Emerging Pattern of Land Ownership and It's Determinants : A Regional Analysis

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CERTIFICATE

This is to certify that the dissertation entitled "EMERGING PATTERN OF LAND OWNERSHIP AND IT'S DETERMINANTS: A REGIONAL ANALYSIS" submitted by Mr. SANJIV SHANKARAN in partial fulfillment of the requirement for the award of the degree of MASTER OF PHILOSOPHY in Jawaharlal Nehru University is, to the best my knowledge, his own work, carried out by him under my supervision and guidance.

It is hereby certified that this work has not been presented for the award of any other degree or diploma.

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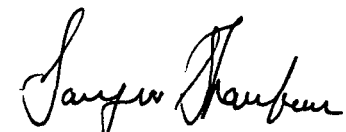

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CHAPTER - I

DYNAMICS OF AGRARIAN STRUCTURE: THEORETICAL PERSPECTIVE

1.1 INTRODUCTION

When used in a comprehensive manner, the term agrarian structure "encompasses all the institutions relating to land, labour and the productive assets by which rural people earn a living, together with the economic, social and political relationships linking different groups."[1] In this sense the prevailing agrarian structure influences all aspects of rural economic and social life. It determines the ownership of assets by different groups in rural society. The pattern of ownership of land and non-assets has a bearing on the question of equity. Structuralists feel that the primary cause for the prevalence of poverty in some groups is the inequitable distribution of assets. The prevailing agrarian structure also influences the extent of technological dissemination. It influences or decides the type of technology to be used. Besides the agrarian structure influences the hierarchy of social and political relationships and the working of the institutions. The hierarchy of social and political relationships in India is influenced by control over land. Concentration of land inevitably leads to a different kind of agrarian relation. It essentially involves an element of exploitation. The National Commission on Agriculture (1976) observed, "A property structure which promotes parasitism through multi-

form, exploitation of one section of society by another, causes under-utilisation of manpower and inefficient or inadequate use of land, tends to damage and depress production. On the other hand, a property structure which is primarily egalitarian in character, providing opportunities to self development of all producers which ensures the maximum utilisation of both land and manpower, promotes production and raises agrarian economy as a whole to a higher level."[2]

The 'agrarian question' or 'agrarian problem' has been an important issue in the political economy of developing countries. An unsolved 'agrarian question' is a distinguishing feature of a backward economy. The genesis of the 'agrarian question' lies in the debates among the European Marxists in the late nineteenth centrury. The meaning of the term has broadened over the years.

Engels viewed the 'agrarian question' as an explicitly political question. (1) The Marxists in the late nineteenth century were concerned about the capture of political power in Europe. Captialism was developing in towns, but had not yet, as expected destroyed feudal social relations in the countryside. Marx's 'Capital' suggested that the rural society should have been divided into two classes with conflicting interests, that is the capitalist farmer and wage labour. Capitalism had not operated in that manner in the rural areas. The strategy followed in urban areas could

not be used in rural areas by the Marxists. The Marxist parties were confronted by the substantial presence of the old mode of production: that is to say, by continuing economic backwardness. The Marxists viewed the agrarian question from the angle of capturing political power in countries with a large peasant population. Engels referred to the problem as the 'peasant question'. He wrote 'The Peasant Question in France and Germany' in 1894. The agrarian/peasant question became a question of the section of peasantry that could be won over. Keeping this in mind an agrarian strategy could be formulated. To formulate an agrarian strategy, an analysis had to be made of the process of differentiation. Lenin writes : "The system of social economic relations existing among peasantry shows us the presence of all those contradictions inherent in every order of capitalism : competition, the struggle for economic independence, the grabbing of land, the concentration of production in the hands of a minority, the forcing of the majority into the ranks of the proletariat, their expolitation by the minority through the medium of merchant's capital and the hiring of farm labourers. The sum total of all economic contradictions among the peasantry constitutes what we call differentiation of peasantry".

Kautsky-Lenin view : Five years after Engels' article, there appeared in 1899 two Marxist analyses of the agrarian question : Kautsky's 'Die Agrarfrage' and Lenin's

'Development of Capitalism in Russia'. The 'agrarian question' was now concerned with the differences in the development of capitalism between agriculure and industry, and the reasons for the coexistience of the capitalist mode of production with the precapitalist mode of production. Kautsky was concerned with the magnitude of the capitalist development in rural areas and the obstacles it faces. He also paid attention to the differences that exist in the development of capitalism between agriculture and industry. Lenin addressed the question of whether capitalism could exist in Russia in it's prevailing circumstances of economic backwardness. He tried to show that capitalism was developing in Russia. Differentiation of peasantry was fundamental in both Kautsky and Lenin's examination of the development of capitalism in agriculture. The Kautsky-Lenin sense of the agrarian question is the most widely accepted one today. It forms the basis of the mode of production debate in India.

When the Russian revolution took place, the capitalist mode of production hadn't yet prevailed in Russia. Russia was still an economically backward country. In the Russian countryside, the rich peasants/kulaks were a significant force. The Russian countryside also witnessed the process of differentiation. The agrarian question now focussed on the role of the kulaks in the new socialist state and the response of the state to the kulak. The agrarian question produced a controversy over rural analyses, that is the

analysis of Lenin and that of Chayanov. Lenin's analysis indicated that the process at work resulted in social differentiation. This would result in the disintegratioin of peasantry and formation of classes. Chayanov advocated demographic diffentiation wherein the peasantry reproduced itself without the formation of classes. The agrarian question was debated at another level. This detate took place between the communist party leaders and theoreticians. The left wing wanted the power of kulaks destroyed and differentiation curbed. The right wing felt that in view of food shortages and poor industrial growth, the kulaks had to be encouraged. This line of thinking led Bukharin, in 1925, to say: 'we must say to he peasantry, to all it's strata: enrich yourselves, accumulate, develop your economy". An attempt was made in 1929 to resolve the agrarian question by collectivisation of Soviet agriculture. It came to be seen as the socialist way of solving the agrarian question.

It is this earlier debate on the agrarian question which subsequently led to the two theoretical perspectives on the question of agrarian change. These two perspectives are: (a) Differentiation perspective (b) persistence perspective.

1.2 **Theories of Agrarian Change**

1.3 Differentiation Perspective :

The differentiation perspective predicts a relentless

onslaught of capitalism in agriculture. This onslaught would destroy the precapitalist mode of production. The development of capitalism in agriculture would result in increasing concentration and centralization of production into larger units. Marginal farmers will be squeezed out by the advent of capitalist farming. In their historical development the differentiation perspective had two streams of thought. They were social differentiation and demographic differentiation.

Social differentiation of Lenin/Kautsky : This school of thought felt that differentiation would take place along class lines. Lenin felt that the emergence of property inequality is the starting point of the whole process. With the start of differentiation the original peasantry gets dissolved. It is replaced by two new types of rural inhabitants who form the basis of a society in which capitalist production prevails. These two types are the rural bourgeoisie (class of commodity producers) and rural proletariat (agricultural wage workers). The composition of rural bourgeoisie, according to Lenin, consists of independent farmers who carry on commercial agriculture, owners of commercial and industrial establishments and proprietors of commercial enterprises etc. The combination of commercial agriculture with commercial enterprises and industries is peculiar to the rural bourgeoisie. The class of capitalist farmers arises from these well to do peasants. The size of their farms are too large for just family labour

to suffice. They hire labourers. This is a necessary condition for the existence of well to do peasantry. The spare cash earned by these peasants is either used for commercial operations and usury or it is used for farm improvements etc. Lenin included in the class of the rural proletariat landless peasant, allotment holding farm labourer, day labourer, unskilled labourer and building worker. The distinguishing features of this class are their inability to exist without the sale of labour power and extremely low standard of living. Lenin also includes an intermediary link between these two types, that is the middle peasantry. This stratum of peasantry can surive without loans only in the best years under favourable conditions. Often this stratum has to resort to loans and sell labour power. In case the crops fail, a large mass of middle peasants join the rural proletariat. A very small portion of the middle peasantry gravitates towards the class of rural bourgeoisie. The majority of the middle peasantry is pushed in to the group of the rural proletariat by the course of social evolution. Capitalism acquires a home market due to the process of differentiation of peasantry. The rural proletariat needs a market where it can buy articles for personal consumption. The rural proletariat when compared to the middle peasantry consumes less but buys more. The formation of the rural bourgeousie creates markets in two ways. The first market is created when the bourgeoisie tries to convert in to capital the means of

production it acquires. The second market is created because the personal consumption requirements of the bourgeoisie expands. Lenin gives the following causes as the reason for concluding that differentiation was proceeding rapidly in the 1890's in Russia ;

1. Abandonment and leasing out of land by peasants.

2. The growth in landless peasants.

3. Peasants had begun fleeing to towns. He gives the following causes as the reason to conclude that they were progressive trends in peasant farming.

(a) Peasants bought land; (b) Improvement of farms; (c) Introduction of iron ploughs; and (d) Dairy farming. It is through that the bourgeoisie introduced the progressive trends in farming. He felt that development of migration movement also gave a tremendous impetus to the differentiation of peasantry. Lenin felt that bondage, usury and labour service retarded differentiation. Lenin was convinced that differentiation was an accomplished fact in Russia and her peasantry had split on class lines.

Kautsky's Die Agrarfrage which was published around 1891is regarded as a classic of Marxism. Kautsky belonged to the German Social Democratic party. His primary concern was to study the process of capitalistic development in agriculture and to see whether it confirmed with those in

industry. Writing about the historical evolution of the capitalistic development Kautsky argued that in the Middle Ages small industries first appeared in towns. The peasants at that point in time were self sufficient. They did not rely on the market for anything. Communications broke the insularity of the countryside. Once the insularity of the countryside was broken, the peasant took a step away from being wholly self reliant. Soon some of the basic needs of the pesants were satisfied by the market. This required cash. As the requirement for cash increased, the peasant was forced in to the market. Soon he had to pay his over lords also in cash. As he began to rely on the market more often he was converted in to a pure agriculturist. Thus, the advent of capitalism occured in agriculture through the expansion of urban industry and trade. Kautsky says: "The growth of capitalism in towns is by itself sufficient to transfer completely the peasant's established way of life, even before capital has itself entered the agriucltural production and independently of the antagonism between big and small holdings".[4]

As capitalism penetrates agriculture the technical divide between big and small holdings increases. The advantage of large holdings are :

1. The large holdings benefit because of economies of scale.

2. There is a limit below which many tools cannot be used profitably on small holdings.

3. Large holding allow the degree of specialisation and adaptation of tools that are necessary to make tham more viable.

4. Large holdings invariably have greater access to credit facilities. This is because the large holding is usually in a better position to absorb losses like crop failure.

Kautsky traces the process of the proletarianisation of peasantry to the destruction of the selfsufficiency of peasant farms. Before the advent of capitalism, there existed home-based industries. The ruin of these industries forces the peasants to look for supplementary employment. His farm engages him in a sporadic manner. This gives him the time for supplementary employment. The peasant includes the sale of surplus time in making ends meet. The production on his farm is largely for self consumption. The role of the peasant in the market is that of a proletarian. The amount of supplementary work done by the peasant to augment his income is inversely related to the size of his property. Kautsky writes : "the increasing predominance of such work, the growing shortage of production means, the increaing subordination of farming to the needs of the household, the progressively more irrational character of exploitation in such conditions and it's greater affinity to the proletarian

home; where miserable results are obtained at the cost of a tremendous waste of labour - all this implies that households become less and less capable of meeting the needs of household". Domestic industry is a subsidiary source of income along with wage labour. If the peasants find wage labour insufficient, then the domestic industry revives. Most home based industries are characterised by revolting conditions. Kautsky calls this the most degrading form of peasant proletarianisation.

ii) Demographic differentiation: This school of thought regarded the peasantry as a more or less homogeneous entity. They also rejected the significance of the social division of labour. The inequalities that existed among the peasantry was regarded as a factor of demographic processes associated with the generational cycle of peasant households. The differences within the peasant economy were regarded as a purely temporary phenomena.

Observing the resistance of the middle peasantry to the process of being squeezed out, a group of Russian scholars led by A.V. Chayanov studied the internal structure of farms and their viability as an entity. This group came to be called the Organisation - Production School (OPS).

The OPS viewed differentiation as a demographic phenomenon. The size of the farm was regarded as the most

important indicator of a peasant's wealth. The size of the farm was expected to follow a cycle that corresponded to a the peasant's family life cycle. The size of the farm increased as family members matured into workers. The size of the farm would decline as the family aged. The farm would disintegrate with the formation of new families. These conclusions were drawn by Chayanov from a few fundamental concepts. They are : (1) Family labour farm : A form of economic unit that existed in Russia at that point in time. The living was made from the land with the use of family labour. Sometimes supplementary non agricultural work was done. This unit regards labour as a fixed cost. Their activities are a source of subsistence and not profit. There objectives and strategies vary when compared to a capitalist farm. (2) Single labour income: Along with the family labour farm, there is a concomittant family labour product which is the only possible income for the peasant unit (3) Labour consumer balance: This assumed that a peasant family has a minimum subsistence level. It will work as hard and as long as required to achieve that minimum subsistence level. Once the minimum subsistence level has been reached, the labour input will decline sharply. This is because the work done by family labour is with the help of premature technology. This makes the work physically laborious. Chayanov uses the term 'drudgery'. Conversely, the peasant family labour will be willing to work even when the marginal return from labour is negative, if they have not achieved the minimum level of

subsistence. The magnitude of effort made by a peasant family is in accordance with the consumption level of the family. This equilibrium is called labour consumer balance.

The magnitude of effort is affected by the composition of the family. If the family has a large number of consumers who cannot produce, that is children, the labour consumer balance will be adverse. When the children grow up, the labour consumer balance improves when the children marry and the family splits, the labour input required for the subsistence of the parents falls. Their capacity to undertake drudgery also declines. The farm income falls. New farms are created by the splitting of the family. The demographic cycle starts again.

Using the above argument, the OPS attributed the differences in the economic productivity of farms, resource distribution etc. to differences in the forces of demography. The theory says that a peasant family can't obtain a permanent position of superiority. A position of superiority is only a temporary phenomenon. The variations in farm size are attributed to different stages of demographic cycle. Chayanov assumed that the individual farm can mobilize land at short notice through the market. The OPS believed that the small family farm would beat its capitalist rival in acquiring means of production like land and equipment. This is because the small family farm's primary objective is to meet it's subsistence needs any how,

so it would be willing to pay more for land and equipment. The OPS also believed that the reliance on family labour was a decisive advantage for small family farm. It did not have to buy labour even when the labour price went up. "Chayanov concluded that the demographic process of growth and family distribution mainly determine the distribution of farms by size of sown area and numbers of livestock and not the other way round. This is, in a nutshell the basic structure of Chayarov's theory of demographic differentiation".[5]

1.4 **Persistence Perspective**

The expectations of the Marxists about the result of capitalist development in agriculture has not been fully observed in the most advanced capitalist economies. Marxists expected increasing concentration and centralization of production into larger units. But the family farms have displayed the ability to persist. All Marxist predictions have not failed to occur. An early Marxist prediction of technological change revolutionizing agriculture has been borne out. Production relations have not changed as anticipated. Works in the recent past have tried to provide an explanation for the persistence of the family farm and resistance by the farmers to the process of differentiation.

Vergopoulous (1978) studied evidence in Greece. He found that household producers were willing to adapt to changed circumstances caused by falling incomes. The

incomes fell due to adverse intersectoral terms of trade. The household producers intensified the family labour input and thereby increased output. The capitalist farms in the orthodox sense, lowered costs by using labour saving implements. This converted them in to household based simple commodity producers. Vergopoulous concluded that development of capitalism in agriculture did not mirror the development of capitalism in industry. Djurfeldt (1981) felt that simple commodity producers are able to survive because of their different decision making process. Unlike the capitalist farms which operate on the objective of profit maximization, the simple commodity producers intensify output to maintain income. The capitalist producers are more likely to shift investment to more lucrative fields like agro industries.

Most explanations for the persistence perspective lay emphasis on the peculiarity of agriculture. Agriculture is the most essential of human activities. In agriculture land is the most important means of production. This ensures that there is a tendency to cling on to land in the face of great odds. Agricultural production is biological in nature. It is subjected to the uncertainties associated with climate. This makes risk in agriculture a high risk proposition when compared to industry. The productive cycle in case of some agricultural commodities is long. Storage creates problems in case of some other agricultural activities. These factors reduce the profitability of agriculture. In many countries,

the state has adopted policies that favour the small farms. Protection from competition has been granted along with subsidies. These factors have helped in their persistence.

