceilings were formulated. As a consequence, in AP also the second phase ceilings were imposed, through "The AP Land Reform (Ceiling on Agricultural Holdings) Act, 1973". Thereafter some positive impact has been perceived in the redistributive measure. By September 2000, the surplus land of 5,81,568 acres was distributed among 5,34,603 beneficiaries (Krishna Rao, 2002). Besides, banjar lands were also distributed to the extent of 32,93,991 acres, from 1st November 1969 till the end of 1984-85 (Krishnaiah et.al, 1990).

Thus, the land reforms, implemented in Andhra Pradesh, should have brought some positive changes in the agrarian structure of Andhra Pradesh.

2. Objective, Data and Methodology
2.1 Objective

The overall objective of the study is to study the changes in the pattern of land distribution and tenancy in Rural Andhra Pradesh. The specific objectives are:

(i)   to analyse the changes in the pattern of distribution of land ownership, as revealed from Household Ownership Holdings (HOHs) and land operation, as revealed from Operational Holdings (OHs), while dealing with a few important aspects of Household Operational Holdings (HHOHs);

(ii)   to examine the changes taking place in the extent of tenancy as thrown up by the household ownership holdings and operational holdings; and

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(iii)   to study the changes in the forms of tenancy, based on data for operatio nal holdings.

2.2 Data

There are three sources of data on landholdings in India: NSS, Population census and Agricultural census. The present study depends on NSS data only for the following reasons:

(a) Population Census gives data on the number of operational holdings (Cultivators) in different farm-size classes for the years 1951 and 1961 from 20 percent sample, while dividing cultivators into self-operators and tenant cultivators. Since 1971, there has been no such data in the population census. Thus,   there is no continuity of data. Moreover the data relates to only operational holdings.

(b) Agricultural Census (World) has been furnishing data on Operational Holdings as per FAO guidelines since 1970-71 at intervals of 5 years. There is no break up into rural and urban sectors. Moreover the data collection is based on the land revenue records only. Another inconvenience with the data is that it does not deal with ownership holdings. However, to deal with district level analysis of land holdings, the available data is only this.

(c) NSSO has been estimating both Household Ownership Holdings and Operational Holdings (including magnitude and forms of Tenancy) and the data are available for five points of time 1953-54, 1960-61, 1970-71, 1981-82 and 1991-92 in 8th, 17th, 26th, 37th and 48th rounds respectively. In addition, they also have data on Household Operational Holdings (HHOHs). For these three aspects, the data are made available for rural and urban sectors at the state level. However, in 1970-71 (26th round) they furnished data for regions of rural sectors of Andhra Pradesh, viz., Rural Coastal Andhra, Rural Rayalasima and Rural Telangana.

As the NSS data is available for 5 points of time, while covering the three major types of hodings, i.e., Operational Holdings, Household Ownership Holdings and Household Operational Holdings, this paper banks upon NSS data alone.

However, NSS data are not available for tenancy in 17th round (1960-61) in published form. Even in 1953-54, though data are available on tenancy, the data on terms of lease are not available.

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2.3 Methodology

2.3.1 Adjustment to arrive at the Disributions for 1953-54

Due to reorganization of States, the NSS data of 1953-54 (8th found) pose a problem, as Andhra Pradesh did not exist at that time and formed only in 1956. For the then Andhra state (Coastal Andhra + Rayalasima), separate data are available in that round. But, for Telangana, there are no direct data. At that time, Telangana formed a part of erstwhile Hyderabad State. The author derived the data of landholdings of Telangana from those of erstwhile Hyderabad state, based on the net sown areas of the districts transferred. The method adopted is as follows:

Out of 17 districts in Hyderabad State, 3 districts (Bidar, Raichur and Gulbarga) having net sown area of 8,334,678 acres in 1953-54 were transferred to Karnataka State. 5 districts (Aurangabad, Parbhani, Nanded, Bhir and Osmanbad) having net sown area of 10,482,711 acres in 1953-54 were transferred to Maharashtra. The remaining 9 districts, of Telangana, having 10,256,232 acres of net sown area in 1953-54 were transferred to Andhra Pradesh. Now, the number of households/ holdings and area in all the size-classes of Hyderabad State were calculated in proportion with the Telangana net sown area and added respectively to the number of Households/Holdings and Area of Andhra region in each size-class to arrive at figures of Andhra Pradesh in each size-class.

2.3.2   Measures used to Arrive at Inequality and Size-classes for Analysis
(a)   *Gini Coeficient*

In regard to the measurement of inequalities, in both HOHs and OHs, Gini-coefficient (G) has been calculated, using the following formula:

$$G = \left| \frac{\sum X_i Y_{i+1} - \sum X_{i+1} Y_i}{100 \times 100} \right| , \quad \text{where}$$

X_i = Cumulative frequency of HHs or Holdings

Y_i = Cumulative frequency of Area

i = 1... 11 for OHs and HOHs when the latter excludes landless (as in Appendices 3 and 4

i = 1... 12 for HOHs, when landless are included.

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(b)   Inter-Class Concentration Ratio (ICCR)

As per Chadha (1986), the Gini coefficient cannot distinguish between different types of concentration; particularly when it is used to study structural changes in distribution over time, it does not give any clue as to which part of the distribution has changed. Therefore, one may adopt an alternative procedure to examine whether the ownership position of each group has changed over time. The technique is the interclass concentration ratio (ICCR), which is computed by the formula as follows:

$$ICCR = (q_i/Q)/(p_i/P) \times 100,$$

where p_i and q_i are the number of households/ holdings and area owned/ operated by the ith size-class and P and Q are, respectively the total number of ownership/ operational holdings and the total area owned/ operated. This index works out the ratio between a group's share in area owned/ operated and its share in the number of holdings. It indicates inter-class inequality, as Chadha (1986) says," A figure less than 100 suggests that the land owned by the group is less than its share under conditions of equal distribution of land. A figure greater than 100 shows the contrary."

(c)   Size-Classes adopted in Analysis of Data

If the landless class (owning land < 0.002 ha) is omitted, as in 1953-54, the remaining eleven size-classes are again converted into five broad size-classes, and these broad classes are widely used to analyse the data. The size-classes are as follows (in Ha):

     (i) 0.002 - 1.00   : Marginal Farms/Farmers
    (ii) 1.01   - 2.02   : Small Farms/Farmers
    (iii) 2.03 - 4.04   : Medium Farms/Farmers
    (iv) 4.05 - 10.12   : Semi-Medium Farms/Farmers
    (v) 10.13   and above   : Larger Farms/Farmers

The NSS gave data for 12 size-classes, in 1953-54. By 1981-82, the number of size-classes rose to 16. In the Appendix-1, the details of size-classes for all the Rounds are explained.

2.3.3 Gaps in the Data on Tenancy and Coverage for Analysis

(i) *Data on Tenancy and Gaps*

The tenancy data is available with respect to both household ownership holdings (HOHs) and operational holdings (OHs).

The data on the number of households leasing-out and area leased-out of area owned are furnished with rerspect to HOHs, from 1953-54 onwards for all the points of time. Further, the leasing-in aspects with respect to HOHs were also covered from 1970-71 onwards. The forms of tenancy (the terms of lease) in respect of HOHs were furnished in 1970-71 and 1981-82 for leasing-out aspects, whereas for leasing-in aspects , they were covered for 1970-71 and 1991-92.

Leasing-in aspects with respect to operational holdings (OHs) were covered from 1953-54 (excepting 1960-61). However, the forms of tenancy for 1953-54 and 1960-61 were not furnished. In 1970-71 and the latter Rounds (37th and 48th), the terms of lease (forms of tenancy) were furnished in detail.

Though the data for leasing-in/leasing-out aspects are available to suit 11 size-classes up to 1981-82, such data in 1991-92 are available so as to suit broad size classes, because the data for the classes 10.01 ha & above was clubbed together. Thus the tenancy data are analyzed throughout for five broad size-classes only.

(ii) *Data Coverage in Analysis*

It is important here to point out that the area under tenancy reported as leased-out with reference to household ownership holdings is an underestimate, because the owners of land do not report that their land is leased-out due to fear that their tenants may be conferred with ownership rights. However the area under tenancy reported as leased-in with reference to the operational holdings is more reliable, because the tenants generally report the area taken on lease.

Further, to avoid confusion and for easy grasp, the present study covers the extent of tenancy with reference to both household ownership holdings and operational holdings. However, we confine our analysis of forms of tenancy (terms of lease) with reference to operational holdings only.

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3. Distribution of Household Ownership Holdings and Operational Hold ings and a few Aspects of Household Operational Holdings

In the studies related to agrarian structure and agrarian relations, three kinds of land holdings are used for analysis,viz: Household ownership holdings(HOHs), Operational holdings (OHs) and Household operational holdings (HHOHs). Before going to examine the temporal and farm-size-wise variations in the distribution of landholdings, it is necessary to have conceptual clarity about the different categories of landholdings. This is set in Appendix-2.

In this section, we start our analysis first with household ownership holdings, then we take up operational holdings. A few aspects of household operational holdings are dealt in the last subsection.

3.1 Distribution of Household Ownership Holdings

First we take up some important aspects of household ownership holdings at the aggregate level (such as landless households, average size etc.) and then the distributional aspects are dealt with.

3.1.1 Household Ownership Holdings – Important Aspects

Table-1 shows changes in some important variables, viz: share of landless households, average size, total holdings and area owned and Gini coefficient.

Share of Landless Households

In Andhra Pradesh, rural landless households assume as high as 26.53 percent of the total rural households in 1953-54. It decreases abruptly to 6.84 percent in 1960-61 and remains more or less the same in 1970-71. However it rises to 11.93 percent in 1981-82 and reaches to 11.86 percent in 1991-92, with only a slight decrease. Though the share of landless households has shown a trend to rise since 1960-61, it is alarming to note a drastic decline between 1953-54 and 1960-61. Such a drastic reduction in the percentage of landless households is observed even at all India level and other states too, for the period from 1953-54 to 1960-61. This was

Table 1: Household Ownership Holdings - Some Variables

S.No.	Variable	1953-54	1960-61	1970-71	1981-82	1991-92
1	Landless HHs in Total Households (%)	26.53	6.84	6.95	11.93	11.86
2	Landless HHs including near landless * (%)	-	34.17	30.11	37.63	30.33
3	Average Size (Ha) (excluding landless HHs)	2.69	1.84	1.59	1.47	0.89
4	Average Size (Ha) (including landless HHs)	1.98	1.71	1.48	1.29	0.78
5	Landed HHs (excluding landless HH) ('000)	3764.00 (60.84)	6187.00 (100.00)	6472.60 (104.62)	7565.20 (122.28)	9956.30 (160.92)
6	Landless HHs ** ('000)	1359.40 (299.43)	454.00 (100.00)	483.10 (106.41)	1024.50 (225.66)	1339.10 (294.96)
7	Total HHs (including landless HHs) ('000)	5123.40 (77.15)	6641.00 (100.00)	6955.70 (104.74)	8589.70 (129.34)	11295.40 (170.09)
8	Total Area Owned ('000Ha)	10120.00 (89.01)	11370.00 (100.00)	10278.00 (90.40)	11083.00 (97.48)	8853.00 (77.86)
9	Gini Coefficient (excluding landless HHs)	0.7283	0.7437	0.7050	0.6945	0.6650
10	Gini Coefficient (including landless HHs)	0.8000	0.7613	0.7256	0.7309	0.7046

Source: 1. For 1953-54, NSS Report No.66 (8th Round)
          2. For 1960-61, NSS Report No.144 (17th Round)
          3. For 1970-71, NSS Report No.215.1 (26th Round)
          4. For 1981-82, NSS Report No.330 (37th Round)
          5. For 1991-92, NSS Report No.399 (48th Round)
          (Figures in parentheses are indices with 1960-61 as base)

*   Chadha and Sharma (1992) calculated figures for 1960-61, 1970-71 and 1981-82 and they are taken for these years. For 1991-92, the figure was calculated following their method.

**   Prior to 1981-82, the landless was shown as a single class as owning 'no land' or owning land upto<0.002 ha (0.005 acre). But 1981-82 onwards, the NSS shows as (i) 'nil class' for the class owning 'no land' and (ii) 'zero class' for the class owning land upto <0.002 ha.

partly explained in terms of (i) definitional change in regard to the ownership in the NSS surveys from 17th round onwards (Sanyal, 1976), (ii) distribution of waste or banjar lands by the government among the rural landless households (Bardhan, 1970), and partly (iii) abolition of intermediaries and legislation of tenancy laws.

In view of the sudden decline in share of landless households between 1953-54 to 1960-61, Chadha and Sharma (1992) recalculated for 1960-61, 1970-71 and 1981-82

the shares of near landless households following a method.[2] Following their method, the figure for 1991-92 is calculated. These four figures are shown in the Table. The recalculated shares of near landless households in AP show that in 1960-61, the share of landless households is 34.17 percent, and declines to 30.11 percent in 1970-71, again it increases to 37.63 percent in 1981-82. However, it declines to 30.33 percent in 1991-92. Thus, the state of near landlessness is alarmingly high, throughout the four decades.

Average Size of Ownership Holdings

Average size of ownership holdings (excluding landless households) is 2.69 ha in 1953-54 and, it drastically declines to 1.84 ha in 1960-61 within a short span of time.[3] Thereafter, the average size gradually decreases to 0.89 ha by 1991-92. Similar is the trend with average size among the households when landless households are included. When the landless are included, the average size in 1953-54 assumes 1.98 ha and gradually decreases to 0.78 ha in 1991-92. The gradual decrease in average size may partly be attributed to the population increase in the countryside which in turn causes sub-division and fragmentation of holdings, leading to the increase of holdings.

Changes in the Number of Households and Area Owned

Total households (excluding the landless) are 6,187 thousand in 1960-61. By 1991-92, they rose to 9,956.3 thousand, with a growth of 61.0 percent over 1960-61. However, in 1953-54, they are less by 39.16 percent, compared to those of 1960-61.

Next, the total households (including the landless) are 6,641 thousand in 1960-61 and by 1991-92, they reach 11,295.4 thousand, with an increase of 70.1 percent (over 1960-61). Further, the total households in 1953-54 are less by 22.9 percent, compared to those of 1960-61. The growth of households including the landless at higher rate than that of the landed households indicates that the landlessness in percentage has increased along with the rise of total households over a period (except 1953-54). However, in 1953-54, the landlessness is the highest because (i) that year falls prior to the implementation of land reforms and (ii) definitional change in 1960-61 and thereafter.

In 1960-61, the area owned by the ownership holdings is 11,370 thousand hectares. In all other points of time, it is less than the area owned in 1960-61. The area decreases by 9.6 percent in 1970-71 (over 1960-61). The position improves to some extent by 1981-82. But, there is a substantial decrease in 1991-92, and the decrease was by 22.14 percent compared with 1960-61. The area in 1953-54 is also less than that of 1960-61 (by 11.0 percent), as net sown areas increased in 1950s. Thus, the trend seems to be in opposite direction to that of the total number of holdings.

Inequality in the Distribution of HOHs

To measure inequality, Gini Coefficient is applied, as it is conveniently used for temporal comparison, Gini ratio is calculated for distributions excluding and including the landless. When calculated, in the first distribution there would be 11 size-classes and in the latter 12 size-classes.

In the distribution, excluding landless households, the Gini coefficient assumes a value of 0.7283 in 1953-54 and rises to 0.7437 in 1960-61. Despite the land reform measures the inequality has risen between 1953-54 and 1960-61. In 1970-71 and 1981-82 Gini value remains around 0.7000 and by 1991-92 it decreases to 0.6650.

If the distribution includes the landless households, the Gini coefficient values show glaring inequalities over the four decades. In 1953-54, it assumes 0.8000 and by 1991-92, it decreases to 0.7046. Thus, though the inequality is high, varying between 0.8 and 0.7, there is a trend towards decline.

3.1.2 Distributional Changes in Household Ownership Holdings

The distribution of household ownership holdings in different size-classes is presented in Table-2.

The shares of the holdings increase substantially, during 1953-54 to 1991-92, for marginal farmers (53.7 to 73.2 percent) while they do not show much variation for small farmers. For semi-medium farmers, they exhibit a declining trend over the period. But, in absolute terms, the number of holdings clearly increases over the period for all these three farm-size categories. However, the shares of area owned increase sharply for these farm-size categories (marginal, small and semi-medium). It is really redeeming that the area, in absolute terms, increases for these farm-size

categories over the period, showing a redistributive trend over the period. Further, the redistributive character is corroborated by the fact that the average sizes of the farmers in these three categories remain more or less the same over the period.

As a concomitant, among the medium and large farmers, the shares of both households and area show a clear decreasing trend over the period. The absolute figures also confirm the same trend (leaving aside the figures of medium farmers for 1953-54). Again this is reflected in the decrease in the average size of the holdings; for medium farmers, the average size decreases from 6.29 ha in 1953-54 to 5.57 ha in 1991-92 while for large farmers, it decreases from 21.12 ha in 1953-54 to 15.93 ha in 1991-92.

Further, it is observed that there are drastic increases in both holdings and area shares in 1991-92 over 1981-82 for marginal farmers and such a change in area share is seen for small farmers. Again, the share of area in the same period shows substantial decrease among the large farmers.

Table 2: Distribution of Household Ownership Holdings in Andhra Pradesh by Five Broad Size-Classes

S.No.	Size Class (Ha)	Percentage Number of Holdings					Percentage Area Owned					Average Size (Ha)				
		53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92
1	Marginal (0.002 - 1.00)	53.72	63.84	62.70	63.08	73.24	5.27	8.17	9.92	11.27	21.30	0.26	0.24	0.25	0.26	0.26
2	Small (1.00 - 2.02)	14.95	12.30	14.67	15.93	14.01	7.90	9.69	13.16	15.29	22.44	1.42	1.45	1.42	1.41	1.42
3	Semi Medium (2.03 - 4.04)	14.32	11.38	12.06	11.36	8.46	15.20	16.97	21.19	20.70	24.15	2.85	2.74	2.79	2.67	2.54
4	Medium (4.05 - 10.12)	11.24	9.25	8.14	7.60	3.84	26.30	31.28	30.15	29.82	24.05	6.29	6.21	5.88	5.75	5.57
5	Large (10.13 & above)	5.77	3.23	2.43	2.03	0.45	45.33	33.89	25.58	22.92	8.06	21.12	19.28	16.72	16.54	15.93
	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	2.69	1.84	1.59	1.46	0.89

Source : As in Table 1

Note: Landless households are excluded from the distribution.

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However, going by ICCR analysis, shown in Table-3, even in respect of semi-medium to large farmers, at every point of time, the ratio exceeds 100, despite some redistributive changes, because over a period, the rate of decrease in hodings is higher than the rate of decrease in the area. However, among the marginal and small farmers, the redistributive changes seem to be positive or favourable, as their ICCRs reach towards 100 or assume value greater than or equal to 100, over the periods.

That is, in the size-class in which the share of area exceeds the share of holdings, the ICCR exceeds 100. However, in respect of the marginal farmers, the improvement is not substantial, as the distance is much away from 100.

From the more disaggregated analysis, 11 size-class distribution (Appendix-3), the same results follow.

Table 3: Inter-Class Concentration Ratio (ICCR) by Ownership Holdings

S.No.	Size Class (Ha)	Interclass Concentration Ratio				
		53-54	60-61	70-71	81-82	91-92
1	Marginal (0.002 - 1.00)	9.81	12.80	15.82	17.87	29.08
2	Small (1.00 - 2.02)	52.84	78.78	89.71	95.98	160.17
3	Semi Medium (2.03 - 4.04)	106.15	149.12	175.70	182.22	285.46
4	Medium (4.05 - 10.12)	233.99	338.16	370.39	392.37	626.30
5	Large (10.13 & above)	785.62	1049.23	1052.67	1129.06	1791.11
	Total	100.00	100.00	100.00	100.00	100.00

3.2 Distribution of Operational Holdings

In this part, it is proposed to examine the changes in some important variables and distributional changes in respect of operational holdings. Also parcellation aspect is covered.

3.2.1 Operational Holdings – Some Variables

Table-4 shows the changes in average size, Gini coefficient, the total number of holdings and the total area operated.

Average Size of Operational Holdings

As regards the average size, in 1953-54 it is 3.57 ha, while it decreases to 2.87 ha in 1960-61 and thereafter gradually decreases to 1.30 ha in 1991-92. If the absolute decreases are considered, it is by 0.57 ha in the period 1960-61 to 1970-71 and in the other periods, it is around 0.70 ha. As the number of households owning land (>0.002 ha) is higher than the number of operational holdings, in each point of time under the study, the average size of operational holdings is higher than that of ownership holdings (see Table-1). It is the resultant effect of tenancy. Further, it also gets reinforced by the fact that the share of households owning but not operating land is substantially higher than the share of landless households and the share of households neither owning nor operating land at each point of time (as seen from Table-1 and Table-8).

Table 4: Operational Holdings: Some Aspects

S.No.	Variable	1953–54	1960–61	1970–71	1981–82	1991–92
1	Average size (Ha)	3.57	2.87	2.30	2.01	1.30
2	Gini Coefficient	0.6524	0.6157	0.6028	0.5948	0.5643
3	Total Operational Holdings (excluding nil+zero class) ('000)	2971 *(74.76)*	3974 *(100)*	4431 *(111.5)*	5147 *(129.52)*	7085 *(178.28)*
4	Total Area Operated ('000 Ha)	10603 *(92.85)*	11420 *(100)*	10178 *(89.12)*	10339 *(90.53)*	9215 *(80.69)*

Source :   1. For 1953-54, 1960-61 and 1970-71 as in Table 1
             2. For 1981-82, NSS Report No. 331
             3. For 1991-92, NSS Report No. 407

Notes :
1. For 1953-54,   only agricultural holdings are taken into account.
2. In 1981-82,   2.8 thousand operational holdings, operating land < 0.002 ha, are excluded.
3. In 1991-92, 64.7 thousand operational holdings, operating land < 0.002 ha, are excluded.
4. The bottom numbers, in parentheses for items 3 and 4, are indices with 1960-61 as base

Changes in the Number of Holdings and Area Operated.

In regard to the number of holdings, they are 2,971 thousand in 1953-54, and they have continuously risen, reaching 7,085 thousand by 1991-92. Between 1981-82 and 1991-92, the rise in the number of holdings assumes a sharp increase by 1,938 thousand. Their increase, as usual, may be attributed to fragmentation of holdings due to break up of joint families as a result of population rise. Further, marginal and small farmers/operators may undertake temporary migration, or commuting to nearby towns, in agricultural lean season, due to increased transport facilities, so that their dwarf farms could be operated while residing in the their villages only.