Kautsky also examined the cause for the persistence of small farms. He felt that the state would impede the disintegration of small farms. With the development of capitalism in industry, the capitalist demand for products from the household industry would increase. This would help them survive. Centralisation was difficult in agriculture because it was difficult to buy a vast stretch of continuous surface. Under general situation of economic backwardness peasants were averse to parting with land. Concentration was also hindered because beyond certain limits diseconomies of scale would accrue. Shortage of manpower was considered to be another obstacle for large farms. Kautsky felt that the real basis of survival of peasant farmers was that they ceased to compete with large farmers, they actually buy products sold on large farms. They only sell one commodity which they have in abundance, that is labour power. Kautsky tried to provide explanations for European agriculture not developing in the manner anticipated by Marx's analysis in 'Capital'. He felt that it was partly because increased international competition in grain trade created a crisis in profitability for capitalist agriculture. This crisis created conditions that helped middle peasantry survive. International trade took place because of the most important

contradiction of capitalism in agriculture. A capitalist is compelled to restrict the consumption of masses to augment his own but he is also required to raise their consumption constantly. This contradiction results in the home market proving insufficient and exports became necessary. Kautsky argued that cooperative societies which can bring about vertical concentration of production in agriculture without expropriating peasants revolutionized agriculture. Cooperatives centralized capital without expropriating the peasants. It resulted in capitalism without capitalists. A capitalist mode of production existed without differentiation.

1.5 Review of Literature

After having gone through the theoretical explanation regarding the dynamics of agrarian structure, in this section, we undertake a survey of literature regarding the changes in the agrarian structure in India in a regional perspective, with a purpose to understand the process of changes. Most of the studies on the agrarian structure in India have been based on the data brought out by the National Sample on land holdings. The literature survey done here has been largely confined to studies using the on National Sample Survey (N.S.S.) data. Some studies have also been based on data obtained by the Agricultural Census. Of the two sources, however, the N.S.S. data is considered more reliable as long as the information is used in the form

of proportion. The NSS gave rates the data on ownership holdings, operational holdings and tenancy. The NSS data had collected in its survey of 8th round (1953-54), 16th and 17th rounds (1959-60 and 1960-61), 26th round (1970-71) and 37th round (1982). In this survey we concentrated mainly on the various aspects of ownership holding area owned and summerized the main findings.

Harpal Singh[6], Malik, Khodpia and Guleria[7] and Laxmi Narayan and Tyagi[8] have examined the data compiled by the NSS in the 8th round, 16th and 17th rounds and 26th round and analysed the changes in ownership holdings and area owned. Some salient features of the change in the ownership holdings and area owned in this period are the increase in the number of holdings between the 8th round and 26th round from 48.9 million to 81 million at all India level. Among the size classes, the percentages of marginal holdings have recorded an increase from 49.61% in 8th round (1953-54) to 58.63% in 26th round (1970-71). The number of households in the large holding size category recorded a decline in its percentage during this period from 4.68% to 2.34%. The proportion of area owned for each size category has also witnessed significant changes. All size categories except that of large holdings have recorded an increase in the proportion of area owned in percentage terms. The large size category has witnessed a decline in the proportion of area owned between the 8th round and 26th round from 36.18% to

22.91%. The main conclusions regarding the household ownership holdings are the following:

1. The number of household ownership holdings increased while the total owned area declined.

2. The shares in the area owned of marginal holdings, small holdings, semi medium holdings and medium holding between 1953-54 and 1970-71 has witnessed an increase.

3. Marginal holdings recorded the largest proportionate increase in number of holdings.

4. The small holdings recorded the largest proportionate increase with respect to their share in total area owned.

5. The average size of holdings has declined.

6. The large holdings suffered a set back with respect to both number of holdings and share of area owned.

Sirohi, Ram and Singh[9] grouped the data from the 17th round and 26th round in to five size categories . The five size categories are:

1. Marginal (below 1 hectare)

2. Small (1-2 hectares)

3. Semi-medium (2-4 hectares)

4. Medium (4-10 hectares)

5. Large (above 10 hectares)

Their main findings with respect to the all India situation are as follows:

1. The number of marginal holdings increased in India during the decade.

2. In case of marginal holdings, the percentage increase in the proportion of area under marginal holdings exceeded the percentage increase in the number of marginal holdings.

3. This implied that the average size of the marginal holdings increased over the period.

4. The number of ownership holdings decreased in large groups.

5. The percentage of area owned also declined with respect to large groups.

6. In case of the large groups the decline in percentage of area owned exceeded the decline in the percentage of the number of holdings.

The change in the pattern of ownership holdings and area owned was studied for the state as well. The number of marginal holdings increased in all states except Kerala, Rajasthan and Punjab where they declined.

I.J. Singh[10] analysed NSS data for 17th round, 26th round and 37th round. He found that the proportion of marginal holdings increased from 60% to 67% between 1961 and 1982. The percentageshare of area owned for marginal holdings increased from 8% to 12%. The percentage share of area owned increased for all size categories except medium holding and large holding. There was a marginal decline in proportion of area owned in case of medium holdings and a significant decline in proportion of area owned by the large holdings.

Haque[11] examined the NSS data for 26th round and 37th round. He found the decline in the percentage share of area owned by large and medium sized holdings from 54% to 48% during the period of study. The marginal holdings had recorded an increase in their share area owned and as well as in the holding. As far as the states were concerned he found that the proportion of marginal holdings to total number of holdings increased almost everywhere except Punjab, Haryana and Orissa.

Vyas[12] examined the 8th round, 17th round and 26th round of NSS data on the distribution of owned land by twelve size groups of ownership holding. His analysis of the data confirms the impression that since mid fifties, small and medium holdings have gained in importance, while large holdings, lost their importance. This has been displayed in a figure using intermedian lines as a measure of skewness

with distribution of rural households on the left and corresponding distribution of owned area on the right.

Sandhu and Grewal[13] collected data from the 8th round, 17th round and 26th round for the state of Punjab. Because of the state's reorganization over this period, the absolute number of holdings and area owned by them are not comparable over time. However, the number of holdings per thousand hectares represented the effect of forces affecting size distribution of holdings. The number of ownership holdings per thousand hectares in the state increased from 454 in 1953-54 to 698 in 1971. Consequently, the average size of ownership holdings decreased from 2.21 ha in 1953-54 to 1.43 ha in 1971. There was a general decline in the percentage of households as well as area owned by the largest class. The percentage of households in the size classes above 8.10 ha declined from 6.34 in 1953-54 to 3.82 in 1971. The percentage of area owned by them declined from 46.60% in 1953-54 to 33.32% in 1971.

Rajagopalan and Anuradha[14] studied data collected from fifteen villages in Thanjavur district at two different points in time. The data from the sample farms was first collected in 1967-68. It was again collected in 1984-85. The change in the structure in the sample area corresponded to the change in the structure revealed by the national level sample surveys. The number of owners increased and the size of owned holding declined.

Inequality in land ownership : Number of studies have studied the changes in the distribution of land across the holdings of various size categories. Most of these studies have used Gini's Ratio to measure the inequality in the distribution of owned land.

Laxmi Narayan and Tyagi and Sirohi, Ram and Singh calculated concentration ratios for the 8th round, 17th round and 26th round. The concentration ratios for household ownership holding recorded a decline between the 8th and 26th round. The decline was however marginal.

Harpal Singh calculated concentration ratios for the same time period. His calculations show a slight increase in concentration among ownership holdings.

Haque calculated concentration ratios for more recent years using NSS data compiled for the 26th and 37th round. The concentration ratio of household ownership holding marginally increased from .710 in 1971 to 0.713 in 1981.

The calculation of concentration ratios in different studies does not provide a clear picture. The studies that analyse data up to the 26th round generally indicate a marginal decline in concentration ratios. But the other study for the period between the 26th round and 37th round indicates a marginal increase in the concentration ratio. There seems to be a general agreement that although the Gini's Ratio has declined there has not been significant

change in the inequality as the level of Gini's ratio is still high. only point on which the different studies concur is that there is no significant change in the concentration ratios.

Landless households: The concept of landlessnes is ambiguous. There is not any universally accepted definition of the concept of landlessnes. There are at least three definitions of landless households in rural areas, they are:

i). Those who own no land

ii) those who operate no land

iii) those whose major source of income is wage employment.

The first definition, that is, those who own no land is probably the most commonly used definition when measuring landlessnes. This is because ownership of land is the most important source of livelihood in rural areas. The second definition does not fall strictly in to a narrow definition of the concept of landlessnes. This is because this group can include owners of holdings that are not viable. The holdings may be leased out and the owner of the holding may depend largely on agricultural labour. This would make the non viable households as poor as landless households. The third definition often includes artisans and craftsmen of villages. In India this definition is also the most ambiguous. This definition can, depending on the area, include a lot of marginal farmers as landless.

I.J. Singh used a four way classification to gauge the extent of landlessnes in India. His classification is made up of the following groups:

i) those who own and operate land

ii) those who own land but do not operate

iii) those who own no land but operate same

iv) those who neither own nor operate any land.

He gauges the extent of landlessnes by using 1960-61 NSS data and 1970-71 NSS data. He extrapolates 1982 data on the assumptions that past trends are likely to continue. In the category of landless defined by those not owning any land, the landless households declined relatively over the period. In the category of landless households defined by those who do not operate any land, the landless households have increased relatively and absolutely. In the category of landless households defined by those who neither own nor operate land, the landless households have declined both relatively and absolutely. Thus Singh's study indicates that 'landlessnes' when defined in terms of those who own no land has actually decreased relatively.

Haque studied the NSS data for the 26th round and 37th round of NSS. He finds that the proportion landless households to total rural households increased.

Most of the studies which define landlessnes only in terms of ownership of land, find that landless households have declined relatively.

The Structure of Operational Holdings: The distribution of operational holdings is an indicator of access to land. A land rental market exists in India. The existence of this market results in an access to land which could differ in a marked way from the access indicated by the structure of ownership holding. The structure of operational holding is also an indicator of the extent of dissemination of technology and the degree of its' adoption by various size categories.

The various studies that have analysed distribution of operational holding have reached identical conclusions.

Harpal Singh and Laxmi Narayan and Tyagi, who have studied the structure of operational holdings from the data compiled by the 8th round, 16th round and 26th round have found that the small and marginal holdings have gained both in relative number of holdings and relative area operated. The importance of large operational holdings have declined both in terms of number of holdings and area operated. But the decline in the in the percentage of area operated lagged behind the decline in the percentage of the number of holdings. This indicates that farms in the big size category have tried to retain and even improve the average size of holding while going down in number. The percentage increase

in the number of marginal holdings exceeded the percentage increase in area of marginal holdings. This trend which is the antithesis of the trend in large holdings indicates a decline in the average size of marginal holdings.

Sirohi, Ram and C.B. Singh while examining the the NSS data for the 17th round and the 26th round for the states found that Punjab is the only exception to the trend of the percentage increase in area operated by marginal holdings.

I.J. Singh examined the data for the 8th round, 17th round, 26th round and 37th round. His conclusions follow the same pattern. One significant finding of his study is that the percentage of rural household that operate no land is much larger than percentage of rural households owning no land.

Sandhu and Grewal used data collected by the Agricultural census reports of 1970-71 and 1980-81 for Punjab to study the structure of operational holding. They used the Agricultural census reports due to uniformity in the definition of concepts used. This led to a high degree of comparability of the data. Their finding is the antithesis of the other findings. The examination according to size classes revealed an actual increase in the number of holdings and area operated in the size class above 4 hectares. A decline in number of holdings and operated area was recorded in the size class below two hectares. Their

explanation is that, it has happened due to technological change in agriculture which alternately led to introduction of large capital units and an increase in the optimum size. This resulted in the structure adjusting itself to the new conditions.

The concentration ratios calculated for the structure of operational holding, from the data compiled by NSS reveals an interesting trend. The concentration ratios have declined between the 8th round and 17th round. After that the concentration ratios show an increase. The concentration ratio increased between the 17th round and the 26th round. And it further increased between the 26th round and 37th round. But the concentration ratio for the 37th round was lower than the ratio for the 8th round. The overall decline in disparity was not noteworthy. A significant fact brought out by the concentration ratios is that the disparity for operational holdings is less than that of the household ownership holdings. This indicates that a number of small and or medium size holding might have taken land on lease, from the large holdings.

Extent of tenancy: The pattern of operational holdings is different from that ownership holding mainly due to the leasing in and leasing out of land. The existence of tenancy among various size classes thus provides an access to land to some size category of households. Most of the studies dealing with tenancy have relied on NSS data because

of its greater veracity when compared to Agricultural Census data.

Laxmi Narayan and Tyagi, Sirohi, Ram and C.B. Singh, Pandey and Swarup, Dahiya have studied the extent of tenancy over the various NSS rounds and Agricultural census rounds. The Agricultural Census rounds have largely been used to compared the results obtained from NSS data. A common feature over the various rounds is that the extent of tenancy according to NSS data is always higher than that of Agricultural census data. Census records are considered more doubtful because they rely on land records, while NSS estimates rely on independent household surveys. The extent of tenancy has shown a consistent decline over the rounds. The extent of tenancy between the 8th round and 17th round has declined. And during the 26th round it was more or less the same as the 17th round. The extent of tenancy recorded a decline during the 37th round. With respect to size class variations, it was found that the number of leasers in and area leased in among small farmers was greater than the medium and large farmers.

Laxmi Narayan and Tyagi worked out the interstate variation in tenancy based on the 26th round of NSS. On the basis of the extent of tenancy, the states are classified in to three groups:

1. States with high level of tenancy: Punjab, Haryana, Assam and West Bengal.

2. States with medium level of tenancy: Karnataka, Bihar, Orissa, U.P. Tamil Nadu and Himachal Pradesh.

3. States with low level of tenancy: Andhra Pradesh, Kerala, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Gujarat, Rajasthan.

In order to provide an explanation for inter state variations in the level of tenancy five variables were considered. The relationship between the variation in these variables and variation in tenancy was estimated through a linear regression. The result shows that the tenancy infested states show the following features:

i) Higher percentage of irrigated area.

ii) Lower per capita availability of land.

iii) Higher proportion of landless labour

iv) Lower percentage of area under commercial crops and

v) Smaller size of land holdings.

On the basis of these inter-relationship it has been argued that greater irrigation has led to greater intensity of cultivation, leading to greater demand for labour and higher population pressure resulting in lower per capita availability of land.

Types of Tenancy: The most important types of tenancy are crop sharing and fixed rent tenancy. It was expected that the share-cropped tenancy should be gradually replaced by fixed rent type of tenancy. Much against this expectation the crop sharing type of tenancy still continues to be the most important type of tenancy. It was observed by some studies that this type of tenancy was most prevalent among small and marginal farmers and agroclimatically high risk regions. For example, in Madhya Pradesh, an agroclimatically high risk region, the form of tenancy was shifting towards crop sharing including sharing of input costs. In the context of higher risks associated with new technology in this region, it was an optimal arrangement for both parties. Fixed rent tenancy was found to be more prevalent among medium and large farmers. This form of tenancy prevailed in areas which had a greater degree of commercial farming.

The limited number of studies have tried to explain the changes in agrarian structure. Although we don't come across a systematic analysis of the causal factor never the less three important processes have been mentioned in many of these studies. These are (1) market process, particularly the impact of new technology on the land market (2) land reform (3) population pressure.

(1) **Market process:** As regard the market process the studies observed that till 1950's the available evidence

suggests that most of the buyers were large farmers. Since 1960's for various reasons the land market seems to have worked in favour of small and marginal farmers. Since land is the most important rural asset, the desire to own a piece of land is strong. This has possibly made the land market work in favour of small households.

(2) **Land Reforms:** The various land reform measures such as removal zamindari system, ceiling on holding and tenancy legislation have affected the agrarian structure in various ways. The studies on the effect of ceiling legislation are nearly unanimous in their conclusion that these reforms had marginal impact on distribution of land. However, the reforms might have exerted it's infleuence in an indirect way. The provision under the land reform forced the large land owners to get rid of surplus land by largely going for transfers within the family. The removal of zamindari and tenancy legislation have also influence the agrarian structure in a particular manner.

(3) **Population Pressure** : The increase in rural population is also supposed to have changed the agrarian structures in a particular direction. Those who argued in a Malthusian theoretical framework argued that the population pressure combined with stagnant land base reduces the average size of owned holdings as they are apportioned among heirs and it also modifies the distribution of land. Decreasing average size in turn reduce the capacity of the poor to withstand

losses. If the rich wish to buy land, the poor may have to part with it. Lack of new land prevents the expansion of cultivable area as labour force grows, forcing more of its members to rely on wage employment.

Objectives of the Study

The review of literature discussed in the preceeding section brings out the emerging trend in the agrarian structure in India during rounds under study in the pattern of ownership holding and area owned, operational holding and area operated and the extent and type of tenancy. Few of these studies also mentioned the possible causes behind the emerging agrarian structure. However, the explanations provided are more in the nature of general observations with minor exceptions. Those are not based on an indepth analysis of the relevant NSS and other data. Therefore, the study of the processes which are at work as far as the various elements of agrarian structure are concerned is not as rich as the studies on the nature of change. This is particularly the case with regard to regional dimensions of the agrarian structure.

In the present study we proposed to focus more on the dynamics of the emerging agrarian structure in the states of India and to identify the possible socio-economic correlates or factors causing the change in the various aspects of agrarian structure.