The total land operated is 10,603 thousand hectares in 1953-54 while reaching maximum of 11,420 thousand hectares in 1960-61. Thereafter, it decreases to 9,215 thousand hectares by 1991-92. In contradistinction to the substantial increase of holdings by 1,938 thousand in the period 1981-82 to 1991-92, the area operated decreases substantially by 1,124 thousand hectares in the same period. Thus pressure on land operated has been increasing over the decades.

Inequality Measure - Gini Coefficient

The Gini-coefficient assumes value of 0.6524 in 1953-54 and gradually decreases continuously over the period, reaching 0.5643 in 1991-92. It is again interesting to compare the inequality measures of ownership holdings (excluding landless class) from Table-1. At each point of time the Gini value of operational holdings is less than that of ownership holdings, because the operational holdings distribution is resultant distribution of household ownership holdings due to interplay of leasing-out and leasing-in, thereby bringing about equalization in the distribution of the former. In fact, Sanyal (1977) draws some inferences for tenancy from the comparison of Gini-coefficients when both ownership holdings and operational holdings excluded landless and zero classes respectively.

3.2.2 Distributional Changes in Operational Holdings

The distribution of operational holdings for all the five points of time 1953-54 to 1991-92 for five broad size-classes is set in Table-5.

It is seen that there are inequalities at each point of time, but there is a trend towards less inequitable distribution at each point of time (as reflected in the

Table 5: Distribution of Operational Holdings in Andhra Pradesh by Five Broad Size-Classes

S.No.	Size Class (Ha)	Percentage Number of Holdings					Percentage Area Operated					Average Size (Ha)				
		53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92
1	Marginal	39.83	41.90	47.29	48.51	58.90	4.76	6.76	9.28	10.26	17.54	0.43	0.46	0.45	0.42	0.39
2	Small	18.32	18.59	19.14	22.19	21.57	7.34	9.31	11.74	15.36	23.33	1.43	1.44	1.41	1.39	1.41
3	Semi Medium	19.16	19.10	18.23	15.55	13.29	15.51	17.83	21.91	21.08	26.23	2.89	2.68	2.76	2.72	2.57
4	Medium	14.33	14.80	11.87	10.82	5.42	25.61	30.60	31.42	30.20	23.49	6.38	5.94	6.06	5.61	5.64
5	Large	8.36	5.61	3.47	2.93	0.82	46.78	35.50	25.75	21.10	9.41	19.97	18.18	17.05	15.84	14.93
	Total	100	100	100	100	100	100	100	100	100	100	3.57	2.87	2.30	2.01	1.30

decreasing Gini values). The pattern, that we observed in the ownership holdings, is almost repeating with some changes here and there.

At the lower end of the farm-size ladder, the shares of holdings increase for the marginal farms (nearly 40.0 to 59.0 percent) and decrease for the semi-medium farms while they increase marginally for the small farms. But, the shares of area operated increase continuously for all these three categories of farms over the period. Another important feature is that the holdings and area operated, in absolute terms, increase over the period. As a result, the average sizes for all these three farm-size categories do not show much variation over the period, thereby reflecting gain for these farm-size groups, which is an indication of the positive and favourable redistribution at the lower end.

At the upper end of the farm-size ladder, the large farms show decreasing pattern for the area and the holdings, both in relative and absolute terms. Also the average size decreases in regular fashion over the period, reflecting a positive redistribution over the period. Whereas for the medium farms, though the holdings in absolute terms have higher levels during the period 1960-61 to 1981-82, their shares show a decreasing trend over the period. Somewhat interestingly, the area operated (of medium farms), both in relative and absolute terms, exhibit higher levels during the period 1960-61 to 1981-82, though at the extreme time points there is decrease (comparing 1991-92 with 1953-54).

Table 6: Interclass Concentration Ratio - Operatinal Holdings in Andhra Pradesh

S.No	Size Class (Ha)	Interclass Concentration Ratio				
		53-54	60-61	70-71	81-82	91-92
1	Marginal	11.95	16.13	19.62	21.15	29.78
2	Small	40.07	50.08	61.34	69.22	108.16
3	Semi Medium	80.95	93.35	120.19	135.56	197.37
4	Medium	178.72	206.76	263.86	279.11	433.39
5	Large	559.57	632.80	742.07	788.40	1147.56
	Total	100.0	100.0	100.0	100.0	100.0

Further, there are drastic increases in the shares of area operated for the marginal, small and semi-medium farms between 1981-82 and 1991-92, while there is such a drastic increase only for the holdings of the marginal farms.

Following Kurien and Chadha even if interclass concentration ratio (ICCR) is calculated for each class, it is observed that the ratios are favourable for the marginal and small farms, as their ICCRs rise from less than 100 to towards 100, as is portrayed in Table-6. But in higher size classes also the same change seems to have occurred i.e. improvement in their ICCRs for the explanation already offered at ownership holdings. However, the changes at the lower end of farm-size ladder may have caused the reduction in overall inequalities, as is reflected in the Gini Value. But, the interclass inequality is glaring for the marginal farms, as seen from the ICCR, which is quite far from 100.

Even at the more disaggregated analysis, from 11 size-class distribution, the results follow the same pattern as can be seen from Appendix-4.

3.2.3 Parcellation – Average Area of Parcels among Operational Holdings

Fragmentation of operational holdings is an important problem in Indian agriculture and the same is the situation in case of Andhra Pradesh. Table-7 shows the details of the number of parcels per holding, average area of parcel and average size of operational holding for five broad size-class distribution and 11 size-class distribution for 3 points of time viz. 1960-61, 1981-82 and 1991-92. The data are not available for 1953-54 and 1970-71 for the first two aspects.

Number of Parcels per Holding

At the aggregate level, the number of parcels per holding is 4.32 in 1960-61 and, it declines to 3.53 in 1981-82 and further to 2.52 in 1991-92. However when compared with all India level, AP's picture is somewhat better, as the number of parcels per holding at all India level is 5.7, 4.0 and 2.7 in the respective periods (GOI, 1997).

Looking at five broad size-classes, it is observed that there is a systematic decrease of the number of parcels per holding over the two periods, i.e., 1960-61 to 1981-82 and 1981-82 to 1991-92. There is systematic positive association with farm-size, in each point of time.

From 11 size-class distribution it is clear that in most of the size-classes the number of parcels decreases uniformly from 1960-61 to 1981-82 and from 1981-82 to 1991-92, just as at the aggregate level. In respect of three farm-sizes (3.04 – 4.04 ha, 6.08-8.09 ha and 12.15-20.24 ha), there is increase from 1960-61 to 1981-82 and

thereafter there is decrease. In the bottom class, the number of parcels decreases from 2.01 to 1.66 and then from 1.66 to 1.52. In the final class (20.25 ha and above), the number of parcels is 10.91 in 1960-61 and, it slightly decreases to 10.49 in 1981-82 and there is a drastic decline and reaches 6.70 by 1991-92.

Another feature is that the number of parcels per holding maintains a systematic positive association with farm-size class in each point of time.

Table 7 : Parcels per Holding, Average Area per Parcel and
Average size of Holding

S. No.	Size-class (Ha)	1960-61			1981-82			1991-92		
		No. of Parcels per Hdg (No.)	Average Area per Parcel (Ha)	Average size of Holdings (Ha)	No. of Parcels per Hdg (No.)	Average Area per Parcel (Ha)	Average size of Holdings (Ha)	No. of Parcels per Hdg (No.)	Average Area per Parcel (Ha)	Average size of Holdings (Ha)
	Broad Size-classes									
(i)	Marginal (0.002-1.00)	2.59	0.18	0.46	2.25	0.19	0.43	1.96	0.20	0.39
(ii)	Small (1.01-2.02)	4.32	0.33	1.45	3.84	0.36	1.39	3.00	0.47	1.41
(iii)	Semi-Medium (2.03-4.04)	5.05	0.53	2.68	4.39	0.62	2.72	3.21	0.80	2.57
(iv)	Medium (4.05-10.12)	6.54	0.91	5.95	5.97	0.94	5.61	4.14	1.36	5.63
(v)	Large (10.13 and above)	9.03	2.02	18.19	9.00	1.76	15.81	6.58	2.27	14.95
	Total	4.32	0.66	2.87	3.53	0.57	2.01	2.52	0.52	1.30
	11 Size-classes									
1	0.002-0.40	2.01	0.09	0.18	1.66	0.09	0.15	1.52	0.09	0.13
2	0.41-1.00	2.95	0.22	0.65	2.73	0.24	0.65	2.39	0.27	0.64
3	1.01-2.02	4.32	0.33	1.43	3.84	0.36	1.39	3.00	0.47	1.41
4	2.03-3.03	5.03	0.47	2.36	3.99	0.60	2.41	3.10	0.76	2.34
5	3.04-4.04	5.10	0.66	3.37	5.30	0.63	3.43	3.60	0.94	3.40
6	4.05-6.07	5.47	0.85	4.65	5.42	0.85	4.62	4.28	1.07	4.59
7	6.08-8.09	6.64	0.98	6.51	7.02	0.98	6.89	3.80	1.72	6.54
8	8.10-10.12	9.38	0.93	8.72	7.01	1.27	8.89	4.20	2.03	8.51
9	10.13-12.14	7.85	1.36	10.68	6.82	1.63	11.11	6.80	1.56	10.58
10	12.15-20.24	8.35	1.73	14.45	9.76	1.56	15.23	6.40	2.19	13.97
11	20.25&above	10.91	2.68	29.24	10.49	2.73	28.67	6.70	4.37	29.42
	Total	4.32	0.66	2.87	3.53	0.57	2.01	2.52	0.52	1.30

Source : As in Table 4
Note: Data not available for 1953-54 (8th Round) and 1970-71(26th Round)

Average Area per Parcel

As the number of parcels per holding is falling down over the period, it is quite possible that average area per parcel may rise or remain constant over the periods.

Due to the effect of decrease in the average size, at the aggregate level, the average area per parcel decreases from 0.66 ha in 1960-61 to 0.57 ha in 1981-82 and then to 0.52 ha in 1991-92.   By broad-size classes, the behaviour of the average area per parcel in each size-class shows increase temporally (except in large farms for 1981-82) and exhibits quite systematic positive association with farm-size in all the three points of time.

From 11 size class distribution also, as is expected, the trend is towards rising average area per parcel with exceptions in two classes (3.04-4.04 ha and 12.15-20.24 ha) in 1981-82 and in one class (10.12-12.14 ha) in 1991-92. Similarly, the average area per parcel maintains positive relation with farm-size in each point of time (with one exception in each year).

Average Size of Operational Holding – Across the Farm-size Classes

As regards the average size of operational holdings at the aggregate level it has already been analyzed in 3.1, where it is noticed that there is a gradual decline over the periods (1953-54 to 1991-92). Now, the average size across the farm-size ladder is considered for the three points of time 1960-61, 1981-82 and 1991-92. Further, it is easy to visualize that the product of the number of parcels per holding and the average area of the parcel gives the average size of the operational holding in each farm size-class.

By broad-size classes, it is seen that in marginal and large farms, there is systematic decline in the average size of holding over the period. For small and medium farms, decrease is there in the first period and then remains the same almost. For semi-medium farms there is increase in the first period and reaches in 1991-92 to the average size less than that of 1960-61.

Looking at 11 size-class distribution, it is observed that in almost all the size-classes above 2.02 ha (except the topmost class), there is an increase in the average size of the holdings in the first phase (1960-61 to 1981-82) and then decline is seen for the same farm-size categories in the second phase (1981-82 to 1991-92), which

may be attributed to the higher relative decrease of operated area in comparison with the holdings in the second phase.

In both types of distributions, the average size of the holdings maintains positive relation with farm-size in each point of time (as a result of increasing farm-size on the farm-size ladder).

3.3 Household Operational Holdings - Three Relevant Aspects

By household operational holdings (HHOHs), we prefer to use the data mainly on the households operating no land. This again can be classified into two components, viz: (a) households neither owning nor operating land and (b) households owning but not operating land. The latter break-up is not available for 1953-54. It is not directly available for 1981-82, and so Chadha and Sharma (1992) calculated from other data indirectly.[4] The same figures are adopted here. However for 1991-92, this information is directly available from the cross-table of household operational holdings and household ownership holdings. The three percentages are set in Table-8.

Share of Households Operating No Land

The share of households operating no land in Andhra Pradesh is 22.92 percent in 1953-54.   Thereafter it rises and reaches maximum in 1981-82, assuming 40.47 percent. Thus, it is interesting to observe that in the post-land reform period (from 1960-61) the share of households operating no land remains to be high varying between 36.05 percent to 40.47 percent, whereas the share of landless households, in the same period, varies between 6.84 to 11.83 percent only (see Table-1). This gives an inference that most of households in the landed classes are also not undertaking agricultural production (i.e., not cultivating land).

Table 8: Household Operational Holdings _ Some Aspects

S.No.	Variable	1953-54	1960-61	1970-71	1981-82	1991-92
1	Percentage of Households Operating no land	22.92	37.95	36.05	40.47	37.49
2	Percentage of Households neither Owning nor operating land	-	5.92	6.37	10.89*	9.88
3	Percentage of Households Owning but not operating land	-	32.03	29.68	29.58*	27.61

Source: 1. As in Table-4

2. For 1981-82, NSS Report No.338

3. For 1991-92, NSS Report No. 408

 * Not available from the data directly. They are taken from Chadha and Sharma (1992).

Share of Households Neither Owning Nor Operating Land

Despite the fact that some of the landless households might have also become the operators of land by lease, the share of such households is very small, in each point of time. So there may not be much difference between the shares of landless households and households neither owning nor operating land. In fact, the share of households neither owning nor operating any land in 1960-61 is 5.92 percent, reaching maximum in 1981-82 with 10.89 percent. The corresponding shares of landless households are 6.84 and 11.93 percent respectively. Thus the shares of households neither owning nor operating any land and landless households show trend to rise in the post land reform period.   In fact, the difference between the share of landless households and the share of households neither owning nor operating is a crude measure of pure tenant households; but the pure tenant holdings are generally shown with reference to operational holdings only (i.e., not by households).

Share of Households Owning but Not Operating Land

The share of households owning but not operating land is abnormally high in 1960-61, with 32.03 percent. In the later periods, these shares decline and remain around 29.7 or 27.6   percent. However, it is to be kept in view that the households owning but not operating land might have leased-out their land to other farmers, and some of them might have left agricultural production on their own. But most of them may be

engaging themselves in agricultural wage labour, particularly among the households owning land upto 0.50 ha. Some family members may be involved in urban employment with temporary migration, or by commuting to nearby urban areas.

It is interesting to know which class of households to what extent are actually not operating land, despite ownership. This aspect is presented in the cross-table of household operational holdings and household ownership holdings, provided by the NSS in 48th round, 1991-92. This is set in Table-9.

In 1991-92, of 41,334 hundred households operating no land, 24,664 hundred households, do not operate land though they are owning land in the size-class, 0.002-0.20 ha, and another 2,805 hundred households in the ownership size-class, 0.21-0.50 ha, forming 59.66 and 6.79 percent respectively in the total households operating no land. Thus, 66.45 percent of the households operating no land are from the households owning land in the size-class, 0.002-0.50 ha. All these households naturally depend on wage labour mainly agricultural labour for their livelihood.

Further, from 11,457 hundred households of nil-landed class 80.55 percent are not operating any land, and of 1,934 hundred zero-landed class (owning less than 0.002 ha), 100.00 percent of them are not operating land. Thus, 11,163 thousand households among the total landless (nil + zero classes) are not operating land, accounting for 27.00 percent of the total households operating no land.

That is, of the total households operating no land, 93.45 percent of them either own no land at all or own land upto 0.50 ha only.

4.   The Extent and Forms of Tenancy

The present section deals with the changing pattern of tenancy in Rural Andhra Pradesh, depending on the NSS data. As has already been pointed out in the methodology, the changes in the extent of tenancy are examined with reference to both the operational holdings and ownership holdings. But the changes in the forms of tenancy are dealt with reference to operational holdings only.

4.1   The Extent of Tenancy

As there is some fear of conferring occupancy rights to the tenants, who are legally contracted and or openly declared by the land owner, the land owners generally prefer to underreport the tenancy, even when they engage tenants. Thus, the

Table 9: Distribution of Households by Household Operational Holdings for Each Class of Ownership Holdings

| S.No | H.H Ownership Holdings | | Percentage of Household Operational Holdings (Ha) | | | | | | | | | |
	Size-class (Ha)	No. of Holdings ('00)	Nil	< 0.002	0.002 to 0.20	0.21 to 0.50	0.51 to 1.00	1.01 to 2.00	2.01 to 4.00	4.01 to 10.00	10.01 & above	Total
1	Nil	11457	80.55	—	15.83	0.72	0.94	0.51	1.32	0.12	—	100.0
2	<0.002	1934	100.00	—	—	—	—	—	—	—	—	100.0
3	0.002 - 0.20	38369	64.28	—	25.26	6.45	1.87	1.80	0.30	0.05	—	100.0
4	0.21 - 0.50	18902	14.84	—	6.79	67.88	7.58	2.10	0.75	0.06	—	100.0
5	0.51 - 1.00	15642	9.03	—	0.81	3.03	68.30	13.90	4.06	0.23	0.57	100.0
6	1.01 - 2.00	13952	5.40	—	0.61	—	3.28	79.80	9.99	0.74	0.12	100.0
7	2.01 - 4.00	8426	6.91	—	1.40	—	3.05	3.80	80.65	4.19	—	100.0
8	4.01 - 10.00	3824	1.24	—	0.63	—	—	5.97	4.83	85.78	1.55	100.0
9	10.00 & above	448	5.05	—	—	—	—	—	—	0.64	94.31	100.0
	Total	112954	37.49	—	11.96	13.02	11.95	13.30	8.39	3.39	0.52	100.0

Source: NSS Report No. 408 (48th Round)

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tenancy data, on leased-out area and households leasing-out collected from house-hold ownership holdings (HOHs) are underestimates.[5]

However, the NSS collects tenancy data by operational holdings (OHs) and this also reflects information from the demand side. On the one hand, these data are more reliable and on the other, they are available for all the points of time (except for 1960-61) in published form. Therefore, it is preferred to examine the magnitude of tenancy by operational holdings first and then by ownership holdings.

 ### 4.1.1   The Extent of Tenancy by Operational Holdings

By operational holdings, the data for the extent of tenancy are available in published form for 1953-54, 1970-71, 1981-82 and 1991-92. However, the aggregate level data for 1960-61 are obtained from Sanyal (1977).

The operational holdings are divided into three types: (i) Purely owned holdings, (ii) Pure tenant holdings and (iii) Mixed tenant holdings. Mixed tenant holdings may have partly owned and partly leased-in area. Thus, purely owned holdings and mixed tenant holdings report owned area. These two together are referred as operational holdings reporting owned area. Pure tenant holdings and mixed tenant holdings together are referred as operational holdings reporting leased-in area. Thus, operational holdings reporting owned area and operational holdings reporting leased-in area both have mixed tenant holdings in common. However they are separable conveniently.

In 1981-82, two additional categories of operational holdings were taken up for study, viz. 'neither owned nor leased-in' and 'others.' The former category includes the holdings which are in possession of institutional lands (i.e., non-private), without any rights. The latter is not defined properly. In 1991-92, the former category is referred as 'otherwise possessed', while showing another category of holdings, as 'n.r. (not recorded).' For convenience sake, we club these categories into a single hybrid category as 'others.'

As regards the operated area also, in addition to owned area and leased-in area the other categories are being shown and so they together are again clubbed under the category "others."

Tenant Holdings in Operational Holdings: Some Aspects at Aggregate Level
Table-10 shows important aspects about the tenant holdings.

Total tenant holdings (pure + mixed) in 1953-54 are 9,689 hundred. They decrease till 1981-82, reaching 6,859 hundred and then rise to 10,088 hundred in 1991-92. Similarly the total leased-in area in 1953-54 is the highest (19,722 hundred hectares); decreases continuously upto 1981-82 and then rises to 8,820 hundred hectares in 1991-92. Only the difference is that peak levels are reversed.

Table 10: Tenant Holdings in Operational Holdings

- Some Aspects - 1953-54 to 1991-92

S.No	Item	1953-54	1960-61	1970-71	1981-82	1991-92
1	*Operational Holdings (percent) Reporting Area as:*					
	i. Entirely owned	67.39	81.48	78.34	83.55	81.33
	ii. Pure tenants	11.21	3.04	0.71	1.04	2.32
	iii. Mixed tenants	21.40	15.48	20.95	12.28	11.79
	iv. Others	_	_	_	3.13	4.56
	Total	100.0	100.0	100.0	100.0	100.0
2	*Percentage of Operated Area Reported as :*					
	a. Owned	81.40	90.85	90.99	92.98	88.49
	b. Leased-in	18.60	9.15	9.01	6.23	9.57
	c. Others	_	_	_	0.79	1.94
	Total	100.0	100.0	100.0	100.0	100.0
3	*Share of Total Tenants in Total Op. Holdings (%) = 1(ii)+ 1(iii)*	**32.61**	**18.52**	**21.66**	**13.32**	**14.11**
4	**Leased-in Area (%) = 2(b)**	**18.60**	**9.15**	**9.01**	**6.23**	**9.57**
5	Share of Pure Tenants in Total Tenants (%)	34.38	16.42	3.28	7.82	16.44
6	Share of Mixed Tenants in Total Tanant Holdings (%)	65.62	83.58	96.72	92.18	83.56
7	Share of AP of Total Tenant Holdings to that of All-India (%)	5.77	6.16	6.55	6.44	9.78
8	Share of AP of Leased-in Area to that of All-India (%)	7.20	7.32	6.91	7.57	8.51
9	Total Tenant Holdings (Pure + Mixed) (' 00)	9689	7360	9598	6859	10088
10	Total Operated Area Leased-in by Total Tenant Hioldings (' 00 ha)	19722	10450	9179	6441	8820

Source: As in Table-4

Notes : 1. 1953-54 data is adopted from the data of Agricultural Holdings i.e., excluding non-agricultural Holdings

2. 1960-61 data are not directly available and are taken from Sanyal (1977)

3. In 1991-92, if zero-class tenants (113.23 hundred) are excluded, the Tenant Holdings become 9975 hundred

In 1953-54, in the immediate post-independence period, when the land ceiling measure was not yet on the agenda of land reform, the total tenant holdings have the share of 32.61 percent, in total operational holdings; and the leased-in area share assumes 18.60 percent, in total operated area.   Just after the impending ceiling measure was indicated (in 1959 Nagpur AICC), lot of evictions of tenants took place and as a result, 1960-61 data show a sharp decline in shares of both the total tenant holdings and leased-in area, as they assume 18.52 percent and 9.15 percent respectively.   Both the shares decrease upto 1981-82 and by 1991-92 they rise and assume 14.11 percent and 9.57 percent respectively.