We first analyse the changes in the various elements of agrarian structure and then try to examine the possible causes behind the emerging trend. In order to gain proper focus, the study is confined to the changes and variation in the pattern ownership holding and area owned in the states of India during 1961, 1971 and 1982 and thus it excludes the discussion on operational holdings and the tenancy from the analysis. The specific objectives of the study are as follows:

1. to study the inter-state variation in the size composition of ownership holdings during 1961, 1971 and 1982;

2. to study the inter-state variations in the size distribution of area owned;

3. to study the incidence of landlessness across states during this period;

4. to examine inter-state variation in average size of holding;

5. to analyse the various changes in the (a) size distribution of ownership holding (b) size distribution of area owned (c) the incidence of landless household and (d) average size of ownership holding across the states;

6. finally, to examine the inter-relation between these four aspects of land ownership with relevant indicators of population pressure, agricultural technology and industrialization and urbanization in the states of India.

1.7 **Database**

The major sources of data on land holding are the National sample Survey, Agricultural census and Farm Management Studies. The N.S.S. data are considered to be the most reliable. The data on land holdings were first collected in 1953-54 during the eighth round. Thereafter they were collected in 1961-62 (sixteenth and seventeenth rounds), 1971 (twenty sixth round) and 1982 (thirty seventh round). The Agricultural census data have been collected every five years since 1970-71. They are based on land records. That makes them liable to manipulation. The Farm Management studies were conducted between mid-fifties and late sixties. Their coverage was limited to a few districts. The N.S.S data for this study is compiled from the seventeenth round, (1960-61) twenty sixth round (1970-71) and thirty seventh round (1982). The data used in this study pertain only to rural households. There have been minor changes in concept of ownership holding between the rounds. For example, the definition of ownership holding in the twenty sixth and thirty seventh round has been broadened. This might have increased the number of

households as well as the area owned compared to the earlier round.

Data relating to rural and urban population and work force structures were obtained from population census. Data relating to some variables of technology and Cultivated Area were obtained from Stastical Abstracts.

Variables

Some variables will be selected to serve as indicators for population pressure and technological change vis-a-vis land ownership. The correlation between the change in these variables and the change in pattern of land ownership will be studied. The culmination point of the study will be a multiple regression analysis involving the various variables under study. The variables for population pressure and technological change will be used as explanatory variables. The dependence of changes in land ownership pattern over time on the explanatory variables will be analysed.

REFERENCES

1. Singh Inderjit, "Land and Labour in South Asia", World Bank Discussion Papers, The World Bank, Washington D.C.

2. The National Commission on Agriculture (1976), Part xv, Agrarian Reforms, p. 145.

3. Lenin, V.I., The Differentiation of the Peasantry in Rural Development Theories of Peasant Economy and Social Change ed. by John Hariss, 1982.

4. Banaji Jarius, Summary of Selected Parts of Kautsky's The Agrarian Question, Economy and Society, vol.5, no.1, February 1976.

5. Rahman Atiur, Peasants and Classes: A Study in Differentiation in Bangladesh, Zed Books Ltd., 1986, pp. 28-29.

6. Singh Harpal, "Structural Changes in the Size Distribution of Holding : A Macro View", Indian Journal of Agricultural Economics, July-September 1976, vol. xxxi, no.3.

7. Malik R.P.S., Khodpia B.L. and Guleria A.S., "Changes in the Structural Distribution of Land in Rural India", Indian Journal of Agricultural Economics, July-September 1976, vol. xxxi, no.3.

8. Laxmi Narayan H. and Tyagi S.S., Changes in Agrarian Structure in India, Agricole Pub., New Delhi, 1983.

9. Sirohi A.S., Ram G.S. and Singh C.B., "Inter-state Disparities in the Structural Distribution of Land Holdings in Rural India", Indian Journal of Agricultural Economics, July-September 1976, vol. xxxi, no.3.

10. Singh Inderjit, "Land and Labour in South Asia", World Bank Discussion Papers, The World Bank, Washington D.C.

11. Haque T., "Temporal and Regional Variations in the Agrarian Structure in India", Indian Journal of Agricultural Economics, vol. 42, July-September 1987, no.3.

12. Vyas V.S., "Some Aspects of Structural Changes in Indian Agriculture", Indian Journal of Agricultural Economics, January-March 1979, vol.xxxiv, no.1.

13. Sandhu P.S. and Grewal S.S., "The Changing Land Holding Structure in Punjab", Indian Journal of Agriculture Economics, vol. 42, July-September 1987, no.3.

14. Rajagopalan R. and Anuradha B., "Structural Changes in Land Holdings of Thanjavur District of Tamil Nadu", Indian Journal of Agricultural Economics, vol. 42, July-September 1987, no.3.

CHAPTER - II

INTER-STATE VARIATTION IN OWNERSHIP HOLDING AND OWNED AREA

2.1 Introduction

The experience of developed countries has revealed that in the course of economic development the pattern of ownership holdings and area owned has undergone significant changes. The relevant aspects of the land ownership which have undergone change include

(a) Total number of holdings

(b) The number of landless households

(c) the size composition of ownership holdings

(d) the size distribution of area owned and

(e) the average size of holding.

The National Sample Survey through its decennial round provides information on ownership holdings including landless households for rural areas during 1961, 1971 and 1982. In order to make the comparison of size categories possible and manageable we have grouped the various size categories into three groups. The size categories classified according to land owned in hectares are given as follows:

(i) small holdings 0.005 -- 4.04 hectares

(ii) medium holdings 4.05 -- 10.12 hectares

(iii) large holdings 10.13 and above.

This classification has been maintained for three periods in order to make the comparison possible.

2.2 Variation in landless households

Tables 1 and 6 give information on the level and changes in the percentage of landless households during 1961, 1971 and 1982 for various states.

Table 1 provides the relevant information on the state level variation in the incidence of landless households. For the purpose of analysis the states have been classified into three categories of high, medium and low. The states with more than ten percent of landless households are designated with high incidence of landlessness. The states with the percentage of landless households varying between five to ten percent have been denoted as medium level of landlessness and finally the states in which less than five percent of ownership holdings are without land are considered to have low level of landlessness. In 1961 about twelve percent of the total rural households were landless. Ten outof fifteen states had a high proportion of landlessness which varied between ten to thirty percent. In four states the percentage varied between five to ten percent. Uttar Pradesh was the only state which had a low

Table 1 : Classification of state by level of landles holdings (% of landless holdings to total holdings : 1961-1982)

1	2	3	4	5	6	7
Range	States		States		States	
	1961-62	Number	1971-72	Number	1982	Number
High (More than 10%)	Assam, Gujarat, J & K, Kerala, Punjab, Maharashta, Rajasthan, Tamil Nadu, West Bengal karnatka	10	Assam, Gujarat, Kerala, Karnataka, Orissa, Maharashtra, Haryana, Tamil Nadu	8	Gujarat, Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, Maharashtra, West Bengal Andhra Pradesh	8
Medium (5 to 10 %)	Andhra Pradesh, Bihar, Madhya Pradesh, Orissa	4	Andhra Pradesh, Punjab, Madhya Pradesh, West Bengal , Himachal Pradesh	5	Assam, J & K Orissa, Punjab, Rajasthan, Haryana, Himachal Pradesh	7
Low (Lessthan 5 P.C)	Uttar Pradesh	1	Bihar, Rajasthan, Uttar Pradesh, J & K	4	Bihar, Uttar Pradesh	2
Total		15		17		17

Source : 1. Tables with notes on some aspects of land holdings in rural areas, NSS Report number 144

2. Survey results on land holdings, Round 26, Sarvekshana, Issue number 16

3. Some aspects of household ownership holding, Round 37, Sarvekshana Issue no 33

proportion of landlessness. The percentage of landless households varied between 2.78 percent in Uttar Pradesh to 31 percent in Kerala. It was about 28 percent in Assam. In 1971, the number of states with high proportion of landless households declined to eight. The states of Assam and Kerala continue to have a relatively higher proportion of landless households. The state of West Bengal has however moved from high level of landlessness in 1961 to medium level in 1971. Rajasthan has also moved from hiogh proportion of landlessness in 1961 to low proportion in 1971. Due to general decline in the proportion of landless households the number of states with low proportion of landlessness has increased to four in 1971. More striking is the shift in case of Jammu and Kashmir and Bihar. Both the states shifted to the category of low proportion of landlessness in 1971 from being in the categories of high and medium respectively in 1961.

In 1982, the number of states in the category of high proportion of landlessness remained at eight. But there was some change in their proportion. The states of Assam, Orissa and Haryana which had high proportion of landless households in 1971 now shifted to medium range. With the result the number of states in the category of medium proportion of landlessness increased to seven. Due to an increase in the percentage of landless households there was a decline in the number of states in the category of low proportion of landless households.

2.3 Change in incidence of landlessness:

Table 6 gives information on the state wise changes in the proportion of landless households. Columns three, five and seven also given the percentage point difference between 1971 - 1961, 1982 - 1971 and 1982 -1961 respectively. At all India level there has been a decline in the percentage of landless households. Between 1961 and 1971 the states of Andhra Pradesh, Madhya Pradesh, Orissa and Uttar Pradesh had recorded an increase in the proportion of landlessness. The percentage increase was maximum in Orissa state. Among the states which experienced a decrease during 1961 - 1971 the decline was significantly large in Kerala, Tamil Nadu, Jammu and Kashmir and Rajasthan.. It may be noted that these states had a high proportion of landless households in 1961. Between 1971-82, the proportion of landless households had at the state level increased in a little more than fifty percent of the states. The states of Andhra Pradesh , Madhya Pradesh and Uttar Pradesh which witnessed an increase in landlessness between 1961 and 1971 also saw a further increase in landlessness between 1971 and 1982. The increase in the proportion of landlessness was more pronounced in West Bengal, Maharashtra and Tamil Nadu. Rajasthan and West Bengal witnessed a decrease in their landlessness in the first decade, but an increase in the second decade. Orissa was the only state to show the opposite trend. Coming to the period in 1961 and 1982 we observe that the states of Andhra Pradesh, Madhya Pradesh,

Mahasrashtra, West Bengal and Uttar Pradesh showed an increase in proportion of landlesness. What is important is that Andhra Pradesh, Madhya Pradesh and Uttar Pradesh had recorded an increase in both the periods. The increase in case of Andhra pradesh was quite noticeable as its percentage jumped from 6.84 in 1961 to about 11 in 1982. Another important feature of these states is that the level landlessness was high compared to other states. The rest of the states witnessed a decline on the percentage of landless households. Assam and Kerala, however showed the largest decline over the rounds. The proportion of landless households had come down respectively from 27.77 percent and 30.9 percent in 1961 to 7.52 and 14.99 percent respectively in 1982.

The proportion of landlessness does not display a constant pattern over a period of time. The proportion of landlessness in India showed a declining trend between 1961 and 1971. It increased during the next decade and more or less reached the level of 1961. The state level change, as expected followed roughly the same pattern as that of all India change. The proportion of landlessness in the high ca6tegory declined over the period of study, but the number of states in the medium category increased between 1971 and 1982. The number of states in the low category remained relatively insignificant. The number of states in the low

category decreased in 1982. The decrease in the low category was absorbed by the medium category.

2.4 Variation in size composition of ownership holding

Table 7 provides information on the size composition of ownership holdings at all India level. The National Sample Survey data on ownership holding which is given for 11 to 14 size classes is grouped into three broad categories namely, Small holding, Medium holding and Large holding. After having grouped the size categories into three we have examined the inter-state variation in the level of small, medium and large size holdings for 1961, 1971 and 1982.

Table 3 gives information on state level variation of small holdings for the three NSS rounds. It indicates that in 1961 in three out of fifteen states the proportion of small holdings was eighty five percent and above. In fact in Jammu and Kashmir and Bihar about ninety percent of the holdings were small - owning less than 4.04 hectares of land. At the other end the proportion of small holdings was relatively low in Rajasthan, Gujarat, Maharashtra and Karnataka. In the middle range of sixty five to eighty percent there were about eight states.

In 1971, the number of states in the high category increased to close to fifty percent. There was the addition of Orissa West Bengal and Himachal Pradesh in 1971. The proportion of small holdings continues to be low in

Maharashtra and Rajasthan. The states of Gujarat and Karnataka has moved to the medium range.

In 1982 the number of states in the high category increased to seven. The new states which extended into high range were Assam, Gujarat and Haryana. There was also a shift from high to medium category in the case of West Bengal. The number of states in the medium range remained constant. The only exception was the shift of Rajasthan from lower range to medium range. The state of Maharashtra continued in the lower range through out three periods.

Table 4 gives information on the state level variation and percentage of ownership holding in respective medium size category namely 4.05 - 10.12 hectares. The states have been classified into three ranges, those having less than five percent of total ownership holdings of medium size class, those with five to ten percent and those with more than ten percent of ownership holdings of medium size class.

In 1961, of the total of fifteen states, in six states the proportion of medium size holdings was more than ten percent. It is relatively higher in the state of Rajasthan, Gujarat, Madhya Pradesh, Maharashtra and Karnataka. In the lowest range, there were just five states of Assam, Kerala, Jammu and Kashmir, Tamil Nadu and West Bengal. The remaining four states had a proportion of ownership holdings varying between five and ten percent.

In 1982, with the exception of Karnataka's shift from high to medium range, the distribution status of all the remaining states remained the same as it was in 1971.

Lastly, table-5 gives information on the state level variation in the size classes of large holdings, namely the holdings owning land of 10.13 hectares and above. The table also gives the classification of the states into three ranges of high, medium and low. It revealed that there were six states where the proportion of holdings was above five percent. These included Gujarat, Karnataka, Maharashtra and Rajasthan. It may be noted that these states were largely the states with low irrigation facilities. At the other end, five states where the proportion of large size holdings were less than two percent. In the medium range of two to five percent there were four states. In 1971 there was hardly any change in the composition of these states in the high range category of five percent and above. The states in the medium category however witnessed some shift and change. The states of Bihar, Orrisa and Uttar Pradesh which were in the medium category in 1961 shifted to low category in 1971. With the result the number of states in this category went upto eight. In 1982 the number of states in the low category increased to eleven from eight in 1971. Rajasthan was the only state with more than five percent of large holdings. The states of Gujarat, Karnataka, Madhya Pradesh, Haryana and Maharashtra which were in the high category in 1971 shifted to medium catagory. The state of

Table 2 : Percentage share in ownership holding by size classes: All India 1961-1982

1	2	3	4
Size : Acre	1961-62	1971-72	1982
00.0-00.0	11.68	9.64	11.33
0.01-2.49	48.39	52.97	55.31
2.50-4.99	15.07	15.49	14.70
5- 9.99	12.86	11.94	10.78
10-24.99	9.07	7.83	6.45
25 & above	2.85	2.12	1.43
All sizes	100	100	100

Source : 'Emerging farm structure in India :1953/54-1982',

S. Thoart & G. Desai, IFPRI, Working Paper, 1991

Table 3: Classification of States according to percentage of ownership holding by size classes : small holding (.41-4.04 Hect)

1	2	3	4	5	6	7
Range	States		States		States	
	1961-62	Number	1971-72	Number	1982	Number
High 85% >	J & K, U.P Bihar	3	Orissa, W. Bangal Bihar, U.P, H.P, J & K	6	H.P, Orissa, Assam, U.P, Gujarat, J & K, Bihar	7
Medium 65%- 85%	M.P, Kerala, Assam, Tamil Nadu, Orissa, Punjab, A.P, West Bengal	8	Gujarat, M.P, Assam, Haryana, Karnataka, Tamil Nadu, A.P, Punjab, Kerala	9	Rajasthan, M.P, A.P, Haryana, Karnataka, Tamil Nadu, Punjab, Kerala, W. Bengal	9
Low 65% <	Rajasthan, Gujarat Maharashtra, Karnataka	4	Maharashtra, Rajasthan	2	Maharashtra	1
Total		15		17		17

Source: Same as Table 1

Table 4 : Classification of State according to pecentage ownership holding by size classes : Medium holding (4-10) 1961-1982

1	2	3	4	5	6	7
Range	States		States		States	
	1961-62	Number	1971-72	Number	1982	Number
High 10%>	Gujarat, Karnataka, Madhya Pradesh, Punjab Rajasthan, Maharashtra	6	Gujarat, Karnataka, Madhya Pradesh, Haryana Rajasthan, Maharashtra	6	Gujarat, Haryana, Rajasthan Maharashtra, Madhya Pradesh	5
Medium 5%- 10%	Andhra Pradesh, Bihar, Orissa, Uttar Pradesh	4	Andhra Pradesh, Punjab, Himachal Pradesh	3	Andhra Pradesh,Punjab, Karnataka, Himachal Pradesh	4
Low 5% <	Assam, J & K, Kerala Tamil Nadu, West Bengal	5	Assam, Bihar, Kerala, Orissa, Tamil Nadu, Uttar Pradesh, Jammu & Kashmir, West bengal	8	Assam, Bihar, Kerala, J & K, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal	8
Total		15		17		17