As regards the percentage of pure tenant holdings in the total operational holdings, it is 11.21 percent in 1953-54 and it decreases drastically to 0.71 percent in 1970-71; thereafter there is increasing tendency, reaching 2.32 percent in 1991-92. But the percentage share of the mixed tenants in total holdings shows the decreasing trend from 21.40 percent in 1953-54 to 11.79 percent in 1991-92 (except 1960-61).

It appears as though the tenancy has lost its negative character, as losing of land under tenancy is no more a reality, because of the fact that land owners have already reached the limits of ceiling. That is, how the reported tenancy has increased in 1991-92.

Further, the share of pure tenants in total tenants shows the same behavior as the share of pure tenants in total operational holdings; i.e., decreases up to 1970-71 and thereafter rises. But, the share of mixed tenants in total tenant holdings first rises from 65.62 percent in 1953-54; shows rising trend till 1970-71, reaching maximum in 1970-71 (96.72 percent) and decreases thereafter reaching 83.56 percent in 1991-92. In fact, this share behaves in opposite direction, compared with the share of pure tenants (in total tenants), because both shares together form 100, at each point of time. That is, upto 1970-71, the tenants, who have some own land only, have retained the rights of tenancy, because of some bargaining position during the period of tenancy and ceiling legislations.

Shares of Tenant Holdings and Leased-in Area of AP in all India

Another interesting aspect is that both the shares of total tenant holdings and total leased-in area of Andhra Pradesh in All India show an increasing trend over the total period. The share of tenant holdings rises from 5.77 percent in 1953-54 to 9.78

percent in 1991-92 and the share of leased-in area goes up from 7.20 percent in 1953-54 to 8.51 percent in 1991-92.

Shares of Tenant Holdings and Leased in Area: Farm-Size

Table-11 shows the shares of operational holdings having pure owners, pure tenants and mixed tenants along with others; and the shares of owned area, leased-in area and others' area, by farm-size, for 1953-54, 1970-71, 1981-82 and 1991-92.

As regards the share of mixed tenants, it shows increasing tendency from marginal to semi-medium farms and it shows an inverted-U behavior for 1953-54, 1970-71 and 1981-82. But, in 1991-92, there is tendency to rise on the farm-size ladder (except medium farms) and even the large farms also have 22.00 percent mixed tenants. But the share of pure tenants shows a systematic inverse relation with farm-size in 1953-54. In latter years also, though shares are very smaller, the inverse relation with farm size is still maintained. As the size of operation goes up pure tenants do not have a dominant place in the agrarian economy.

If we look at the share of leased-in area, in 1953-54, there is systematic inverse relation with farm size. In other years no systematic relation seems to exist. But, in 1970-71, the medium farms and in 1991-92 the large farms show higher shares.

Thus, in 1991-92, the shares of mixed tenant holdings (both in the number and area) are the highest among the large farms (22.0 and 13.6 percent respectively). It is an indication for the symptoms of germination of the so called reverse tenancy.

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Table 11: Percentage Operational Holdings Leasing-in and Operated Area Leased-in by Farm-size -Temporal changes

S.No	Farm-size	Operational Holdings having					Operated Area			
		Pure owners	Pure tenants	Mixed tenants	Others	Total	Owned	Leased-in	Others	Total
1	**1953-54**									
	i. Marginal	71.78	15.81	12.41	-	100.00	71.24	28.76	-	100.00
	ii. Small	62.13	8.92	28.95	-	100.00	75.98	24.02	-	100.00
	iii. Semi-medium	58.65	5.89	35.46	-	100.00	76.20	23.80	-	100.00
	iv. Medium	66.59	3.27	30.14	-	100.00	82.15	17.85	-	100.00
	v. Large	63.86	3.83	32.31	-	100.00	84.58	15.42	-	100.00
	Total	67.39	11.21	21.40	-	100.00	81.40	18.60	-	100.00
2	**1970-71**									
	i. Marginal	80.04	0.89	19.07	-	100.00	85.64	14.36	-	100.00
	ii. Small	77.43	0.92	21.65	-	100.00	88.97	11.03	-	100.00
	iii. Semi-medium	75.01	0.27	24.72	-	100.00	89.40	10.60	-	100.00
	iv. Medium	77.37	0.54	22.09	-	100.00	80.38	19.62	-	100.00
	v. Large	80.89	0.00	19.11	-	100.00	95.35	4 .65	-	100.00
	Total	78.34	0.71	20.95	-	100.00	90.99	9.01	-	100.00
3	**1981-82**									
	i. Marginal	86.42	2.09	8.79	2.70	100.00	90.74	7.71	1.55	100.00
	ii. Small	80.88	0.12	14.75	4.25	100.00	91.49	6.65	1.86	100.00
	iii. Semi-medium	78.93	0.00	16.35	4.72	100.00	90.22	8.43	1.35	100.00
	iv. Medium	82.22	0.02	16.60	1.16	100.00	93.78	6.02	0.20	100.00
	v. Large	85.72	0.00	13.87	0.41	100.00	96.44	3.55	0.01	100.00
	Total	83.55	1.04	12.28	3.13	100.00	92.98	6.23	0.79	100.00
4	**1991-92**									
	i. Marginal	84.79	1.45	8.97	4.79	100.00	88.00	10.72	1.28	100.00
	ii. Small	75.56	1.38	19.15	3.91	100.00	86.23	10.22	3.47	100.00
	iii. Semi-medium	72.62	0.00	20.93	6.45	100.00	87.27	10.65	2.08	100.00
	iv. Medium	87.90	0.17	11.20	0.73	100.00	93.51	5.26	1.23	100.00
	v. Large	78.05	0.00	21.95	0.00	100.00	85.91	13.61	0.58	100.00
	Total	81.33	2.32	11.79	4.56	100.00	88.49	9.57	1.94	100.00

Source: As in Table-4

Distribution of Tenant Holdings and Leased-in Area: Farm Size

Table-12 shows the distribution of tenant holdings (mixed +pure) and leased-in area among the broad size-classes for 1953-54, 1970-71, 1981-82 and 1991-92.

**Table 12 : Diastribution of Tenant Holdings and
Leased-in Area by Farm-size**

S.No	Farm-size	1953-54		1970-71		1981-82		1991-92	
		% No	% Area	% No	% Area	% No	% Area	% No	% Area
1	Marginal	46.33	7.39	43.57	13.21	39.63	12.69	43.76	19.64
2	Small	16.36	9.43	19.94	14.36	24.74	16.40	31.11	24.91
3	Semi-medium	18.81	19.90	21.03	25.74	19.08	28.53	19.54	29.16
4	Medium	11.35	24.54	12.40	33.42	13.49	29.20	4.33	12.91
5	Large	7.15	38.74	3.06	13.27	3.06	13.18	1.26	13.38
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(i) Marginal + Small		62.69	16.82	63.51	27.57	64.37	29.09	74.87	44.55
(ii) Medium + Large		18.50	63.28	15.46	46.69	16.55	42.38	5.59	26.29

Source: As in Table 4

Considering the entire period, the marginal and small farms together account for 62.70 percent in 1953-54 and 74.90 percent in 1991-92 of total tenant holdings, with a leased-in area share of 16.80 percent and 44.60 percent in same years. Thus, over the total period the marginal and small farms enhance their shares in terms of both tenant holdings and leased-in area. Again, between the marginal and the small farms, the small farms have gained more effectively, both in tenant holdings and leased-in area over the period. It is observed that the medium farms have an increasing trend upto 1981-82 in the tenant holdings, while accounting for 1/4th to 1/3rd leased-in area.

Further, in 1953-54, the large farms have large share of leased-in area i.e., 38.74 percent, while having only 7.15 percent of tenant holdings; and thereafter decrease is there in the share of tenant holdings (3.06 to 1.26 percent) while still having leased-in area 13.20 percent to 13.40 percent over the period. Interestingly, the medium and large farms together account for 18.50 percent tenant holdings and 63.30 percent leased-in area in 1953-54 and those shares decrease to 5.60 percent and 26.30 percent respectively by 1991-92. That is, just less than 1/17th of the tenant

holdings (medium and large farms together) have access to more than 1/4th of the leased-in area, even in 1991-92.

4.1.2 The Extent of Leasing-out by Ownership Holdings

Leasing-out aspect of tenancy is related with supply side phenomenon, whereas the leasing-in aspect is demand-related phenomenon. From the beginning, the NSS provide data on the extent of leasing-out with reference to household ownership holdings and they are available for all the five points of time 1953-54 to 1991-92.

First the households leasing-out and the area leased-out at the aggregate level and then the farm-size variations are taken up.

Households Leasing-out and Area Leased-out

Table-13 gives the number of households leasing-out and their share in the households leasing-out; the owned area leased-out and its share in the total area owned; and also the shares of leasing-out households and area leased-out of AP in all India level. In 1953-54, the number of households leasing-out is 5,604 hundred. By 1960-61 it falls to 4,300 hundred, but it reaches peak level, rising to 7,800 hundred in 1970-71. Thereafter it falls to 5,221 hundred in 1981-82 and remains constant in 1991-92. If their share is considered in the total households (excluding the landless), in 1953-54 it forms 14.90 percent and then decreases (6.95 percent in 1960-61). But it rises to 12.05 percent in 1970-71, just as the increase in absolute number, and thereafter decreases, reaching 5.24 percent in 1991-92.

As regards the total leased-out area, it is 14,121 hundred hectares in 1953-54. It decreases in 1960-61 and rises to 9182 hundred hectares in 1970-71 just as the number of households leasing-out has increased. But in case of area leased-out, the peak level is in 1953-54 only. Again, leased-out area declines after 1970-71, reaching 3,702 hundred hectares in 1991-92. Similar is the behavior of the share of area leased-out in total owned area. It assumes 13.95 percent in 1953-54, decreases first and then, it rises to 8.93 percent in 1970-71 and thereafter it falls, reaching 4.18 percent in 1991-92.

Shares of Households Leasing-out and Area Leased-out of Andhra Pradesh in All India

It is also interesting to note what is the contribution of total households leasing-out and total leased-out area of Andhra Pradesh in the total households

Table 13 : Leasing-out Households and Leased-out Area - Some Aspects

S.No.	Variable	1953-54	1960-61	1970-71	1981-82	1991-92
1	Total HHs Leasing out ('00)	5604	4300	7800	5221	5221*
2	Percentage of Households Leasing out	14.89	6.95	12.05	6.90	5.24
3	Total Area Leased -out (' 00 Ha)	14121	6060	9182	6988	3702
4	Percentage of Area Leased out to Owned Area	13.95	5.33	8.93	6.31	4.18
5	Percentage Share of HHs Leasing out of A.P in All India HHs Leasing-out	7.34	9.56	11.16	10.10	9.24
6	Percentage Share of Leased-out Area of A.P in All India Leased out Area	10.00	10.64	13.31	13.61	6.36

Source : As in Table 1

* Excluded nil and zero class households to make it comparable with other years, as the original data included those figures to calculate percent in these two classes, i.e., for denominator.

leasing-out and the total leased-out area of all India level respectively. The share of leasing-out households of AP in all India is 7.34 percent in 1953-54 and rises to 11.16 percent in 1970-71. Thereafter, it decreases reaching 9.24 percent in 1991-92. However, the share in 1991-92 is higher than that of 1953-54. As regards the share of owned area leased-out of Andhra Pradesh in all India, it rises upto 1981-82, reaching a peak level share of 13.61 percent and suddenly jumps down to 6.36 percent in 1991-92.