Sorce: Same as Table 1

Table 5 : Regional variation percentage share in ownership holding by size classes : Large holding 1961-1982

1	2	3	4	5	6	7
Range	States		States		States	
	1961-62	Number	1971-72	Number	1982	Number
High 5% >	Gujarat, Karnataka Madhaya Pradesh, Maharashtra, Punjab, Rajasthan	6	Gujarat, Maharashtra, Madhya Pradesh, Karnataka, Haryana Rajasthan	6	Rajasthan	1
Medium 2-5%	Andhra Pradesh, Bihar, Orissa, Uttar pradesh	4	Andhra Pradesh Punjab, Himachal Pradesh	3	Gujarat, Karnataka, Madhya Pradesh, Haryana, Maharashtra	5
Low 2%<	Assam, Jammu & Kashmir, kerala, Tamil Nadu, West Bengal	5	Assam, Bihar, J & K, Orissa, Kerala, Tamil Nadu, Uttar Pradesh, West Bengal	8	Andhra Pradesh, Assam, Bihar, J & K, Kerala, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, Himachal Pradesh	11
Total		15		17		17

Source: Same as Table 1

Table 6: Change in Proportion of landless households : Regional variation

1	2	3	4	5	6	7
State	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
Andhra Pradesh	6.84	+.11	6.95	+4.97	11.92	+5.08
Assam	27.77	-2.78	24.99	-15.47	7.52	-20.25
Bihar	8.63	-4.29	4.34	-.24	4.10	-4.53
Gujarat	14.74	-1.30	13.44	-3.39	16.83	2.09
J & K	10.93	-9.98	0.95	-5.89	6.84	-4.09
Kerala	30.90	-15.16	15.74	-.95	14.79	-16.11
Karnataka	18.64	-6.18	12.46	-1.24	13.70	-4.94
Madhya Pradesh	9.14	+.44	9.58	+4.80	14.38	+5.24
Maharashtra	16.03	-.21	15.82	+4.41	21.23	+5.20
Orissa	7.84	+2.73	10.57	-2.92	7.65	-.19
Punjab	12.33	-5.19	7.14	-.73	6.41	-5.92
Haryana	—	—	11.89	-5.75	6.14	—
Himachal Pradesh	—	—	4.37	+3.39	7.76	—
Rajasthan	11.84	-8.93	2.91	+5.21	8.12	-3.72
Tamil Nadu	24.20	-7.19	17.01	+1.61	18.62	-5.58
Uttar Pradesh	2.78	+1.77	4.55	+.29	4.84	+2.06
West Bengal	12.56	-2.78	9.78	+7.07	16.85	+4.29
India	11.68	-2.04	9.64	+1.69	11.33	-.35

Source : Same as Table 1

(71-61) : DErived by Subtracting proportion of landless in 1971-72 from 1961-62

(82-71) : Derived by subtracting proportion of landless in 1982 from 1971-72

(82-61) : DErived by subtracting proportion of landless in 1982 from 1961-62

Table 7 : Change in number of ownership holdings by sizeclassesAll India 1961-81

1	2	3	4	5	6	7
Size:acres	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
00.00-000.00	8466000	-908000	7558000	+3079000	10637000	+2171000
0.01-2.49	35063000	+6451000	41514000	+10402000	51916000	+16853000
2.50-4.99	10924000	+1217000	12141000	+12554000	13795000	+2871000
5-9.99	9317000	+42000	9359000	+760000	10119000	+802000
10-24.99	6572000	-434000	6138000	-87000	6051000	-521000
25 & above	2064000	-404000	1600000	-322000	1338000	-726000
Total	72466000	+5904000	78370000	+5486000	93856000	+21390000

Source : Same as Table 2

(71-61) : Derived by subtacting number of ownership holdings in 1971-72 from 1961-62

(82-71) : Derived by subtracting number of ownership holdings in 1982 from 1971-72

(82-61) : Derived by subtractingnumbre o owneship holdings in1982 from 1961-62

Himachal Pradesh shifted over to medium category to low category.

2.5 Change in size composition of ownership holdings

Table 7 gives information on changes in ownership holdings for India. Unlike the declining trend in the developed countries, the total number of ownership holdings in India has shown a continuous increase between each round. The increase in number between 1971 and 1982 is greater than that between 1961 and 1971.However,in the case of changes in the number and proportion of various size categories a mixed trend was observed.The number of holdings in the size class of 10 acres and above have decreased between each round.The number of holdings in the size classes (below 10 acres) have on the other hand shown an increase during each round.The increase between 1971 and 1982 was greater than that between 1961 and 1971.The increase in the size class 0.01-2.49 acres was greater than other size classes.

Coming to the state level picture (see table 8) we observe that between 1961 and 1971, the total number of holdings in all states except Tamil Nadu increased . In the case of Tamil Nadu there was a decrease in the absolute number of ownership holdings.

During 1971 and 1982 the total number of holdings increased in all states. Following the all India trend, the increase in the number of holdings in this period was

Table 8 : Regional variation in changes in total ownership holdings : 1961-82

1	2	3	4	5	6	7
State	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
Andhra Pradesh	6186755	+288524	6472279	+1092921	7565200	+1378445
Assam	1461935	+129477	1591412	+495588	2087000	+625065
Bihar	7769191	+69763	7838954	+295546	10794000	+3024809
Gujarat	2678017	+475018	3153035	+91265	3244300	+566283
Jammu & Kashmir	537983	+21649	559632	+201268	760900	+22917
Kerala	1721972	+421602	2143574	+532526	2676100	+954128
Karnataka	2902111	+892048	3794159	+364541	41587000	+1256589
Madhya Pradesh	4978219	+554219	5532438	+17762	5710200	+731981
Maharashta	4452089	+1308337	5760426	+252674	6013000	+1560911
Orissa	3501158	+166781	3667939	+83061	+3751000	+24842
Punjab	2186490	-6751700	1534790	+530810	2065600	-120890
Haryana	—	—	101778	+555353	1573200	—
Himachal Pradesh	—	—	400498	+109202	509700	—
Rajasthan	2606010	+341157	2947167	+1063433	4010600	+1404590
Tamil Nadu	5127112	-289874	4837238	+856862	5694100	+566988
Uttar Pradesh	13000258	+1044923	14045181	+639919	1468100	+1684842
West Bengal	4296802	+698319	4995121	+1384,879	6380000	+2083198

Source : Same as Table 1

(71-61) : Derived by subtacting number of ownership holdings in 1971-72 from 1961-62

(82-71) : Derived by subtracting number of ownership holdings in 1982 from 1971-72

(82-61) : Derived by subtractingnumbre o owneship holdings in1982 from 1961-62

greater than in the previous period. Taking the overall period between 1961 and 1982 the total number of holdings increased in all states. The magnitude of increase in holdings fairly corresponded to the size of states. Tables 9, 10 and 11 give information on changes in proportion of ownership holdings for small, medium and large size holdings for the states during 1961, 1971 and 1982.

Between 1961 and 1971 the proportion of ownership holdings in small size category increased in all states. The increase in percentage was relatively more in the states of Kerala, Jammu and Kashmir, Karnataka and Rajasthan. Kerala with a increase of 15.77 percentage points recorded the highest increase.

During 1961 and 1971 increasing trend in the proportion was somewhat checked when six states witnessed a decline in the proportion of holdings under small holding size category. These include the states of Andhra Pradesh, Jammu and Kashmir, Maharashtra, Tamil Nadu, West Bengal and Himachal Pradesh. The decline in West Bengal and Jammu and Kashmir was more than six percentage points. The remaining states continued to show increase in the proportion of small sized holdings. However, the magnitude in the increase in the proportion of holdings was as large as in the previous decade and there were two exceptions, namely, Gujarat and Assam where the percentage increase was 23.39 points and 17.98 points respectively. Between 1961 and 1982, the

Table 9 : Regional Variation in percentage change in ownership holdings by size classes : Small holdings 1961-1982

1	2	3	4	5	6	7
State	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
Andhra Pradesh	81.54	+1.68	83.22	-3.64	79.58	-1.96
Assam	69.51	+3.01	72.52	+17.98	90.5	+20.99
Bihar	90.44	+1.19	91.63	-1.11	92.74	+2.30
Gujarat	60.78	+6.90	67.68	+23.39	91.07	+30.29
Jammu & Kashmir	85.58	+11.85	97.43	-6.36	91.07	+5.49
Karnatka	61.95	+11.93	72.88	+1.45	74.33	+12.38
Kerala	67.5	+15.77	83.27	+1.06	84.33	+16.83
Madhya Pradesh	66.1	+2.26	68.36	+..61	68.97	+2.87
Maharashtra	59.62	+4.13	63.75	-.32	63.43	+3.81
Orissa	84.97	+.52	85.49	+3.05	88.54	+3.57
Punjab	71.99	+9.45	81.44	+.71	82.15	+10.16
Haryana	—	—	72.63	+6.84	79.47	—
Himachal Pradesh	—	—	89.92	-3.97	85.95	—
Rajasthan	53.89	+11.52	64.41	+3.32	65.73	+14.84
Tamil Nadu	75.52	+4.35	79.87	-1.34	78.53	+3.01
Uttar pradesh	89.81	+.66	90.47	+.24	90.71	+.90
West bengal	83.31	+4.63	87.94	-6.53	81.41	-1.90

Source : Same as Table 1

(71-61) : Derived by subtracting number of ownership holdings in 1971-72 from 1961-62

(82-71) : Derived by subtracting number of ownership holdings in 1982 from 1971-72

(82-61) : Derived by subtracting number of ownership holdings in 1982 from 1961-62

Table 10 Regional variation in percentage share in ownership holding size classes : Medium holdings 1961-1982

1	2	3	4	5	6	7
State	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
Andhra Pradesh	8.61	-1.04	7.57	-.89	6.68	-1.93
Assam	2.67	-.29	2.38	-.51	1.87	-.80
Bihar	5.21	-1.55	3.66	-.84	2.82	-2.39
Gujarat	17.67	-3.87	13.80	-2.35	11.45	-6.22
Jammu & kashmir	3.15	-1.53	1.62	+.42	2.04	-1.11
Karnataka	14.55	-2.70	11.85	-2.77	9.28	-5.47
Kerala	1.36	-.45	0.91	-.11	.80	-.56
Madhya Pradesh	19.01	-1.81	17.20	-3.44	13.76	-4.25
Maharashta	16.9	-1.91	14.99	-3.17	11.82	-5.08
Orissa	5.9	-2.38	3.52	-.10	3.42	-2.48
Punjab	11.96	—	9.19	+.75	9.94	-2.02
Haryana	—	—	13	-.53	12.47	—
Himachal Pradesh	—	—	5.2	-.88	6.08	—
Rajasthan	22.09	+.54	22.63	-3.04	19.59	-2.50
Tamil Nadu	2.9	+.1	3	-.85	2.15	-.75
Uttar Pradesh	6.43	-1.94	4.49	-.44	4.05	-2.38
West Bengal	3.89	-1.5	2.39	-1.23	1.16	-2.73

Source : Same as Table 1

(71-61) : Derived by subtracting number of ownership holdings in 1971-72 from 1961-62

(82-71) : Derived by subtracting number of ownership holdings in 1982 from 1971-72

(82-61) : Derived by subtracting number of ownership holdings in 1982 from 1961-62

Table 11 Regional variation in percentage share is ownership holding by size classes: large holding 1961-1982

1	2	3	4	5	6	7
State	1961-62	(71-61)	1971-72	(82-71)	1982	(82-61)
Andhra Pradesh	3.01	-.75	2.26	-.48	1.78	-1.23
Assam	.05	+.06	.11	-.03	.08	+.03
Bihar	.93	-.56	.37	-.05	.32	-.61
Gujarat	6.81	-1.73	5.08	-2.39	2.69	-4.12
Jammu & Kashmir	.34	-.34	—	+.02	.02	-.32
Karnataka	4.86	-2.05	2.81	-.16	2.65	-2.21
Kerala	.24	-.16	.08	-.03	.05	-.19
Madhya Pradesh	5.75	-.89	4.86	-1.80	3.06	-2.69
Maharashtra	7.46	-2.03	5.43	-1.94	3.49	-3.97
Orissa	1.29	-.87	.42	-.05	.37	-.92
Punjab	3.72	-1.49	2.23	-.76	1.47	-2.25
Haryana	—	—	2.48	-.48	2	-
Himachal Pradesh	—	—	.51	-.33	.18	-
Rajasthan	12.18	-2.13	10.05	-3.52	6.53	-5.65
Tamil Nadu	.38	+.08	.46	-.30	.16	-.22
Uttar Pradesh	1.04	-.55	.49	+.01	.50	-.54
West Bengal	.24	-.19	.05	+.02	.07	-.17

Source : Same as Table 1

(71.61) : Derived by subracting percentage of ownership holdings in 1971-72 from 1961-62

(82-71) : Derived by subracting percentage of ownership holdings in 1982 from 1971-72

(82-61) : Derived by subracting percentage of ownership holdings in 1982 from 1961-62

proportion of holdings under small holdings size class increased in all states except in Andhra Pradesh and West Bengal. The decline in percentage during this period in these two states was less than two percent points. Among the states which witnessed increase in proportion of holdings under small holding size class, the relative increase was quite pronounced in Gujarat, Assam, Kerala, Rajasthan and Karnataka. In the remaining states the increase was less than four percentage points.

Table 10 provides information on percentage share ownership holdings under medium sized class accross states during thethree rounds studied. During 1961-1971 Rajasthan and Tamil Nadu were the only states which witnessed an increase in proportion of holdings under medium holding size class. Part of the states showed decline in their proportion of medium sized holdings. The percentage decline under medium holdings size class was however comparatively higher in Karnataka and Orissa. It varied between 2.38 percentage points to 3.8 percentage points.

During the second decade between 1971 and 1982 three states, namely, Punjab, Jammu and Kashmir and Himachal Pradesh recorded a marginal increase in percentage of holdings under medium holding size class. Since the states of Punjab and Himachal Pradesh came into being in 1971, we could not see the trend in the earlier period. Among the states which experienced a decreasing trend the relative

decrease was more in Madhya Pradesh and Rajasthan which was around three percentage points. Taking the overall period between 1961 and 1982 we found that all the states recorded a decline in the percentage of holdings under medium holding size class. The relative decline was more pronounced in Gujarat, Karnataka, Maharasthra and Madhya Pradesh. We could not ascertain the trend during 1961 to 1982 for Punjab, Haryana and Himachal Pradesh since these states were non existent in 1961. During 1971 - 1982, for which data was available, Punjab and Himachal Pradesh showed a increase in their medium size holdings.

Table 11 gives information on the proportion of holdings under large holding size class. During the first period between 1961 and 1971 the percentage of large holdings declined in all states except Assam and Tamil Nadu. The decline in percentage of large holdings was comparatively more in Karnataka, Maharashtra and Rajasthan.

The declining trend in the percentage of large holdings continued in the second period also as fourteen out of seventeen states experienced a decline in the proportion of large holdings. The states Jammu and Kashmir, Uttar Pradesh and West Bengal have showed a mild increase in the proportion of large holdings. Coming to the period between 1961 ansd 1982 the percentage of large holdings declined in all states except Assam. The magnitude of decline was greatest in Rajasthan followed by Gujarat and Maharashtra.

The absolute number of holdings have increased in all states between 1961 and 1982. The increase in absolute number of holdings 1971 and 1982 was greater than the increase between 1961 and 1971. Tamil Nadu is the only state where holdings declined between 1961 and 1971. In the case of change over the period of study according to size classes, the size classes upto 9.99 acres (all India level) recorded an increase in the number of holdings. The size classes above 9.99 acres exhibited a decline in the number of holdings over the period of study. The maximum increase in the number of holdings was in the size class of 0.01 - 2.49 acres. The percentage of small holdings showed a steady upward trend. Between 1961 and 1982 over eighty percent of the states recorded an increase in the percentage of small holdings. By 1982, over seventy five percent of the states had over seventy five percent of their holdings under the small holding size class.

The medium holdings declined without exception between 1961 and 1982. Roughly seventy percent of the states have under ten perent of their holdings under the medium holding size class. Large holdings complemented the small holdings by declining in all states between 1961 and 1982 except in Assam where it's percentage share increased.

Interestingly, Gujarat which recprded the highest increase in percentage of small holdings betweebn 1961 and 1982 also recorded the largest decline in percentage of medium and large holdings.

CHAPTER - III

INTER-STATE VARIATION IN LANDOWNERSHIP

INTRODUCTION

3.1 In the preceding chapter we examined the inter-state variation in the size distribution of ownership holdings and the landlessness during three periods under study. This chapter analyses the inter-state variation and changes in the size-distribution of owned land. In other words it discusses the issue of inequality in land ownership in states of India. The size-distribution of holding along with the size distribution of owned area provides a picture regarding the ownership of land at household level. The three rounds of N.S.S. on land holdings provides the data on the size-distribution of ownership holdings and owned area for 1961, 1971 and 1982. Two relevant aspects of land ownership are studied at greater length. They are:

a) Size distribution of owned land during 1961, 1971 and 1982 in the states of India.

b) The average size of ownership holdings, both the overall and of small, medium and large size holdings during three periods in the states.