Farm-Size Variations in the Shares of Households Leasing-out and Area
Leased-out

Now, the turn is towards the farm-size variations. Table-14 furnishes broad size-class wise information on the extent of leasing-out in terms of the percentage of households leasing-out in the total households and the percentage of leased-out area in the total owned area; and also the shares in the distribution of leasing-out households and area leased-out.

Looking at the farm-size variations in the percentages of the households leasing-out and the area leased-out, there seems to exist positive association with the farm-size in almost all the points of time for households leasing out (except in 1991-92). But for the percentage area leased-out, it shows a clear inverse relation with farm-size in 1970-71 and 1991-92 and in other points of time also (1953-54, 1960-61 and 1981-82), there is a tendency towards inverse relation (with one exception each).

As regards the shares in the distribution of households leasing-out and area leased-out, between 1953-54 and 1981-82, the medium and large farmers leasing-out, together, have their share varying between 23.90 percent and 11.70 percent, while their contribution to the total leased-out area varies between 71.35 percent and 46.70 percent during 1953-54 to 1981-82. In contradistinction to this, the marginal and small farmers (put together) assume dominance in both the shares by 1991-92, with households and area shares of 85.90 percent and 64.15 percent respectively. Prior to 1991-92, the marginal and small farmers have high shares for households leasing out (varying between 59.90 percent and 75.45 percent), while contributing leased-out area only to the extent of 14.30 percent to 31.10 percent. The semi-medium farmers contribute nearly the same share of area as their share of households leasing-out in 1953-54, but thereafter they show higher area share than their share of households.

Table 14 : Percentage of Households reporting Leased-out Area and Percent age Area leased-out in HOHs

Sl.no.	Broad Farm-size Class	1953-54		1960-61		1970-71		1981-82		1991-92	
		% No	% Area	% No	% Area	% No	% Area	% No	% Area	% No	% Area
(i)	Percentage in Each Size										
1	Marginal	11.26	15.23	6.43	10.63	10.13	11.23	6.32*	7.33	5.21*	8.16
2	Small	19.17	15.13	5.12	3.34	17.08	12.67	7.68	5.93	4.94	4.21
3	Semi-Medium	16.88	13.16	10.65	7.72	15.30	9.35	7.78	5.80	7.16	5.12
4	Medium	19.21	12.16	7.69	4.91	12.28	8.04	8.47	7.01	3.09	0.90
5	Large	24.24	14.56	9.01	3.81	14.37	6.83	8.25	5.59	3.30	0.57
	Total	14.89	13.95	6.95	5.33	12.05	8.93	6.90*	6.31	5.24*	4.18
(ii)	Distribution of Households Leasing-out and Area Leased-out										
1	Marginal	40.61	5.75	59.08	16.30	52.71	12.47	57.72	13.10	72.71	41.55
2	Small	19.25	8.56	9.06	6.07	20.79	18.66	17.73	14.38	13.20	22.61
3	Semi-Medium	16.24	14.34	17.43	24.59	15.31	22.18	12.81	19.04	11.55	29.59
4	Medium	14.50	24.05	10.24	28.79	8.29	27.12	9.31	33.18	2.26	5.16
5	Large	9.40	47.30	4.19	24.25	2.90	19.57	2.43	20.30	0.28	1.09
	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0

Source : As in Table 1

* Excluded 'nil' and 'zero' classes households to make it comparable with other years, as the original data included in the marginal and total classes.

4.2 Forms of Tenancy of Tenant Holdings by Operational Holdings

The data on forms of tenancy i.e., terms of lease has been published by NSS for 1970-71, 1981-82 and 1991-92. The terms of lease for each round have been expanded and they are given in the following statement.

Terms of Lease for Leased-in Area in 26th, 37th and 48th Rounds

1970-71 (26th Round)	1981-82 (37th Round)	1991-92 (48th Round)
1. Fixed money 2. Fixed produce 3. Share of produce 4. Usufructuary mortgage 5. Other terms	1. Fixed money 2. Fixed produce 3. Share of produce 4. Usufructuary mortgage 5. Share of produce with other terms 6. Other terms 7. Not recorded (n.r.) 8. Neither owned nor leased in (but occupied)	1. Fixed money 2. Fixed produce 3. Share of produce 4. Usufructuary mortgage 5. Share of produce with other terms 6. Service contract 7. From relatives: no specified terms 8. Other terms 9. Not recorded (n.r.)

Looking at the statement, it is clear that "other terms" in each round are different. For easy grasp and comparative purpose, it is preferred to keep the first three terms separately while the remaining terms in each round (except item 8 in 1981-82) are clubbed together under category "other terms" as a hybrid category. Item 8 in 1981-82 is not taken because it was shown separately from the actual leased-in area (Chadha and Sharma, 1992).

Terms of Lease at Aggregate Level and by Farm-Size

Table-15 portrays the terms of lease. If we look at the shares of tenant holdings under different terms of tenancy; at the aggregate level, the holdings under share of produce assume the highest share, 8.03 percent, followed by fixed money terms with 4.32 percent and fixed produce terms with 3.50 percent in 1970-71. However, other terms also assume dominant position with a share of 7.60 percent. By 1981-82 only other terms (which includes "n.r." terms) assumes 10.01 percent of tenant holdings, while fixed money, fixed produce and share of produce terms together account for only 3.88 percent. Very important point to be noted is that the "n.r." terms account for 9.16 percent in 10.01 percent of "other terms". In 1991-92 again the tenant holdings under share produce terms rise to dominant position with a share 4.69 percent, followed by fixed produce and fixed money terms having shares of 4.35 percent and 4.20 percent respectively.

Thus, though as a single source, the share produce terms dominate among the tenant holdings, in 1970-71 and 1991-92; the percent of holdings under the share produce terms gets halved. However, the terms under fixed rent (fixed money and fixed produce terms together) account for 7.82 percent and 7.55 percent respectively in 1970-71 and 1991-92. That is, by 1991-92 tenants under fixed rent terms have become dominant, compared with the share produce terms, whereas in 1970-71, the percentage of share produce terms (8.03 percent) exceeds the combined fixed rent terms share (7.82 percent).

Table 15: Terms of Lease of Tenant Holdings and Leased-in Area among
Operational Holdings by Farm-Size   1970-71 to 1991-92

S.No	Farm-size	Percentage of Holdings under				Percentage of Leased-in Area under			
		Fixed money	Fixed produce	Share of produce	Other terms	Fixed money	Fixed produce	Share of produce	Other terms
1	**1970-71**								
	1. Marginal	2.71	3.39	7.06	7.91	2.05	2.43	5.21	3.15
	2. Small	3.55	3.83	8.22	10.01	1.25	1.96	3.77	4.05
	3. Semi-medium	6.04	4.18	10.63	6.01	3.05	2.05	3.47	2.03
	4. Medium	8.52	2.75	7.68	5.86	3.42	1.08	3.14	1.98
	5. Large	7.02	2.02	7.80	4.43	1.88	0.16	2.01	0.60
	Total	4.32	3.50	8.03	7.60	2.55	1.28	3.18	2.00
2	**1981-82**								
	1. Marginal	0.58	1.49	0.67	8.73	0.16	1.33	0.64	5.58
	2. Small	0.80	2.02	1.91	10.59	0.57	1.01	1.45	3.61
	3. Semi-medium	2.75	2.24	0.16	12.50	1.51	0.92	0.02	5.98
	4. Medium	2.74	1.63	1.41	10.86	1.28	0.52	0.47	3.75
	5. Large	0.00	1.34	1.58	11.37	0.00	0.21	0.48	2.86
	Total	1.18	1.73	0.97	10.01	0.81	0.69	0.55	4.18
3	**1991-92**								
	1. Marginal	3.03	3.04	3.17	3.22	2.04	3.06	3.19	2.43
	2. Small	4.52	6.46	9.48	0.45	2.12	3.04	4.46	0.60
	3. Semi-medium	8.22	7.66	3.91	2.39	3.80	3.54	1.81	1.50
	4. Medium	5.88	2.72	2.50	2.55	2.11	0.97	0.89	1.28
	5. Large	4.20	1.13	16.62	4.29	2.18	0.58	8.62	2.23
	Total	4.20	4.35	4.69	2.49	2.47	2.56	2.77	1.77

Source : As in table 4

If we look at the percentage of leased-in area under different terms, in 1970-71 and 1991-92, the terms of lease under fixed rent terms, the fixed money and fixed produce terms put together, account for more share of area leased-in, having shares of 3.83 percent and 5.03 percent respectively.   The leased-in area under share produce has come down over the period. However it is important that the leased-in area under combined fixed rent terms, just as the tenants under those terms, has risen to dominance by 1991-92. In 1981-82 again the area leased-in under other terms (inclusive of "n.r." terms) is dominant.

At the farm-size level, on examination, it is found that no systematic relation seems to exist for both shares of tenants and leased-in area under any of the terms of lease with farm-size. However, it is alarming to note that in 1991-92, the tenant holdings in the large farms have the highest shares of their holdings and area leased-in under the share produce terms, having 16.62 percent and 8.62 percent respectively. This goes against the general view that among large holdings, the share cropping may not be high.

Distribution of Tenant Holdings and Leased-in Area by Terms of Lease and Farm-size

Table-16 presents the distribution of tenant holdings and leased-in area by terms of lease among farm-size groups.

At the aggregate level, in 1970-71, the tenant holdings have nearly equal shares for share produce terms (34.24 percent) and fixed rent terms (33.35 percent), fixed money and fixed produce terms put together in the latter case. But by 1991-92 the fixed rent terms (54.35 percent) assume nearly double the share produce terms (29.80 percent). However, in 1981-82 only "other terms" inclusive of "n.r." terms assumes dominance (72.06 percent). Despite this, in 1981-82 also the fixed rent terms assume 20.96 percent which is thrice the share produce terms.

As regards the leased-in area under different terms it has 42.50 percent area under fixed rent terms in 1970-71, increasing to 52.66 percent by 1991-92. But in 1981-82 other terms assumes dominance (67.10 percent) as at the tenant holdings. However, in 1981-82 also, the leased-in area under fixed rent terms is nearly three times the terms under share produce.

If we look at the distribution of terms of lease among broad size classes, in all points of time on farm-size ladder, it is observed that the tenant holdings under fixed money terms seem to maintain a positive relation with farm size while those under fixed produce have a negative relation. Similar is the behavior of percentage shares of leased-in area under those two types of terms of lease respectively. In 1981-82 other terms assume dominance for both area and holdings, on all farm-size groups.

Tenant holdings under the terms of share produce have nearly 31.00 to 40.00 percent among all farm size groups in 1953-54, just as the shares of area leased-in lie between 32.70 and 43.20 percent. By 1991-92, the small and large farms have higher shares in share produce terms in respect of both tenant holdings and leased-in area. Though singly share produce terms assumes dominance in both the extreme points of time; by 1991-92, the fixed money and produce terms put together have gained prominence among all the farm-size groups (except large ones), in both holdings and leased-in area, having nearly 50.00 percent or more.