The studies on the land distribution, based on N.S.S. have very well brought out one important feature of the land ownership in rural India viz. the inequality in its distribution at the household level. This is revealed by the relative share of holding and area owned by various size categories. The share of area owned of large size holding has been greater than their share in the ownership holding. And for small size holding's, share in area has been less than their share in holding. In several studies the inequality in land ownership is generally measured through a given ratio. One of the important limitations of Gini ratio is that while it brings out the overall inequality in land distribution at the farm size level, however, it hides more than it reveals. Some studies have used the "Inter-class concentration ratio" (ICCR) for measuring the inequality in ownership of land for each size category. The ICCR is derived by dividing the percentages share of area owned by the percentage share of ownership holding and multiplying by 100. If the ICCR is equal to one, it indicate equality in the share of holding and area owned. But any value less than 100 suggests that the area share is less than holding share and vice-versa if ICCR value is more than 100. The ICCR is a useful tool to estimate the disparity at the farm size level. We have used both viz. Gini ratio and ICCR to work out the disparities of the land ownership in the states of India for 1961, 1971 and 1982.

3.2 VARIATIONS IN LAND OWNERSHIP

Table - 1 provides information on ownership holdings in relation to area owned by size classes . It also gives the value of ICCR for size categories and Gini Ratios for the three survey rounds.

In the year 1961 we found that as the size of ownership holdings increases the percentage share of the area owned of the size class increases. The percentage of area owned by the large size holdings is far greater than their share in total ownership holdings. The opposite was the case for the marginal and small holdings. Their share in area owned was far less than their share in total ownership holdings. The concentration ratio in 1961, worked out to 0.72. In 1971 there was an increase in the percentage share in the area of marginal and small size holdings. At the other end there was a decline in the area share of large holdings. Despite this positive change inequality persisted in 1971. The share of large holdings in relation to area owned was far greater than their share in ownership holdings. Opposite was true in the case of smaller size of ownership holdings. Gini's Ratio has declined marginally to 0.71.

In 1982 it was observed that smaller land owning classes witnessed an increase in their share of area. The two largest size classes recorded a decline in area owned. The smallest land owning size classes also experienced an increase in their proportion of holdings. Since the

Table: 1 Pattern of percentage of ownership holding in relation to percentage of owned area: All India 1961-82

1	2	3	4	5	6	7	8	9	10
		1961-62			1971-72			1982	
State :acre	% of H	% of A	ICCR	% of H	% of H	ICCR	% of H	% of A	ICCR
00.00-00.0	11.68	0		9.64	0		11.33	0	
.01-2.49	48.39	7.59	15.68	52.97	9.76	18.42	55.31	12.22	22.09
2.50-4.99	15.07	12.40	82.28	15.49	14.67	94.70	14.70	16.49	112.17
5-9.99	12.86	20.54	159.72	11.94	21.92	183.58	10.78	23.36	216.69
10-24.99	9.07	31.23	3444.32	7.83	30.74	392.59	6.45	29.84	462.63
25 & above	2.85	28.24	990.87	2.12	22.91	1042.45	1.4	18.07	1290.71
Total	100	100		100	100		100	100	
Gini Coefficient		0.72			0.71			0.71	

Source: 'Emerging farm structure in India :1953/54—1982'

S. Throat & G. Desai, IFPRI, Working Paper, 1991

% of H = Percentage of household ownership holding

% A = percentage of areaowned

increase in their proportion of holdings was greater than the increase in area there was not much change in the level of inequality in land ownership. Gini's Ratio remained at 0.71 in 1982. In order to study the inter-state variatio,n we have classified the holdings into three size groups, namely small medium and large and examined the differences in each of the size groups.

3.3 VARIATION IN INTER-CLASS CONCENTRATION RATIO: SMALL HOLDINGS:

Table - 2 gives information on the proportion of ownership holdings along with area owned for the states for the three rounds studied.

Table - 2, gives information on the inter-class concentration ratio for the states during the surveys. In 1961 Assam and Kerala are the only states to have an ICCR more than 100. These are the only two states in which percentage of area owned exceeded percentage of holdings. In Jammu and Kashmir, Karnataka and Tamil Nadu the value of ICCR was close to 100. In most of the other states the ICCR was less than 100. The value of ICCR was quite low (viz. less than 60%) in Rajasthan, Andhra Pradesh, Madhya Pradesh and Punjab.

In 1971, Assam and Kerala continued to have an ICCR more than 100 although the gap was not significant. The

Table 2: Regional Variation in Inter class concentration ratio by size classes: Small holdings 1961-82

1	2	3	4	5	6	7	8	9	10
		1961-62			1971-72			1982	
State	% of H	% of A	ICCR	% of H	% of H	ICCR	% of H	% of A	ICCR
Andhra Pradesh	81.54	34.81	42.69	83.22	44.27	53.19	79.58	47.24	59.36
Assam	69.51	82.62	118.86	72.52	83.16	114.67	90.5	87	96.13
Bihar	90.44	59.97	66.30	91.63	69.7	76.06	92.74	70.22	75.71
Gujarat	60.78	24.41	40.16	67.68	31.2	46.09	91.07	40.95	44.96
Jammu & Kashmir	85.88	80.93	94.23	97.43	91.94	94.36	91.07	87.09	95.62
Karnataka	61.95	57.36	92.59	72.88	42.39	58.16	74.33	45.16	60.75
Kerala	67.5	70.78	104.85	83.27	84.7	101.71	84.33	88.34	104.75
Madhya Pradesh	66.1	28.7	43.41	68.36	33.86	49.53	68.97	40.34	58.48
Maharashtra				63.75	30.41	47.70	63.43	36.16	57
Orissa	84.97	57.35	67.49	85.49	73.28	85.71	88.54	74.65	84.31
Punjab	71.99	31.19	44.43	81.44	37.9	46.53	82.15	39.2	47.71
Haryana	—	—	—	72.63	31.01	42.69	79.47	40.25	50.64
Himachal Pradesh	—	—	—	89.92	71.57	79.59	85.95	70.04	81.48
Rajashtan	53.89	19.48	36.14	64.41	21.96	34.09	65.73	28.21	42.91
Tamil Nadu	75.52	68.9	91.23	79.87	67.28	84.23	78.53	76.34	97.21
Uttar Pradesh	89.81	62.19	69.24	90.47	70.08	77.46	90.71	71.29	78.59
West Bengal	83.31	72.32	88	87.94	80.69	91.75	81.41	86.32	106.03

Source: Tables with notes on some aspects of land holdings in rural areas, NSS Report number 144
Survey results on land holdings, round-26, Sarvekshana, Issue no 16; some aspects of household ownership holding, round 37, Sarvekshana, Issue no33

ICCR: Inter Class Concentration ratio

% of H = Percentage of ownership holding

% of A = Percentage o f area owned

Table 3: Regional variation of Inter class concentration ratio of small holdings 1961-82

1	2	3	4	5	6	7
Range	States		States		States	
	1961-62	Number	1971-72	Number	1982	Number
Above 100	Kerala, Assam	2	Kerala, Assam	2	Kerala, West Bengal	2
80-100	West Bengal Tamil Nadu J & K Karnataka	4	Orissa, J & K, West Bengal, Tamil Nadu	4	H.P, Orissa, J & K, Assam, Tamil Nadu	5
80-60	Bihar, Orissa, U.P.	3	Bihar, U.P, H.P	3	Karnataka, Bihar, U.P	3
Below 60	Rajasthan, Gujarat, A.P, M.P, Punjab	5	Rajasthan, Haryana, Gujarat Punjab, M.P, A.P. Maharashtra, Karnataka	8	Rajasthan, Gujarat, Punjab, Haryana, Maharashtra, M:P, A.P	7
Total		14		17		17

Sorce: Same as Table 2

ICCR value for Jammu and Kashmir and West Bengal were somewhat closer to 100. In rest of the states ICCR was far away from 100. In fact it varies from 34 in Rajasthan to 56 in Karnataka.

In 1982 Kerala and West Bengal had ICCR values of a little more than 100. The values were fairly close to 100 in Tamil Nadu and Assam. In rest of the states since the ICCR value was far below 100 the inequality was high for small holdings.

Table 3 shows the classification of the states into four categories of above 100, high, medium and low, according to the value of ICCR.

3.4 VARIATIONS IN INTER-CLASS CONCENTRATION RATIO: MEDIUM HOLDINGS

In the case of medium holdings the value of ICCR was more than 100 in all the States in India indicating a larger share in area compared to their holdings. However there were marked inter-state variations in the level of ICCR across the states. The values were quite high in Assam, Kerala, Tamil Nadu and West Bengal compared to Gujarat, Rajasthan and Madhya Pradesh. In other States the values were in the middle range. In 1971 the pattern of inter-state variation in the values of ICCR remained almost the same. The same set of states showed high and low values of ICCR.

Table 4: Regional variation in Inter class concentration ratio by size classes : Medium holdings 1961-82

1	2	3	4	5	6	7	8	9	10
		1961-62			1971-72			1982	
State	% of H	% of A	ICCR	% of H	% of H	ICCR	% of H	% of A	ICCR
Andhra Pradesh	8.61	31.29	363.41	7.57	30.15	398.28	6.68	29.82	446.40
Assam	2.67	16.59	621.34	2.38	15.2	638.65	1.87	11.5	614.97
Bihar	5.21	26.43	507.29	3.66	23.63	645.62	2.82	20.21	716.66
Gujarat	17.67	37.68	213.24	13.80	36.15	261.95	11.45	39.45	344.54
Jammu & Kashmir	3.15	16.32	518.09	1.62	8.06	497.53	2.04	12.57	616.17
Karnataka	14.55	34.46	236.83	11.85	35.19	296.96	9.28	31.45	338.90
Kerala	1.36	15.74	1157.35	0.91	11.89	1306.59	.80	10.05	1256.29
Madhya Pradesh	19.01	38.48	202.41	17.20	37.8	219.76	13.76	34.39	249.92
Maharashtra			—	14.99	35.45	236.49	11.82	36.23	306.51
Orissa	5.9	25.58	433.55	3.52	20.72	588.63	3.42	19.5	570.17
Punjab	11.96	38.53	322.15	9.19	37.96	413.05	9,94	42.22	424.74
Haryana	—	—	—	13	46.93	361	12.47	44.89	359.98
Himachal Pradesh	—	—	—	5.2	23.12	444.61	6.08	27.82	457.56
Tamil Nadu	2.9	22.95	791.37	3	22.97	765.66	2.15	20.93	973.48
Uttar Pradesh	6.43	26.67	414.77	4.49	23.85	531.18	4.05	22.26	549.62
West Bengal	3.89	24.3	624.67	2.39	18.61	778.66	1.16	12.12	1044.82
Rajasthan	22.09	29.15	131.96	22.63	32.89	145.33	19.59	35.19	179.63

Source: Same as Table 2

Table 5 : Regional Variation of Inter class concentration ratio : Medium holdings 1961-82

Range	States 1961-62	Number	States 1971-72	Number	States 1982	Number
High 600>	Assam, Kerala, Tamil Nadu, West Bengal	4	Assam, Bihar Kerala, Tamil Nadu, West Bangal	5	Assam, Bihar J & K Kerala, Tamil Nadu West Bengal	6
Medium 300-600	Andhra Pradesh, Bihar, J & K Orissa, Punjab, Uttar Pradesh	6	Andhra Pradesh, Jammu & Kashmir, Orissa Punjab, Haryana, Himachal Pradesh Uttar, Pradesh	7	Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Orissa, Punjab, Haryana, Himachal Pradesh, Uttar Pradesh	9
Low 300<	Gujarat, Karnataka, Rajasthan, Madhya Pradesh	4	Gujarat, Karnataka, Madhya Pradesh Maharashtra Rajasthan	5	Rajashtan, Madhya Pradesh	2
Total		14		17		17

Source : Same as Table 2

In 1982 interstate pattern did not change much. The states of Assam, Bihar, Kerala, Tamil Nadu and West Bengal had a higher value of ICCR. The only addition in this category was Jammu and Kashmir. At the lowest end were Rajasthan and Madhya Pradesh. The rest of the states were in the middle range.

Thus, we observe that in the case of medium size holdings the ICCR values were much higher than 100 in all the states indicating a larger share of area owned than their share in total ownership holdings. The value of ICCR however varied between the states in the three years under study. By and large the regional pattern nearly remained the same in the successive rounds.

3.5 VARIATIONS IN INTER-CLASS CONCENTRATION RATIO: LARGE HOLDINGS

Table 6 provides information on ICCR for the three rounds. One of the characteristics of ICCR of large farmers is that, in all the States values are higher than that of medium sized holdings indicating that higher inequality in land ownership among large size holdings. Since the values are greater than 100 and much higher than the medium sized holdings their share in the area owned is much greater than their share in total holdings.

In 1961 there were seven states in which the value of ICCR is high compared to other States. These include Andhra

Table 6 : Regional variation in Inter class concentration ratio by size classes : Large holdings 1961-82

1	2	3	4	5	6	7	8	9	10
	1961-62			1971-72			1982		
State	% of H	% of A	ICCR	% of H	% of H	ICCR	% of H	% of A	ICCR
Andhra Pradesh	3.01	33.9	1126.24	2.26	25.58	1131.85	1.78	22.91	1287.07
Assam	0.05	.79	1580	.11	1.64	1490.90	.08	1.48	1850
Bihar	.93	13.6	1462.36	.37	6.67	1802.70	.32	5.9	1843.76
Gujarat	6.81	37.9	556.53	5.08	32.65	642.71	2.69	20.47	760.96
Jammu & Kashmir	0.34	2.73	802.94	0	0	—	.02	.31	1550
Karnataka	4.86	31.18	641.56	2.81	22.42	797.86	2.65	23.37	881.86
Kerala	.24	13.48	5616.66	0.08	2.96	3700	0.05	1.58	3160
Madhya Pradesh	5.75	32.82	570.78	4.86	28.34	583.12	3.06	21.71	709.47
Maharashtra			—	5.43	34.14	628.72	3.49	27.39	784.81
Orissa	1.29	17.07	1323.25	.42	6	1428.57	.37	5.84	1578.37
Punjab	3.72	30.28	813.97	2.23	24.14	1082.51	1.47	18.55	1261.90
Haryana	—	—	—	2.48	22.06	889.51	2	15.05	752.5
Himachal Pradesh	—	—	—	.51	6.31	1237.25	.18	2.11	1172.22
Rajasthan	12.18	51.37	421.75	10.05	45.15	449.25	6.53	36.58	560.18
Tamil Nadu	.38	8.35	2197.36	.46	9.75	2119.5	.16	4.71	2943.75
Uttar Pradesh	1.04	11.14	1071.15	.49	6.07	1238.77	.50	5.18	1036
West Bengal	.24	3.38	991.66	.05	.70	1400	.07	1.53	2185.71

Source : Same as Table 2

Table 7 : Regional Variation to Inter Class Concentration ratio : Large holdings 1961-82

Range	States 1961-62	Number	States 1971-72	Number	States 1982	Number
High	Andhra Pradesh, Assam Bihar, Kerala, Orissa, Tamil Nadu, Uttar Pradesh	7	Andhra Pradesh, Assam Bihar, Kerala Orissa Punjab, Himachal Pradesh, Tamil Nadu, Uttar Pradesh, West Bangal	10	Andhra Pradesh, Assam Bihar, J & K, Kerala, Orissa, Punjab, Himachal Pradesh, Tamil Nadu, Uttar Pradesh West Bengal	11
Medium	West Bangal, Punjab, Madhya Pradesh, Karnataka, Gujarat, Jammu & Kashmir	6	Gujarat, Karnataka, Maharashtra, Madhya Pradesh Haryana	5	Gujarat, Karnataka, Madhya Pradesh, Maharashtra,Haryana, Rajasthan	6
Low	Rajasthan	1	Rajasthan	1	—	—
Total		14		16		17

Source : Same as Table 2

Pradesh, Assam, Bihar, Kerala, Orissa, Tamil Nadu and Uttar Pradesh. The value was lowest in Rajasthan. By and large the regional pattern remained identical in successive rounds, namely 1971 and 1982.

3.6 VARIATION IN LAND OWNERSHIP: GINI RATIO

As mentioned earlier the Gini Coefficient is generally used to measure the concentration in ownership of land. The Gini Coefficients were calculated by using the formula:

$$Gc = \frac{\sum \left[\left| x_i y_i + 1 - (X_i + 1 y_i) \right| \right]}{100 \times 100}$$

x_i = the cumulative frequency of the percentage holdings of the ith class.

y_i = the cumulative frequency of the percentage area of the ith class.

Table 8 provides information on Gini Coefficient for three rounds, in the States of India. In Table 9 the states are classified on the basis of level of Gini Ratio. In 1961 the Gini Ratio was above 0.7 in Andhra Pradesh, Bihar, Kerala and Tamil Nadu. At the other end it was relatively low in Jammu and Kashmir. In the remaining states it varied between 0.5 to 0.7. In 1971 the states which had high concentration Ratio continued to show the same. Kerala was the only state which moved to a medium level of

Table 8 : Regional variation in Gini Coefficient: 1961-82

States	1961-62	1971-72	1982
Andhra Pradesh	.7444	.706.7	.7110
Assam	.6027	.5805	.5015
Bihar	.7011	.6513	.6789
Gujarat	.6631	.6634	.6721
Jammu & Kashmir	.4843	.3384	.4659
Karnataka	.7375	.6467	.6028
Kerala	.6443	.6228	.6635
Madhya Pradesh	.6163	.6012	.6212
Maharashtra	N.A	.6614	.6748
Orissa	.6571	.5946	.5610
Punjab	.7337	.7644	.7496
Harayana	—	.4613	.6774
Himachal Pradesh	—	.4921	.4936
Rajashtan	.5933	.5793	.5986
Tamil Nadu	.8510	.7147	.7182
Uttar Pradesh	.5864	.5921	5925
West Bengal	.6338	.0976	.6527

Source : Same as Table 2

Table 9: Inter-state variation in Gini Coefficient 1961-82

1	2		3		4	
Range	1961-62 States		1971-72 States		1982 States	
High (00.70)	Andhra Pradesh, Bihar, Kerala, Punjab, Tamil Nadu	5	Andhra Pradesh, Punjab, Tamil Nadu	3	Andhra Pradesh, Punjab, Tamil Nadu.	3
Medium 0.50-0.70	Assam, Gujarat, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, West Bengal	8	Assam, Bihar, Gujarat, Kerala, Karnataka, Madhya Pradesh, Orissa, Maharashtra, Rajasthan, Uttar Pradesh	10	Assam, Bihar, Gujarat, Kerala, Karnataka, Madhya Pradesh,Orissa, Maharashtra, Rajasthan, Uttar Pradesh, Haryana, West Bengal,	12
Low (less than 0.50)	Jammu & Kashmir	1	Jammu & Kashmir, West Bengal, Haryana, Himachal Pradesh	4	Jammu & Kashmir Himachal Pradesh	2
Total		14		17		17

Source : Same as Table 2

concentration. At the other end Jammu and Kashmir continued to have lower concentration. It was joined by West Bengal and the newly created states of Haryana and Himachal Pradesh. In 1982 with minor exceptions the regional pattern remained what it was in 1971. States of Andhra Pradesh, Punjab and Tamil Nadu continued to have high levels of concentration compared with other States. State of Jammu and Kashmir and Himachal Pradesh continued to show lower levels of concentration. The rest of the States fell in the range of 0.5 to 0.7.

Coming to the change we found that between 1961-1971, 13 out of the 14 states witnessed a decline in the concentration ratio. During the second period the pattern was different because nine out of seventeen States showed an increase in concentration of ratio and ratio in the four states remained nearly constant. In the remaining four states it showed a decline. Taking the overall period between 1961-1982 we found that ten of the states recorded an increase in concentration level and only three states showed Gini Cofficients indicating a contrasting trend. The Gini Ratios have showed a general decline and in the second decade the trend was reversed, as in majority of the states the concentration has increased. There were other factors, in the period between 1971 and 1982, which have led to the reversal of the trend of the period between 1961-72.

To summarise the findings of this and earlier section, we noticed interesting changes in holdings and area owned by size classes for 1961-71 and 1982. The smallest size classes were the only ones to record an increase in both holdings and area owned between 1961 and 1982. The next two size classes (upto 9.99 acres) recorded an increase in area share but not in holdings shares. The largest size classes witnessed a decline in both holdings share and area share. This was uniformly true for all the States.

The State level study of ICCR according to size classes revealed values of less than 100 for smaller size of holdings, but greater than 100 in the case of medium and large size holdings indicating a larger share of area owned when compared to holdings and lower share in area then holdings for smaller size holdings.

The discussion on Gini Ratio indicates that in first period between 1961-71, almost all the States experience a decline in the concentration of land. This trend, however, was reversed for the majority of the States in the Second period between 1971-82. We discovered interstate disparities both with the level of Gini ratio and as well as the change in them.

3.7 VARIATION IN LAND OWNERSHIP: AVERAGE SIZE OF OWNERSHIP HOLDING

Average size of holding in is important aspect of ownership

Table 10 Average size of ownership holdings by size classes : All India 1961-82

Size: acres	1961-61	1971-72	1982
00.00-00.00	0.00	0.00	0
.0-2.49	.69	.69	.70
2.5 - 4.99	3.61	3.57	3.55
5 - 9.99	7.01	6.92	6.85
10-24.99	15.10	14.79	14.62
25 & above	43.49	40.76	40.04
All sizes	4.39	3.77	3.16

Source: Same as Table 1

Table 11: Regional variation in Average size of total holding (hect) : 1961-82

States	1961-62	1971-72	1982
Andhra Pradesh	1.8378	1.5879	1.4650
Assam	1.2531	1.1773	.9792
Bihar	1.2311	.9313	.8254
Gujarat	3.4402	2.6901	2.1974
Jammu & Kashmir	1.2720	1.0923	.9947
Karnataka	3.2187	2.3439	2.0668
Kerala	.7374	.5041	.4915
Madhya Pradesh	3.4776	3.0636	2.4773
Maharashtra		3.0339	2.5049
Orissa	1.4145	1.0656	1.0891
Punjab	2.2359	1.5423	1.4974
Haryana	—	1.8967	1.8379
Himachal Pradesh	—	1.3593	1.3458
Rajasthan	5.4339	4.5211	3.6943
Tamil Nadu	.9464	.8889	.6953
Uttar Pradesh	1.43074	1.1352	1.0811
West Bengal	1.0716	.7745	.6670
India (acres)	4.39	3.77	3.11

Source : Same as Table 2

Table 12 : Inter-state Variation in average size of total holding : 1961-62

Range	States 1961-62	Number	States 1971-72	Number	States 1982	Number
High	Gujarat, Karnataka, Madhya Pradesh, Rajasthan	4	Madhya Pradesh, Maharashtra Rajasthan	3	Rajasthan,	1
Medium	Andhra Pradesh, Assam Bihar, Jammu & Kashmir, Orissa, Punjab, Uttar Pradesh, West Bengal,	8	Andhra Pradesh, Assam Gujarat, Jammu & Kashmir, Karnataka, Orissa, Punjab, Uttar Pradesh Haryana, Himachal Pradesh,	10	Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Punjab Orissa, Maharashtra, Uttar Pradesh, Haryana Himachal Pradesh	10
Low	Kerala, Tamil Nadu	2	Bihar, Kerala, Tamil Nadu West Bengal	4	Assam, Bihar, Jammu & Kashmir, Kerala, Tamil Nadu West Bengal	6
Total		14		17		17

Source : Same as Table 2

of land. We will discuss in this section the variation and changes in the average size of total holdings as well the average size of small medium and large holdings.

Table 11 displays average size of ownership holdings for various states during 1961, 1971 and 1982. For the purpose of analyzing the states, land has been classified on the basis of level of average size holdings (see table 12). States with an average size exceeding three hectares have been placed in higher category, those with average size between 1 and 3 hectares have been placed in medium category, and states with average size less than 1 hectare have been placed in lowest category.

In 1961 the average size varied between 0.737 in Kerala to 5.433 in Rajasthan. One third of the States showed the average size which was greater than 3 hectares. At the other end in Kerala and Tamil Nadu the average size was less than 1 hectare. The remaining states were in the range of 1-3 hectares. Due to general decline in average size there was some shift in the position of the States, generally towards the medium and low size category. Madhya Pradesh and Rajasthan continue to have higher size of holding. At the lowest end Bihar and West Bengal figure along with Kerala and Tamil Nadu. The rest of the States remain in the medium range. In 1982 there was a further downward trend in some of the states. While a number of states in the medium category remained the same, the number in the low size

category increased from four to six. Thus the general downward shift in average size is highlighted in the downward movement of states from high to medium and further down to low size category.

3.8 INTER-STATE VARIATION IN AVERAGE SIZE OF HOLDING ACCORDING TO SIZE CLASSES

Small holding:

Table 13 provides information on the average size of holding in the small holding size class for the three rounds studied.

In 1961, the average size of holding varied between 1.41 and 1.23 hectares. More than half the states have an average size of ranging between 1.3 and 1.39 hectares. Rajasthan and Kerala had the highest and lowest average size respectively.

In 1971, the range for average size of holding varied between 1.36 and 1.23 hectares. Madhya Pradesh and West Bengal had the highest and lowest average size respectively. About 59% of the states had an average size in the range of 1.3 to 1.39 hectares.

In 1982 the range for average size was between 1.38 and 1.23 hectares. Rajasthan and Jammu & Kashmir had the largest and lowest average size respectively. About 65% of

Table 13 : Regional Variation in average size of holding by size classes : Small holdings 1961-82

States	1961-62	1971-72	1982
Andra Pradesh	1.2515	1.2837	1.2405
Assam	1.3354	1.3279	1.2891
Bihar	1.3574	1.2637	1.2423
Gujarat	1.3635	1.3520	1.2769
Jammu & Kashmir	1.2756	1.3096	1.2346
Karnataka	1.3760	1.3271	1.2739
Kerala	1.2353	1.2717	1.2487
Madhya Pradesh	1.3712	1.3654	1.3050
Maharashtra	N.A	1.3405	1.3050
Orissa	1.2759	1.2800	1.2669
Punjab	1.3557	1.3035	1.3833
Haryana	—	1.2564	1.336
Himacal Pradesh	—	1.3241	1.2380
Rajasthan	1.4188	1.3649	1.3843
Tamil Nadu	1.2455	1.2596	1.2396
Uttar Pradesh	1.3199	1.3057	1.3005
West Bengal	1.3029	1.2355	1.2566

Source : Same as Table 2

N.A = Not Available

the states had an average size between the range of 1.23 and 1.29 hectares.

Medium holdings:

Table 14 provides information on the average size of medium size holding for three years.

In 1961 the range for average size of holdings lay between 10.5 and 5.6 hectares. Bihar and Assam had the highest and lowest average size respectively. About 43% of the states had an average size around 6 to 6.99 hectares.

In 1971 the range for the average size was between 6.3 and 4.53 hectares. Rajasthan and Karnataka had the highest and lowest average size respectively. 65% (approx.) of the states had an average size of around 5 to 6 hectares.

In 1982 the range for average size lay between 6.29 and 4.39 hectares. Gujarat and Maharashtra had the highest and lowest average size respectively. About 71% of the states had an average size between 5 to 6 hectares.

Large holdings: Table 15 provides information on average size of large holdings between 1961 and 1982.

In 1961 the range of average size varied between 28.6 in Kerala to 9.09 hectares in Jammu and Kashmir. About 71 per cent of the states had an average size above 15 hectares.

Table 14: Regonal variation in average size of holding by size classes : Medium holding 1961-82

States	1961-62	1971-72	1982
Andra Pradesh	6.220	5.8851	5.7536
Assam	5.6242	5.6400	5.5579
Bihar	10.5805	5.7522	5.6664
Gujarat	6.2547	4.5812	6.2972
Jammu & Kashmir	5.8701	5.3830	5.7005
Karnataka	6.2023	4.5348	6.0399
Kerala	5.8979	5.5504	5.2252
Madhya Pradesh	6.3957	6.0879	5.3108
Maharashtra	N.A	6.0392	4.3967
Orissa	5.7289	5.6406	5.7234
Punjab	6.3149	5.9159	5.9530
Haryana	—	6.0331	6.2080
Himacal Pradesh	—	5.7795	5.6815
Rajasthan	6.3216	6.3797	6.0966
Tamil Nadu	5.6776	5.6484	5.4519
Uttar Pradesh	5.7693	5.7557	5.6558
West Bengal	5.8535	5.3094	5.7483

Source : Same as Table 2

N.A = Not Available

Table 15 Regional varuation in average size of holding by size Classes : Large holding 1961-82

States	1961-62	1971-72	1982
Andra Pradesh	19.2824	16.7245	16.5593
Assam	14.3017	13.1663	15.15
Bihar	16.4502	16.0612	14.4505
Gujarat	16.3239	16.9663	13.8783
Jammu & Kashmir	9.0975	—	12
Karnataka	16.8013	16.3711	15.7099
Kerala	28.6231	15.7177	13.0625
Madhya Pradesh	17.5841	16.1536	15.0529
Maharashtra	NA	16.0558	15.4688
Orissa	17.2511	13.6892	15.8079
Punjab	15.9557	15.5041	17.6073
Haryana	—	14.8658	13.7721
Himachal Pradesh	—	16.0831	14.5
Rajasthan	20.2044	19.7205	19.0070
Tamil Nadu	15.7647	15.6362	16.5309
Uttar Pradesh	14.8993	13.4229	10.6528
West Bengal	13.1968	9.7827	11.0847

Source : Some as Table 2

N.A = Not Available

In 1971 the range of average size was between 19.7 and 9.7 hectares. Rajasthan and West Bengal recorded the highest and lowest average size respectively. About 65% of the states had an average size above 15 hectares.

In 1982, the range of average size was between 19 and 11.08 hectares. Rajasthan and West Bengal recorded the highest and lowest average size respectively.

3.9 CHANGE IN AVERAGE SIZE OF HOLDINGS BY SIZE CLASSES:

Table 16 is derived from tables 13, 14 and 15. It has been prepared to facilitate the analysis of changes in average size of holdings over the three rounds under study. To begin with small holdings, we found that between 1961 and 1971 about 29% of the states recorded an increase in average size. Andhra Pradesh, Orissa, Kerala and Tamil Nadu are the states which recorded an increase in average size. This was a very interesting feature of the sixties in India.

Between 1971 and 1982, we find that Punjab, Haryana, Rajasthan and West Bengal recorded an increase in average size among small size holdings.

When we take overall period between 1961 and 1982, we find that only Kerala and Punjab recorded an increase in average size. The rest of the states witnessed a decline in the average size of holding of the small size holding over the period of study.

Table 16 : Changes in average size of holdings by size classes 61-71, 71-82, 61-82 : Major states

States	Small holdings			Medium holdings			Lages holdings		
	61	71	82	61	72	82	61	71	82
Andhra Pradesh	1.2515	1.2837	1.2405	6.2220	5.8851	5.7536	19.2824	16.7245	16.5993
Assam	1.3354	1.3279	1.2891	5.6242	5.6400	5.5579	14.3017	13.1663	15.15
Bihar	1.3574	1.2637	1.2423	10.5805	5.7522	5.6664	16.4502	16.0612	14.4505
Gujarat	1.3635	1.3520	1.2769	6.2547	4.5812	6.2972	16.3239	14.9613	13.8783
J & K	1.2766	1.3096	1.2346	5.8701	5.3830	5.7005	9.0975	—	12
Karnataka	1.3760	1.3271	1.2739	6.2023	4.5348	6.0399	16.8013	16.3711	15.7099
Kerala	1.2353	1.2717	1.2487	5.8979	5.5504	5.2252	28.6231	15.7177	13.0625
Madhya Pradesh	1.3712	1.3654	1.3050	6.3957	6.0879	5.3108	17.5841	16.1536	15.0529
Maharashtra	N.A	1.3405	1.3050	N.A	6.0392	4.3961	N.A	16.0558	15.4688
Orissa	1.2759	1.2800	1.2669	5.7289	5.6406	5.7234	17.2511	13.6892	15.8079
Punjab	1.3557	1.3035	1.3833	6.3149	59159	5.9530	15.9557	15.5041	17.6073
Haryana	—	1.2564	1.336	—	6.0331	6.2080	—	14.8658	13.772
Himachal Pradesh	—	1.3241	1.2380	—	5.7795	5.6815	—	16.0831	14.5
Rajasthan	1.4188	1.3649	1.3843	6.3216	6.3797	6.0966	20.2044	19.7205	19.0070
Tamil Nadu	1.2455	1.2596	1.2396	5.6776	5.6484	5.4519	15.7647	15.6362	16.5309
Uttar Pradesh	1.3199	1.3057	1.3005	5.7693	5.7557	5.6558	14.8993	18.4229	10.6528
West Bengal	1.3029	1.2355	1.2566	5.8535	5.3094	5.7485	13.1968	9.7827	11.0847

Source : Same as Table 2

N.A = Not Available

In the case of Medium size holding, between 1961 and 1971, we find Rajasthan and Assam are the only states which recorded an increase in average size. The rest of the states witnessed a decline in average size. In the second period between 1971 and 1982, Gujarat, Karnataka, Jammu and Kashmir, Punjab, Haryana, Orissa and West Bengal recorded an increase in average size. So compared to the sixties, the increase in average size of medium holding was quite wide spread. Taking the overall period between 1961 and 1982, we find that Gujarat was the only state which recorded an increase in average size of medium size holding. The rest of the states recorded a decline in avarage size.