Table 16: Distribution of Tenant Holdings and Leased-in Area under different Terms of Lease- by Farm size 1970-71 to 1991-92.

Sl. No.	Farm-size	Percentage Distribution of Tenant Holdings under					Percentage Distribution of Leased-in Area under				
		Fixed money	Fixed produce	Share of produce	Other terms	All terms	Fixed money	Fixed produce	Share of produce	Other terms	All terms
1	**1970-71**										
	1. Marginal	12.86	16.09	33.51	37.54	100.00	15.96	18.93	40.58	24.53	100.00
	2. Small	13.86	14.95	32.10	39.09	100.00	11.33	17.77	34.18	36.72	100.00
	3. Semi-medium	22.49	15.56	39.58	22.37	100.00	28.77	19.34	32.74	19.15	100.00
	4. Medium	34.34	11.08	30.96	23.62	100.00	35.55	11.23	32.64	20.58	100.00
	5. Large	33.00	9.50	36.67	20.83	100.00	40.43	3.44	43.23	12.90	100.00
	Total	18.42	14.93	34.24	32.41	100.00	28.30	14.21	35.29	22.20	100.00
2	**1981-82**										
	1. Marginal	5.06	12.99	5.84	76.11	100.00	2.08	17.25	8.30	72.37	100.00
	2. Small	5.22	13.19	12.46	69.13	100.00	8.58	15.21	21.84	54.37	100.00
	3. Semi-medium	15.58	12.69	0.91	70.82	100.00	17.91	10.91	0.24	70.94	100.00
	4. Medium	16.47	9.80	8.47	65.26	100.00	21.26	8.64	7.81	62.29	100.00
	5. Large	0.00	9.38	11.06	79.56	100.00	0.00	5.92	13.52	80.56	100.00
	Total	8.50	12.46	6.98	72.06	100.00	13.00	11.08	8.83	67.09	100.00
3	**1991-92**										
	1. Marginal	24.32	24.40	25.44	25.84	100.00	19.07	28.50	29.77	22.66	100.00
	2. Small	21.62	30.89	45.34	2.15	100.00	20.77	29.71	43.60	5.92	100.00
	3. Semi-medium	37.06	34.54	17.63	10.77	100.00	35.70	33.25	16.97	14.08	100.00
	4. Medium	43.08	19.93	18.31	18.68	100.00	40.10	18.55	17.02	24.33	100.00
	5. Large	16.00	4.31	63.34	16.35	100.00	16.00	4.30	63.35	16.35	100.00
	Total	26.70	27.65	29.82	15.83	100.00	25.90	26.76	28.90	18.44	100.00

Source : As in Table 4

5. Summary and Policy Implications

In this final section, we summarise the findings of the study, i.e., the changing agrarian structure of AP, during 1953-54 to 1991-92, while suggesting a few policy implications.

5.1 Summary
Land Distribution Aspects

(a)   At the outset we must note that the changes we observe in ownership and operation of land cannot be attributed fully to land reforms. They may also have been caused by demographic pressures and sale and purchase transactions unrelated to land reforms. Also, a part of the changes that we observe between 8th and later Rounds should be attributed to the narrow definition given to 'landownership.'

(b)   Landlessness: Landlessness is a curse in a setting where one's status in the society depends on one's ownership right over land. In Andhra Pradesh, over a third of the rural households are near landless households. The situation hardly changed over the years. The brighter side of this observation is that their proportion has not increased despite a high rate of growth of population witnessed over the years. The land reform measures involving abolition of intermediaries, the distribution of surplus land on account of land ceilings and the distribution of waste land by government have arrested an increase in landlessness.

(c)   Average size of Holdings: It is not surprising that the average size of both ownership and operational holdings has been decreasing. Thus, while the average size of ownership holdings decreased from 2.69 ha in 1953-54 to 0.89 ha in 1991-92, that of operational holdings came down from 3.57 ha to 1.30 ha. Though there has been a steep decline in the average size of owned and operated land, at the aggregate level; the average sizes of the marginal (0.002 – 1.00 ha) and small (1.01 – 2.02 ha) farmers/farms, remain constant over the period, despite the fact that their holdings have increased absolutely and relatively, as a result of positive redistributive effects. This can be attributed to the factors: (a) surplus land redistribution (including government waste land transfer) (b) the demographic factor, (c) fragmentation of holdings due to division of joint families in the different farm-size classes (including higher ones), and (d) purchase of land from others in pieces.

(d) Changes in the Distribution of Land Holdings: In respect of both ownership holdings and owned area, the share of marginal farmers has been on the increase, during the period 1953-54 to 1991-92. Meanwhile, the shares of medium and large farmers have declined significantly. The share of owned land under the control of large holdings has declined substantially. Similar trends could be witnessed in case of operational holdings and operated area too. Thus marginal farmers gained at the expense of large farmers. Overall, the distributions of land ownership and operation suggest that there has been a trend towards redistribution of land. This has the effect of bringing down the Gini ratio overtime, in respect of both ownership and operational holdings. The goings on in the land lease market are such that the land is passing on from large landowners to small cultivators and as a result, the Gini ratio of land operated has always been less than the ratio of land ownership. In fact, over the four decades, the maintenance of constant average size among the marginal, small and semi-medium farmers/ farms, despite absolute increases in both holdings and area among those three categories corroborates the fact of redistribution. However, from ICCR, it is clear that there is high inter-class inequality for the marginal farmers, in both types of holdings, as the calculated ICCR is far away from 100.

(e) The number of parcels per holding has been on the decline over the period.

Tenancy

(i) There has been a perceptible decline in the magnitude of tenancy during 1953-54 and 1981-82. By 1991-92, tenants have gained lost ground. Though significance of the pure tenants – the tenants with no owned land of theirs – decreased upto 1970-71, their prominence increased since. The pure tenant, who belongs to the lowest rung among cultivators and therefore who has little bargaining strength, may be surviving against all odds, by allowing himself to be exploited in the rental market.

(ii) The distribution of tenanted area by size-class of farmers shows that the marginal and small tenants' control over the area increased appreciably overtime.

(iii) Lease agreements between the landlord and his tenants may assume different forms - the important ones being fixed-rent in kind, fixed-rent in cash and sharecropping. Overtime, there appears to be a tendency towards fixed-rental

(kind and cash together) contracts to become prominent. As of 1991-92,however, the three major tenure forms assume equal importance; though by 1991-92, the leased-in area under fixed rental has the share of 50.0 percent or more.

5.2 Policy Implications

(1) Landlessness is a serious source of worry. It can unsettle the ruling classes by assuming revolutionary character. So government policy must address itself to mitigate this problem. Andhra Pradesh has a dubious distinction of having a large share of land under fallows, particularly in Telangana region. If the landless could be made to gain access to these lands, they could use them, if not for growing high value crops, for growing fodder crops, so that they could take up dairying to supplement their incomes. Further, by strict implementation of the ceilings laws, some more surplus land can be acquired and distributed among the landless. As the new agricultural technology has decreased the economically viable size of the farm (Khusro,1973; Bhalla, 1979), and it is size-neutral, even small piece (about 0.40 ha) can also be cultivated by the beneficiary. *Even now, as the redistribution of land is on the agenda of the ruling elite,* **only if there is political will,** *the reform can assume some radicalism.*

(2) As the marginal and small farmers/farms are on the increase, the provision of complementary infrastructural and institutional facilities assumes importance, where state has to assume responsibility. Particularly our institutions – credit, extension, insurance, marketing – are to be geared more towards these farmers/farms, as they are highly biased to the large farmers. This change helps them to go for agricultural intensification and diversification.

(3) Along with agricultural intensification/ extensification, there is a need to promote rural non-agricultural activities so that pressure on land could be reduced, as the burgeoning rural population cannot be absorbed by the agricultural sector alone, as pointed by Chadha and Bhalla (1983), two decades ago,while referring to the effects of agricultural employment in agriculturally prosperous Punjab. However, one way of doing so is to diversify agriculture. A diversified agriculture with forward and backward linkages has the potential to increase rural non-farm employment opportunities and reduce the pressure on land.

(4) As per NSS data for AP in 1991-92 (as seen from table-9), it is clear that 3,837 thousand households are owning land in the size-class, 0.002-0.20 ha. The

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average size of this size-class is 0.028 ha, which is very small and economically unviable to operate. As a result, 64.3 percent of those households are not operating land, i.e., they might have left their land uncultivated. Therefore, it is very much essential to encourage those   households also to cultivate their lands, guiding them suitably to adopt labour-intensive crops, while providing the necessary infrastructure and institutional mechanism.

(5) The institution of tenancy has the effect of improving the access of land to the petty cultivators. So it need not be curbed. What is called for at the present juncture are the efforts to reduce the exploitative nature of the lease contracts. This is possible if tenancies are registered and   tenants are made to pay legislated rent to their landlords, as in West Bengal. Therefore, there is a necessity to revise the laws to be advantageous to both lessors and lessees, giving scope for transparency. That is, the landowners, who are under ceiling limits, should not fear to give land on lease. Only in such a case, the tenants will develop land and invest in agriculture to increase land productivity, being under the security of tenure.

(6) In respect of forms of tenancy (terms of lease), over the   period, the role of share produce (sharecropping) is getting reduced while the importance of fixed   rental terms (fixed money and fixed produce terms put together) is rising. This is a positive symptom, as the technological advancement in agriculture reduces sharecroppers, as observed in USA study (Day, 1967). If the laws are revised suitably, the lease transactions under fixed rent terms may increase, due to transparency.

Notes:

1. In all India level, in 1951, there was leased-in area to the extent of 43.20 percent. In unreorgonised states which were under zamindari system, Bihar state showed the maximum leased-in area in 1951, with 89.10 percent, while among those under ryotwari system, the Madhya Bharat had 31.40 percent leased-in area that is maximum. Madras state (as a representative of Andhra region) and Hyderabad state (as a representative of Telangana region), though both were under ryotwari system, showed leased-in area to the extent of 21.00 percent and 15.7 percent respectively, in 1951 (Kotovsky, 1964, p.21).

2. Method followed by Chadha and Sharma (1992) is as follows: (i) the number of households operating no land, in the ownership holdings in the class 0.002 – 0.20 ha, is calculated; (ii) the number of households leasing-out land in the class 0.002 – 0.20 ha is calculated; (iii) subtracting (ii) from (i) gives the number of households in the class, 0.002 – 0.20 ha, that possess no arable land; (iv) now, (iii) is added to the landless households (nil class + zero class). They obtained data for item (i) from other sources. But for 1991-92, such data could be obtained from the cross-table of household ownership holdings and household operational holdings (GOI, 1996).

3. This may partly be attributed to the adjustment of NSS data for 1953-54 for arriving at Andhra Pradesh figures from Telangana of Hyderabad State. This is so despite the fact that the adjustment made by the author is somewhat justifiable. The total households by our adjustment arrive at 5123.4 thousand. But, Sharma (1992) gets 7490 thousand, which is clear overestimate because for 1960-61 the households in Andhra Pradesh are 6641 thousand, i.e. 1960-61 households were less than 1953-54 households. Therefore, our criterion of adjustment, taking net sown area is holding to be realistic (Venkateswarlu, 1984). However, Sharma took geographical area transfer as criterion.