Finally, coming to large holding we find that between 1961 and 1971, the average size in all states has declined. The trend was however, reversed in at least in some states during 1971 and 1982. In the period the average size has increased in Assam, Jammu and Kashmir, Punjab, Bihar, Tamil Nadu and West Bengal.

The states of Assam, Jammu and Kashmir and Tamil Nadu witnessed an increase in the average size of large holding during the overall period of 1961 and 1982. The discussion on average size of ownership holding leads to a few interesting results. The combined average size for all holdings has declined over the period under study.

The state level variation in average size for each time period showed a general decline in the average size of

ownership holding during each round. The change in average size according to size classes indicated that the percentage of states showing an increase in average size between 1961 and 1982 was greater in the case of large and medium holdings when compared to small holdings. The proportion of states which displayed an increase in average size between 1971 and 1982 was larger than the proportion which displayed an increase in average size between 1961 and 1982 in case of all size classes.

CHAPTER - IV

EMERGING PATTERN OF LAND OWNERSHIP: AN EXPLANATION

4.1 Introduction

The discussion in the preceding chapters brought out the inter-state variation and changes in patterns of land ownership between 1961 and 1982. In this chapter we attempt to provide the possible explanations for variations in the aspects of landholding pattern during the period of study. The aspects of land ownership pattern selected are (a) Landlessness (b) Size composition of ownership holdings and (c) Average size, overall and of small and large size holdings.

Emerging out of our theoretical discussion and based on the availability of data we have taken three sets of factors to explain the variation. These are related to (i) Populaion pressure (ii) Technological charge (indicating commercialisation of agriculture) and (iii) industrialisation and urbanisation.

So far as the dependent variables are concerned we have selected the following indicators concerning landownership pattern:

1. Percentage of landless households in 1961, 1971 and 1982.
2. Percentage of small holdings in 1961, 1971 and 1982.
3. Percentage of medium sized holdings in 1961, 1971 and

1982.

4. The average size of ownership holdings in 1961, 1971 and 1982.

Further, we have used three explanatory variables to indicate the effect of each of these factors. To capture the effect of population, the following variables are selected:

1. Population pressure

1a. Agricultral density in 1961, 1971 and 1982.

1b. Per capita land owned in 1961, 1971 and 1982.

1c. Household size in 1971 and 1982.

2. Technological changge

2a. Tractors per hectare of net sown area in 1961, 1971 and 1982.

2b. Fertilizers per hectare of gross cropped area in 1961, 1971 and 1982.

2c. Percentage of net irrigated area to net area sown-1961, 1971 & 198

3. Industrialisation and urbanisation

3a. Percentage of workers employed in non agricultural sector to total workers.

3b. Percentage of rural non agricultural workers to rural agricultural workers.

3c. Percentage of urban population to total population.

In order to work out the association between selected explanatory variables of population pressure, technological

change and industrialisation and urbanisation on landlessness, average size of holding and size distribution of ownership holding we have used multiple regression.

The analysis pertains to cross-section data and seeks to determine the variation in the selected indicators caused due to corresponding variation in the explanatory variables. The multiple regression has been worked out for all the years under study namely 1961, 1971 and 1982 separately for the proportion of landless households, size distribution of ownership holdings and average size.

4.2 Correlates of Landlessness: An inter-state analysis on the incidence of landlessness revealed significant disparities. During 1961, in two-third of the states the proportion of landless households exceeded 10%. In Assam and Kerala it was more than 25% while in Uttar Pradesh it was the lowest. In 1971 the proportion of landless households was more than 10% or less than half the states. In 1982 also about half the states still had more than 10% of households in the landless category.

In order to capture the impact of three forces, namely, population pressure, commercialisation of agriculture and industrialisation and urbanisation, we work out three sets of multiple regression separately for 1961, 1971 and 1982.

In 1961, we have worked out the regression taking proportion of landless households as an independent variable and three variables each for population pressure,

technological change and industrialisation and urbanisation. The regression coefficients for variables of technological change and population pressure turned out to be insignificant during the period under study. The explanatory variables related to industrialisation however turned out to be significant only in the first period viz. 1961. This equation with 't' values (in brackets) and level of significance is given below.

$$Y = 11.5093 + \underset{(2.8190)^{**}}{52.2630 X 1} - \underset{(-2.8184)^{**}}{69.6321 X 2} + \underset{(.3223)}{7.6863 X 3}$$

$\bar{R}^2 = .45$
$F = 4.8303^{**}$

** = significant at 5% level.

This equation gives the result of proportion of landless households regressed on the variable of industrialisation and urbanisation. Of the three variables entered only two were significant. The variable of percentage total workers employed in non-agricultural sector to total workers indicates a positive relationship with proportion of landless in 1961. The second variable, namely, the percetage of rural non agricultural workers to rural agricultural workers also turned out to be significant, but it held an inverse relation with the dependent variable. The third variable of per cent of urban population to total population has an insignificant 't' value. The adjusted R^2 shows that 45% of the variations in the dependent variable is explained by the explanatory

variables. The overall fit was significant at 5% level.

We have got an expected sign (i.e. negative) between the proportion of landless households and percentage of rural workers employed in non-farm activities. This means that with the increase in the proportion of rural workers engaged in non-agricultural activities, the proportion of landless households is reduced. This lends support to the argument of A. Vaidyanathan that higher level of rural non-farm activities would minimise the compulsion of the marginal farmers to go for a distress sale. This probably happens due to support that comes from the supplementary income in the rural non-farm employment. The positive sign for the variable, percentage of workers in non agricultural sector is surprising and unexpected.

As mentioned before the overall fit was insignificant for other equations. This was because of the weak coefficients of correlation between the dependent and explanatory variables of population pressure and technological change in 1961. The weak correlation of technological variables during 1961 was expected because there was no major technological breakthrough in the use of technical inputs such as HYV and fertilizers in 1961. The insignificant relationship results on technological variables for later period was unexpected. The explanatory variables related to population pressure did not explain the variations in the proportion of landless households across the states in any of the years of study.

At the empiral level there are limited number of studies which have tried to explain the changes in the landlessness. H.R. Sharma's study (1992) provides the following explanations for an increase in landlessness between 1971 and 1982. "First an increase in population without corresponding employment opportunities outside agriculture causes subdivision of holdings putting some subdivisions below 0.01 acres (minimum land required for a holding to put under the category of land owning households). Second, some small and marginal farmers might have lost their land to private money lenders. Third, it is possible that some who secured land owned during 1960's, as a consequence of tenancy land ceiling legislations, might have lost their lands to erstwhile land owners with the connivance of revenue officials". On the other hand writing about the effect of growing rural non-farm employment, A. Vaidyanathan (1991)[1] feels that non agricultural employment has been "growing rapidly enough to absort the bulk of the increment in rural labour supply". The growing absorbtion of workers in rural non farm sector activities might prevent subdivision beyond a point considered viable by farmers. To that extent, the increase in landlessness between 1971 and 1982 might have been checked to some extent by supplementary source of income.

Those who argued in terms of population pressure theory will make us believe that along with other factors,

population pressure would lead to increase in landlessness. They argued as population pressure increases, the holdings get partitioned. The constant subdivision of holdings reduces their viability. The reduced viability makes it more difficult for smallest holders to withstand crises. The smallest holders will be compelled to sell land.

Those believing in the differentiation perspective on the other hand argue that an aggravation in landlessness will occur due to commercialisation of agriculture caused due to technological change. We therefore expect that as technological change takes place, the resulting commercialisation of agriculture would push up proportion landless.

The process of industrialisation and urbansation will draw redundant labour from the countryside to the towns. Therefore, the withdrawal of redundant labour, we expect, would mitigate the problem of landlessness.

4.3 Correlates of size composition of ownership holdings :

Small holdings : One of the important features of emerging size composition of ownership holdings is the predominance of smaller sized holdings. The increase in the marginal and small sized holdings has been equally visible in all states. The inter-state variation in small and medium size holdings along with the decline in large sized holdings needs to be explained. In order to explain the variation we have used three sets of variables. They are population pressure,

technological change and industrialisation and urbanisation. We expect the predominance of smaller size holdings to be the outcome of the complex interaction of these and other factors. In a situation of limited opportunities in the non farm sector, the population pressure, through subdivision of land led to the increase in the number of smaller size holdings. In the case of technological change, the mechanical content, particularly tractorisation may induce the opposite trend. Since tractorisation requires more acreage for it's optimal use, it will encourage the decline in the number of smaller holdings. Irrigation on the other hand may enhance the viability of smaller sized holdings and prevent distress sale. However, the final outcome may depend on the strength of the other forces (viz. small farms economic situation viz. large size holdings) which may bring some economic compulsion on small holdings.

In the case of explanatory variable of industrilisation and urbanisation we expect a mixed influence on the size compostion of ownership holdings. The higher proportion of rural non agricultural work force may discourage relentless partitioning of holdings due to supplementary source of income. The proportion of overall non farm agricultural employment and proportion of urban population may encourage the size to go up due to migration and subsequent sale of land in the long run.

The summary results of the multiple regressions are given below for the years 1961, 1971 and 1982.

Regression results of small sized holdings

1961

1. $Y = 65.2032 - 18.8578 X_1 + 15.8722 X_2$

$(-.8806) \quad (1.7563)$ ****

$\bar{R}^2 = .37$

$F = 3.6504$ ***

2. $Y = 65.6139 - 9.0304 X_1 - .8261 X_2 + 65.1256 X_3$

(-1.9161)*** (-1.1222) (2.9609)**

$\bar{R}^2 = .44$

$F = 2.9491$ ***

1971

3. $Y = 69.6626 - 38.9817 X_1 + 13.3417 X_2 + 1.3500 X_3$

(-1.9137)*** (1.5137)**** $(.2912)$

$\bar{R}^2 = .61$

$F = 6.8883$*

1982

4. $Y = 60.5733 - 77.5305 X_1 - .3797 X_2 + 6.3735 X_3$

(-3.5781)* $(-.0724)$ (1.8115)***

$\bar{R}^2 = .62$
$F = 7.1266$ **

* = Significant at 1% level

** = Significant at 5% level

*** = Significant at 10% level

**** = Significant at 20% level

Equations 1 and 2 show the results of multiple regressions with the porportion of small holdings being regressed on the variables of population pressure and technological change respectively during 1961.

From equation 1 we understand that among the variables only agricultural density out to be significant. It was an important result which indicated that with the rise in agricultural density the proportion of smaller holdings also increased. The regression coefficient is significant at 20% level. The adjusted R^2 reveals that the equation explains 37% of the variation in the dependent variable. The overall fit is significant at 10% level.

Equation 2 contains the results of the variables of technological change. Out of the three variables (namely tractor, fertilizer and irrigation) tractor and irrigation shows a significant relationship with the dependent variable. The availability of tractor per hectare has negative relation with proportion of size of holding. The regression coefficient was significant at 10% level. Opposite was, however true in the case of irrigation. Irrigation revealed a positive relation with proportion of small sized holdings. The regression co-efficient was significant at 5% level. Both the variables explain 44% of the variation in the dependent variable. The results of technological variables lend support to our hypothesis. In general, the use of tractors tends to decrease the number of

holdings, while irrigation due to an increase in productivity brings an increase in the number of small sized holdings.

Equation 3 shows the regression equation for population pressure variables. It indicates that both agricultural density and household size hold positive relation with proportion of smaller sized holdings. The regression co-efficient of agricultural density is significant at 10% level. The regression coefficient of household size was not significant though the sign of the regression coefficient matched our expectation. The negative regression coefficient of per capita land owned was significant at 10% level and it matched our expectations. An increase in per capita land owned should reduce the proportion of small holdings. The adjusted R^2 reveals that 62% of the variation in the dependent variable is explained by three independent variables. The overall fit was significant at 1% level.

The equation 4 for the year 1982 once again brings out the positive impact of the household size. Increase in the household size induces subdivision of ownership holdings and leads to increase in the porportion of small holdings. The regression coefficient was significant at 10% level. The regression coefficient of per capita land owned was significant at 1% level. The sign of the regression coefficient confirmed our expectation. The adjusted R^2 reveals that 62% of the variation in the dependent variable

is explained by three independent variables. The overall fit was significant at 1% level.

To sum up, the multiple regression analysis for proportion of small size holdings as dependent variable and selected explanatory variables of population pressure, technological change and industrialisation and urbanisation confirmed our hypothesis in some respects but not others. The variable related to population pressure namely agricultural density and household size shows significant positive impact on proportion of small holdings during 1961, 1971 and 1982. Thus among the three factors, population pressure turns out to be the most significant factor in corss sectional analysis. The variable examining the impact of technological change in agriculture was found to be important only during 1961. While the availability of tractors tends to reduce the porportion of small holdings, the presence of irrigation facilities induces the increase in the porportion of small size holdings. However, during 1971 and 1982 technological variables were insignificant in explaining inter state variation in the porportion of small size holdings. Similarly, the impact of industrialisation and urbanisation was insignificant during all the years under study.

Medium Sized Holdings :

In this section we try to identify the possible factors

which could explain the variation in porportion of medium holdings across states in 1961, 1971 and 1982.

We have used the same set of explanatory variables indicating population pressure technology change and level of industrilisation and urbanisation.

Regression results for medium size holdings

1961

1. $Y = 9.3278 + 30.2084\ X\ 1 - 9.1602\ X\ 2$

$(6.8676)^{*} \quad (-4.9348)^{*}$

$\bar{R}^2 = 0.90$

$F = 71.1967^{*}$

2. $Y = 16.0426 + 6.1839\ X\ 1 - 0.1426\ X\ 2 - 37.2502\ X\ 3$

$(2.6200)^{**} \quad (-0.3868) \quad (-3.3817)^{*}$

$\bar{R}^2 = 0.47$

$F = 5.2358^{**}$

3. $Y = 11.1071 + 68.14529\ X\ 1 + 40.9073\ X\ 2 - 76.46058\ X\ 3$

$(3.056)^{*} \quad (1.7508)^{****} \quad (-2.8494)^{**}$

$\bar{R}^2 = 0.37$

$Y = 3.8579^{**}$

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4. $Y = -0.7548 + 39.3609\ X\ 1 - 5.6316\ X\ 2 + 0.9104\ X\ 3$

$(8.3573)^{*} \quad (-2.7694)^{*} \quad (.8512)$

$\bar{R}^2$ = 0.93

F = 76.8303*

1982

5. Y = 11.8775 + 0.8147 X 1 - 0.1650 X 2 - 5.0619 X 3

(2.9993)* (-2.6275)** (-0.8002)

$\bar{R}^2$ = 0.28

F = 3.1388***

* = Significant at 1% level

** = Significant at 5% level

*** = Significant at 10% level

**** = Significant at 20% level

Equations 1, 2 and 3 show the results of multiple regression respectively for variables of population pressure technological change in agriculture and industrialisation and urbanisation for 1961.

Equation 1 shows the results of the multiple regression for variable of population pressure. The regression coefficient of agricultural density reveals a negative relation with proportion of medium sized holdings indicating that the proportion of medium sized holdings tends to decrease with increase in the level of agricultural density. The regression co-efficient is significant at 1% level. The other variable, namely, percapita land owned revealed a positive relation with proportion of medium sized holdings.

This regression co-efficient was also significant at 1% level. The adjusted R^2 reveals that 90% of the variation in the dependent variable is explained by these explanatory variables. The overall fit is significant at 1% level.

Equation 2 relating to the variable of technology reveals that the regression co-efficient of tractors is positive and significant at 5% level, indicating that higher level of tractorisation would encourage increase in the proportion of medium sized holdings in order to achieve its optimum use. It may be noted that availability of tractors has revealed a negative relation with smaller size of holdings. This supports our result on medium sized holdings as well. The impact of irrigation level on medium sized holdings runs in the opposite direction . The regression co-efficient of irrigation variable was significant but with a negative sign.

In Equation 3, we present the result of the variable associated with industrialisation and urbanisation. We discovered that variables of the percentage of urban population as well as percentage of urban population as well as percentage of rural non agricultural workers have significantly positive relation with proportion of medium sized holdings. The co-efficient of both are significant. The higher level of rural non-farm activities as well as higher level of urban population tends to encourage higher level of medium sized holdings. However, the regression co-efficient for the variable of ratio of total workers

employed in non-agricultural sector to total workers indicates a negative relation with the proportion of holdings belonging to medium sized category. The negative sign for this variable came as a surprise especially when the variable for the percentage of urban population shows a positive sign. This could be due to the problem of multi collinearity. The adjusted R^2 reveals that 37% of the variation in the dependent variable is explained by the independent variables.

Coming to the year 1971 we find that variables associated with population pressure continue to influence the level of medium sized holdings across states.

Equation 4 shows that percapita land owned holds a significantly positive relation with the level of medium sized holdings. The rise in per capita land owned encourages the level of medium sized holdings to go up. The regression co-efficient of agricultural density indicates a negative sign.