4. Chadha and Sharma (1992) calculated these figures by the following method: (a) calculated households operating no land in nil and zero classes from NSS report No.338 on household operational holdings; (b) entirely leased in holdings from NSS report No.331 on operational holdings; (c) item (b) is subtracted from the landless households so as to get households neither owning nor operating any land; (d) subtracting (c) from (a), the figure for households who owned land but not operating any land is obtained.

5. Even when leased-out area and leased-in area data are simultaneously collected from the households, by household ownership holdings, there is possibility to get underestimates for leased-out area and leasing-out households, because the households leasing-out are from supply side and the households leasing-in are from demand side. In 1970-71 and 1981-82, there was no much difference; but in 1991-92, the difference between area leased-in and area leased-out was as high as 4851 hundred hectares.

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Appendix -1: Size-Class Distributions in Different Rounds of NSS

As regards the distribution of land, at state-level, in Household Ownership Holdings, in 1953-54, it was provided for 11 size-classes in addition to the landless households i.e.; owning no land or owning land less than 0.002 ha (0.005 acre), thus making the total classes into 12, as follows (in ha):

0.   Owning no land or land owning less than 0.002 ha
1.   0.002 - 0.40
2.   0.41 -   1.00
3.   1.01 -   2.02
4.   2.03 -   3.03
5.   3.04 -   4.04
6.   4.05 -   6.03
7.   6.08 -   8.09
8.   8.10 - 10.12
9.   10.13 - 12.14
10.   12.15 - 20.24
11.   20.24 and   above

In 1960-61 (17th Round), two classes were increased, by breaking the two classes. The class, 0.002-0.40 Ha,   was broken into two classes: (i) 0.002 - 0.20 ha and (ii) 0.21 - 0.40 ha. Again the class, 4.05 - 6.07 ha was divided into two classes; (a) 4.05 - 5.05 ha and (b) 5.06 - 6.07 ha. Thus, the total classes owning land (> 0.02 ha) were: 13. Further in 1970-71, the class, 0.41 - 1.00 ha, was divided into (I) 0.41 - 0.50 ha and(II) 0.50 – 1.00 ha.   Thus, by 1970-71, the land owning classes were divided into 14 classes. In 1980-81 (37th Round) the landless class was further broken into two classes: "nil-class" = owning no land and "zero   class"=owning land less than 0.002 ha. Therefore, NSS has been furnishing data for 2 classes of landless HHs and 14 classes of land owning classes since 1981-82 (37th Round).

Correspondingly, the NSS has been furnishing data on Household Operational Holdings, as follows: Nil-Class   = HHs Operating no land
            Zero- Class   = HHs Operating land less than 0.002 ha.

Thus, altogether   there are 14 classes for HHs operating land greater than or equal to 0.002 ha.

Further, in respect of Operational Holdings, that data has been furnished in 14 classes for holdings   operating land   greater than or equal to 0.002 ha and for another class of holdings operating land less than 0.002 ha   (no nil-class).

However, for convenience of comparability, the classes taken in our analysis are of 1953-54 (8th Round).

Appendix-2 : Household Ownership Holdings, Operational Holdings and Household Operational Holdings

Household Ownership Holdings - F(x): If the household owns the land with the right of the permanent heritable possession, it is called the household ownership holding, as in 8th round of NSS. However, from 17th round of NSS, there is definitional change, as Sanyal (1976) notes, "besides pure ownership of 8th round, it also included land held in ownerlike possession, e.g., land held under long-term lease etc." From the point of view of property relations, land is an asset for the household. Further, for finding any association with poverty, the use of ownership holdings is more relevant.

Operational Holdings - O(y): The operational holding is not related to household. As per FAO " All land used wholly or partly for agricultural production being operated or managed by a 'person' without regard to title, size or location and if consisting of two or more parcels, forming part of the same technical and economic unit." Therefore in an operational holding, one or more households may be involved; or in a single household, one or more operational holdings may be involved. Further the operational holdings may be either individually operated by the sample household or jointly operated.

Household Operational Holding - H(z): The distribution of land operated is generally dealt in terms of 'operational holdings' only and not by 'households', as is laid down above. Therefore, to get distribution of land operated in terms of household operational holdings from the data of operational holdings, an approximate procedure is followed. The definition of land operated by the sample household is computed as:

$$\text{Land operated by household} = \sum a_i + \sum_j (a_j/P_j), \quad \text{where}$$

a = area of the operational holding
i = individual operational holdings of the household
j = joint operational holdings of the household
P_j = the number of partners in the jth joint operational holding of the household

The interrelation between household ownership holdings - F(x); household operational holdings - H(z); and operational holdings - O(y) may be understood as follows:

1. Zero' class of F(x), designated as landless (nil and zero classes) may figure in 'Zero' class of H(z), or other classes, depending upon the area leased-in.

2. 'Zero' class of H(z) may have absentee landowners or the landless not taking any land on lease.

3. O(y) and H(z) exclusive of 'zero' class may be equal, if (i) each household has only one operational holding and (ii) there are no joint holdings.

Items 1 and 2 would be clear from table-9 for 1991-92. Similarly item 3 could be understood from the following explanation for 1991-92: When there are no *joint operational holdings,* the number of households operating any land is 70613 hundred (by *household operational holdings*) and the number of holdings by *operational holdings* is 71496 hundred (including those operating land less than 0.00 ha). That is, the number of operational holdings is greater than the number of households operating some land. It gives an inference that in some households more than one operational holding were reported. Further, the role of joint operational holdings has actually come down in AP. *Joint operational holdings* in AP (Rural) have decreased over the total period. In 1953-54, in AP, the share of joint operational holdings is 3.00 percent, while jointly operated area comes to 7.23 percent. These shares account for 0.59 percent and 1.00 percent respectively in 1970-71; and 0.54 percent and 0.64 percent respectively in 1981-82. In 1991-92, there are no joint operational holdings at all i.e., all are individual operational holdings only.

Appendix 3: Distribution of Household Ownership Holdings, Average Size and ICCR

S.No.	Size Class (Ha)	Percentage Number of Holdings					Percentage Area Owned					Average Size (ha)					Inter-class Conmcentration Ratio (%)				
		53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92
1	0.002 - 0.40	36.53	44.59	43.67	42.49	49.88	1.21	1.50	2.23	2.15	4.43	0.09	0.06	0.08	0.07	0.08	3.3	3.4	5.1	5.1	8.9
2	0.41 - 1.00	17.19	19.25	19.03	20.59	23.36	4.06	6.67	7.69	9.12	16.87	0.64	0.64	0.64	0.65	0.64	23.6	34.6	40.4	44.3	72.2
3	1.01 - 2.02	14.95	12.30	14.67	15.93	14.01	7.90	9.69	13.16	15.29	22.44	1.42	1.45	1.42	1.41	1.42	52.8	78.8	89.7	96.0	160.2
4	2.03 - 3.03	8.82	7.61	8.00	8.28	6.73	8.05	9.91	12.27	13.42	17.47	2.45	2.39	2.44	2.37	2.31	91.3	130.2	153.4	162.1	259.6
5	3.04 - 4.04	5.50	3.77	4.06	3.09	1.73	7.15	7.06	8.92	7.28	6.68	3.50	3.44	3.49	3.45	3.43	130.0	187.3	219.7	235.6	386.1
6	4.05 - 6.07	5.82	4.79	4.98	4.75	2.39	10.67	12.54	15.03	14.99	12.19	4.92	4.81	4.79	4.62	4.54	183.3	261.8	301.8	315.6	510.0
7	6.08 - 8.09	3.37	2.44	2.15	1.89	0.92	8.79	9.07	9.38	9.00	6.79	7.01	6.83	6.93	6.98	6.56	260.8	371.7	436.3	476.2	738.0
8	8.10 - 10.12	2.05	2.02	1.01	0.95	0.53	6.84	9.67	5.74	5.83	5.07	8.97	8.80	9.03	8.99	8.51	333.7	478.7	568.3	613.7	956.6
9	10.13 - 12.14	1.46	0.87	0.79	0.61	0.16	5.95	5.28	5.41	4.65	1.86	10.96	11.15	10.88	11.17	10.34	407.5	606.9	684.8	762.3	1162.5
10	12.15 - 20.24	2.58	1.37	1.15	1.04	0.19	14.59	11.47	10.74	10.83	3.13	15.20	15.39	14.83	15.26	14.65	565.5	837.2	933.9	1041.3	1647.4
11	> 20.25	1.73	0.99	0.49	0.38	0.10	24.79	17.14	9.43	7.44	3.07	38.53	31.82	30.56	28.68	27.30	1432.9	1731.3	1924.5	1957.9	3070.0
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2.69	1.84	1.59	1.46	0.89	100.0	100.0	100.0	100.0	100.0

Source: As in Table-1

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Appendix 4: Distribution of Operational Holdings, Average size and ICCR

S.No.	Size Class (Ha)	Percentage Number of Holdings					Percentage Area Operated					Average Size (ha)					Inter-class Conmcentration Ratio				
		53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92	53-54	60-61	70-71	81-82	91-92
1	0.002-0.40	18.81	15.91	20.84	22.04	29.35	0.93	0.94	1.78	1.67	2.96	0.18	0.17	0.20	0.15	0.13	4.9	5.9	8.5	7.6	10.1
2	0.41-1.00	21.02	25.99	26.45	26.47	29.55	3.83	5.82	7.50	8.59	14.58	0.65	0.64	0.65	0.65	0.64	18.2	22.4	28.4	32.5	49.3
3	1.01-2.02	18.32	18.59	19.14	22.19	21.57	7.34	9.31	11.74	15.36	23.33	1.43	1.44	1.41	1.39	1.41	40.1	50.1	61.3	69.2	108.2
4	2.03-3.03	11.32	12.73	12.52	10.80	10.46	7.83	10.38	13.24	12.96	18.84	2.47	2.34	2.43	2.41	2.34	69.2	81.5	105.8	120.0	180.1
5	3.04-4.04	7.84	6.37	5.71	4.75	2.83	7.68	7.45	8.67	8.12	7.39	3.50	3.36	3.49	3.43	3.40	98.0	117.0	151.8	170.9	261.1
6	4.05-6.07	7.17	7.80	6.76	7.10	3.26	9.81	12.67	14.29	16.33	11.48	4.88	4.67	4.86	4.62	4.58	136.8	162.4	211.4	230.0	352.1
7	6.08-8.09	4.28	4.23	3.20	2.56	1.43	8.45	9.55	9.60	8.79	7.21	7.05	6.49	6.89	6.90	6.56	197.4	225.8	300.0	343.4	504.2
8	8.10-10.12	2.88	2.77	1.91	1.15	0.73	7.35	8.38	7.43	5.08	4.80	9.11	8.69	8.94	8.87	8.55	255.2	302.5	389.0	441.7	657.5
9	10.13-12.14	1.98	1.18	1.03	0.85	0.28	6.12	4.41	4.86	4.71	2.27	11.03	10.74	10.84	11.13	10.54	309.1	373.7	471.8	554.1	810.7
10	12.15-20.24	3.96	2.72	1.71	1.70	0.43	16.93	13.68	10.96	12.86	4.59	15.26	14.45	14.72	15.20	13.88	427.5	502.9	640.9	756.5	1067.4
11	> 20.25	2.42	1.71	0.73	0.39	0.11	23.73	17.41	9.93	5.53	2.55	35.00	29.26	31.25	28.48	30.15	980.6	1018.1	1360.3	1417.9	2318.2
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	3.57	2.87	2.30	2.01	1.30	100.0	100.0	100.0	100.0	100.0

Source: As in Table-4

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