This regression co-efficient is significant at 1% level. The adjusted R^2 reveals that 47% of the variation in the dependent variables is explained by the independent variables. The overall fit as significant at 5% level.

The regression co-efficient of agricultural density indicates a negative sign and was significant at 1% level. It may be noted that none of the variables relating to

industrialisation and urbanisation were significant.

Lastly, coming to the year 1982 we discovered that only two variables of agricultural technology were significant. They were tractors and fertilizers. The regression coefficient for tractor was positive and significant at 1% level. Similar result was obtained for 1961 as well. Thus, higher availability of tractor per hectare encourages the higher level of medium size holdings. In the case of fertilizer use per hectage, the relation turned out to be negative. The higher level of fertilizer tends to stabilise the tendency to acquire additional land. The adjusted R^2 shows that 28% of the variation in the dependent variable is explained by the independent variables. The overall fit was significant at 10% level.

To summarise, the results of the correlates of medium sized holding, we found that higher level of percapita land owned generally leads to higher proportion of medium sized holding. But the agricultural density has an opposite effect on medium sized holding. This was the case of these two variables both during 1961 and 1971. In the case of variables of agricultural technology, the important result we observed in 1961 and 1982 was the significant positive association to the impact of the tractor per hectare with the level of medium sized holding but negative with the level of irrigation and fertilizer. The higher availability of tractor in the states tend to encourage the proportion of holdings of medium size, so that the service of tractor

could be optimally used. On the other hand fertilizer and irrigation combine, tend to stabilised the size of holdings to the medium size due to higher productivity. Nevertheless, tentative conclusions are drawn from the cross section data and they would require more effective evidence from primary and disaggregate data.

Lastly the higher level of rural non-farm employment and higher level of urbanisation encourages the proportion of medium size holds to go up. This was an expected trend.

Average size of holding: The average size of ownership holding is affected by several factors. The population pressure, technology and sectorial distribution of work force are among the prominent ones. Given the limitation of data, we have used selected explanatory variables reflecting the impact of these factors.

The earlier discussion revealed that average size of land holding has relentlessly declined over time and also shown significant variation across the states during period of study. We expect population pressure to be an important determinant of average size. An increase in population pressure on relatively stagnant land base must reduce the average size of holding.

The explanatory variable of agricultural technology which has been used in the regression may strengthen the effect of population pressure or it may hold it back depending on the nature of the impact. We have reason to

believe that since the induction of tractors requires a relatively larger size of land for its optimum use it may halt the process of a decline in average size or ownership holding and at times bring an increase in it. Use of fertilizers and irrigation may make the small holding viable due to higher productivity and hence halt the process of subdivision in some cases. In other words it may encourage average size to expand.

The process of industrialisation and urbanisation, at least in the long run may promote increase in average size of ownership holding.

The result of the multiple regression for 1961, 1976 and 1982 are as follows :

Regression Results of Average size holdings

1961

1. $Y = 0.9337 + 6.6121 X 1 - 0.8037 X 2$

$(8.9365)^{*} \quad (-1.9669)^{***}$

$\bar{R}^2 = 0.93$

$F = 98.5011^{*}$

2. $Y = 2.9207 + 2.6564 X 1 - 0.0584 X 2 - 5.1523 X 3$

$(2.5868)^{***} \quad (-0.7933) \quad (-2.5938)^{**}$

$\bar{R}^2 = 0.55$

$F = 6.7280^{*}$

3. $Y = 3.6854 + 8.9254 X 1 - 3.1869 X 2 + 9.9199 X 3$

(-2.5567)** (-0.6850) (2.2089)**

$\bar{R}^2$ = 0.32

F = 3.2100***

1971

4. Y = 1.3011 + 8.0653 X 1 - 0.1511 X 2 + 0.2623 X 3

(14.2240)* (-0.6160) (2.0327)***

$\bar{R}^2$ = 0.96

F = 148.0532*

5. Y = 3.3434 + 0.4187 X 1 - 0.0153 X 2 - 7.3278 X 3

(3.0495)* (-1.0634) (-3.2221)*

$\bar{R}^2$ = 0.43

F = 5.0904**

1982

6. Y = 0.2279 - 0.0322 X 1 + 8.7295 X 2 + 0.0349 X 3

(-0.2108) (13.4375)* (0.3557)

$\bar{R}^2$ = 0.95

F = 112.3017*

Equations 1, 2 and 3 show the result for the year 1961. As expected the population pressure measured by agricultural density indicated negative impact of the average size of holding, with higher agricultural density the average size declined significantly. The regression coefficient of this variable was sginificant at 10% level. The regression

coefficient of percapita land owned indicated a positive relation. This regression coefficient is significant at 1% level. The adjusted R^2 value reveals that 93% of the variations in the dependent variable is explained by the explantory variables. The overall fit is significant at 1% level.

The second equation on agricultural technology indicates that the availability of tractors has a positive and significant relation with the average size of holding. Tractorisation thus encourages the size of ownership holding in an upward direction. The opposite was however true in the use of irrigation level. The states with higher irrigation level tend to have lower average size. The regression co-efficient of both were significant. The adjusted R^2 value shows that 55% of the variation in the dependent variable is explained by the independent variables. The overall fit was significant at 1% level.

The third equation which relates to the industrialisation and urbanisation reveals that the variable of ratio of total non agricultural workers to total workers indicate a negative relation with average holding size. The opposite was true in the variable relating to the ratio of urban population to total population. Both were significant at 5% levels. The adjusted R^2 value reveals that 32% of the variations in the dependent variable is explained by the explanatory variables. The overall fit is significant at 10% level.

In 1971 the result of the multiple regression with regard to population and technology variables were nearly the same as observed in 1961. Equations 4 and 5 show the results for population pressure and technological change in 1971. The equation 4 indicates a positive impact of population pressure through significant regression coefficient of household size. With the rise in household size, the average size of ownership holding tends to decline. The regression coefficient was significant at 5% level. The adjusted R^2 value shows that 96% of the variation in the dependent variable explained by the explanatory variable. The overall fit is significant at 1% level.

Fifth equation indicates the repeat performance of tractor and irrigation in 1971 as well. The higher level of tractor per hectare induces the average size to go up. But as the regression coefficient of irrigation bears a negative sign, a higher level of irrigation will halt that process. The coefficients of both the variables are significant at 1% level. The adjusted R^2 shows 43% of the variation in dependent variable is explained by the explanatory variables. The overall fit was significant at 5% level.

The sixth and final equation shows the result of regression analysis for the year 1982. In 1982, with the exception of population variable, of agricultural density the rest of the variables turned out to be insignificant.

Even this variable bears an unexpected sign presumably due to inter correlation between the independent variables.

All the regression results with regard to the average size of ownership holding do not necessarily match with our expectations in its totality. However, some of the results are quite interesting and reflect the dyanmics of average size of ownership holdings. One of the important results is that population pressure through increase in agricultural density reduces average size of ownership holding is statistically found to be true at least in 1961. The second important result was the positive impact of tractorisation on average size of holding. The opposite was however true for irrigation level. This shows the influence of low ceiling limit on irrigated land and also productivity level. The rest of the variables showed insignificant influence on average size.

Reference

1. Vaidyanathan A., 'Agriculture & Economy: Causes & Consequences of slow growth,' in 'Economy, Society and Development,' edt., C.T. Kurien, E.R. Prabhakar, S. Gopal, 1991.

CHAPTER - V

SUMMARY AND CONCLUSION

5.1 The objective of the study was to examine the regional variation in selected aspects of land ownership pattern in India and to provide the possible explanation in terms of the relevant socio-economic factors pertaining to population pressure, technology and industrialization and urbanization. The main focus was to bring out regional variation in the incidence of landlessness, size composition of ownership holding, distribution of land among the various size groups, and finally in the ownership holding. The study covered three rounds of the National Sample Survey, namely 1960-61 17th round, 1970-71 (26th round) and 1982 (37th round).

The relevant statistical techniques were used to estimate the inequality in the ownership of land as well as to estimate the impact of variables on the selected aspects of land ownership pattern. The Gini Ratios were worked out to estimate the overall inequality in land ownership. In order to bring out the disparities in the land ownership at the size-class level the inter-class concentration ratios were worked out.

In order to explain the variations in the relevant aspects of land ownership and to identify the possible causes we have used the multiple regression analysis. Flowing from the discussion or the theoretical aspects of agrarian changes relevant explanatory variable reflecting population pressure, agricultural technology and industrialisation and urbanisation where selected.

5.2 Theoretical Perspective

In the discussion on the dynamic of agrarian change three altenative theoretical explanation have been provided to explain the changes in agrarian structure in one or the other direction.

1. Differentiation perspective
2. Population Pressure
3. Persistance Perspective

The differentiation perspective seeks to explain the consequences of commercialisation in agriculture. According to the perspective the increasing commercialisation in agriculture is believed to lead to concentration of essential resources, particularly land and finally division of the countryside into two distinct classes. The population pressure theory explains the possible outcome of a increasing population pressure on a limited land base. In a situation of limited land base,

the marginalisation of holdings and growing incidence of landlessness is predicted in a certain manner. The persistance perspective was the outcome of the failure of the agrarian structure to change wholly on the lines predicted by differentiation perspective. The agrarian structure in developed countries did not move in the direction expected by the proponents of the differentiation perspective. The persistance of family farm is attributed to efficiency of small forces like attachment to land arising out of limited alternative opportunities and consequent "self exploitation", and reform policy and state support, etc. We have examined these theoretical positions at a greater length in the Chapter - I.

5.3 Regional Pattern of Landlessness

At the state level in about three fifths of the states the percentages of landless households exceeded 10 per cent. Some states like Assam and Kerala had an incidence of landlessness that exceeded 25 per cent. In the remaining states the proportion ranges between 5 to 10 per cent. Uttar Pradesh was the only state with an incidence of landlessness below 5 per cent.

The next round, that is 1971 displayed a general decrease in percentage of landless households. At all India level it reduced to about 9 per cent. The ratio however varies significantly between the states. With little more

than 25 per cent Assam had the highest incidence of landlessness in the country. In 1971 in a little less than half the states the proportion of landless households was above 10 per cent. Bihar, Rajasthan, Jammu and Kashmir, West Bengal and Tamil Nadu recorded a decline in the incidence of landlessness in a noticeable manner.

In 1982 there was reversal of the trend observed during earlier decade. The number of states with an incidence of landlessness above 10 per cent was about half. A noticeable change however took place in the number of states with landlessness between 5 and 10 per cent. Rajasthan and Jammu and Kashmir witnessed an increase in incidence of landlessness. Assam and Haryana displayed a decrease in the incidence of landlessness.

So far as the change is concerned, we found that the decade between 1961 and 1971 saw a decline in the incidence of landlessness in most of the states. Andhra Pradesh, Madhya Pradesh, Orissa and Uttar Pradesh were the only exceptions. The next decade which showed a marginal increase however witnessed an increase in the proportion of landless households in half of the states. Taking the whole period between 1961 and 1982 we witnessed a decline in the incidence of landlessness in varying proportion in three fifths of the states. Andhra Pradesh, Madhya Pradesh and Uttar Pradesh and West Bengal were the only states to have recorded an increase in landlessness during 1961 and 1982.

Of these A.P, M.P. and U.P. experienced a continuous increase during all the three periods under study.

5.4 Regional Variation in Size Composition of Ownership Holdings

To facilitate inter-tmeporal comparison, we have grouped the NSS holding size categories into three group and designated them as small holdings, medium holdings and large holdings.

The most striking features of size composition of holdings in India is the dominance of small sized holdings. In 1961, three out of fifteen states studied had a proportion of small holdings that exceeded 85 per cent. The states where the proportion of small holdings was below 65 per cent include Rajasthan, Gujarat, Maharashtra and Karnataka.

In these states, that is Rajasthan, Gujarat, Maharashtra and Karnataka therefore the proportion of large and medium size ownership holdings was relatively high in 1961.

In 1971, Gujarat and Karnataka recorded an increase in the share of small size holdings. The share of small holdings in those states exceeded 65 per cent. At the same time in these states the share of medium and large sized holdings was comparatively high. In states of Uttar Pradesh, West Bengal, Jammu and Kashmir and Orissa the

proportion of medium and large size holding was comparatively low. By 1982 due to general increase in small size holding except Maharashtra in rest of the states the proportion of small holdings exceeded 65 per cent. Of these three, were state like Gujarat, Maharashtra, Karnataka and Rajsthan where in the proportion of medium and large size holding was relatively high. The states on the east coast like West Bengal, Orissa, Andhra Pradesh and Tamil Nadu had a comparatively small proportion of holdings under the medium and large sized category.

5.5 Change in Size Composition of Ownership Holdings

The salient feature of the change in size composition of holdings is the significant increase in small holdings in both absolute and realtive terms during the period under study. There was increase in small sized holdings in all states except West Bengal and Andhra Pradesh between 1961 and 1982. Gujarat recorded the highest increase in small sized holdings. Interestingly, Rajasthan, Karnataka, Assam and Kerala were the other states to have recorded a relatively large increase in small size holdings.

The proportion of medium sized holdings on the other hand declined in all states during the period of study. Maharashtra, Karnataka and Gujarat exhibited a relatively large decline in proportion of medium sized holdings. These states at the same time had a comparatively high proportion of medium holdings. As far as large sized holdings are

concerned their proportion declined in all the states except in Assam between 1961 and 1982. Gujarat, Karnataka, Madhya Pradesh, Rajasthan and Maharashtra witnessed a relatively larger decline in the proportion of large holdings.

5.6 Regional Variation in Land Ownership: Sizewise Analysis

The Inter Class Concentration Ratio (henceforth ICCR) is a useful tool to measure inequality in the ownership of land at the level of size category. The only state where the small holdings had an ICCR exceeding 100 in 1961 were Assam and Kerala. The states of Karnataka, Jammu and Kashmir and Tamil Nadu had an ICCR close to 100. The bigger states, like Andhra Pradesh, Rajasthan and Madhya Pradesh had a low value of ICCR. In the case of medium size holding Assam, Kerala, Tamil Nadu and West Bengal had a high ICCR value compared to Gujarat, Karnataka, Rajasthan and Madhya Pradesh category.

The pattern of regional variations for large size holding correspond with that of medium size holdings.

In 1971 the states of Kerala and Assam have an ICCR value exceeding 100 for small size holding. In the case of Tamil Nadu, West Bengal, Orissa and Jammu and Kashmir the ICCR was close to 100 for small holdings. The relatively drier states like Rajasthan, Karnataka, Maharashtra and Gujarat have a low ICCR value in small holdings. This was a result of area share being lower than holding share. We

find the same pattern of regional variation repeated in case of medium and large holdings.

In 1982, West Bengal and Kerala have an ICCR value exceeding 100 in the case of small holdings. Assam, Tamil Nadu and Orissa are states that have a ICCR value close to 100 in case of small holdings. On the other hand, Rajasthan, Gujarat, Maharashtra and Punjab have a low ICCR value for small holdings. In case of medium holdings, the ICCR value exhibits almost the same pattern of regional variation. That holds good for large holdings also. The regional demarcation between the dry states and the comparatively wet states is evident.

5.7 Regional Variation and Change in Gini Ratio

The Gini's ratio provides an overall measure of the inequality in the ownership of land. The Gini's ratio is relatively high in Andhra Pradesh, Bihar, Karnataka and Tamil Nadu. It decreased in almost all the states during the next decade viz., between 1961-71. The pattern of regional variation is almost the same in 1971 with Maharashtra being added to the list of states with a high Gini's ratio. We find that while the pattern of regional variation in extent of concentration ratios remained largely the same, the change in concentration over the period of study showed a particular pattern. In about half the states, the concentration rates for ownership holdings increased during 1961-82. Gujarat, Haryana, Maharashtra and

Rajasthan were some states where the Gini's ratio had increased. In a little more than half the states, the concentration ratio declined.

5.8 Regional Variation and Changes in Average Size of Ownership Holding

The salient feature of overall average size of holding is that it has decreased continuously during the period of study. All the states were faced with a decline in their average size of holding. The pattern of regional variations in overall average size falls into the now discernable pattern of the relatively drier states like Gujarat, Rajasthan, Maharashtra and Karnataka having a relatively larger average size. The state of Kerala and Haryana recorded an increase in the average size of small holdings between 1961 and 1982 and 1971 and 1982 respectively. The other states in keeping with the general trend recorded a decline in the average size. Andhra Pradesh, Jammu and Kashmir, Kerala, Orissa and Tamil Nadu exhibited an increase in the average size during the first decade of the study. The increase in the average size of small holdings in a sizeable number of states between 1961 and 1971 was an interesting phenomenon. The concentration ratio had also declined in most of these states during this period.

In case of average size of holdings of medium size class, Gujarat and Haryana were the only states to exhibit an increase in the average size of holding between the first

and last round of study. Rajasthan and Assam experienced an increase in average size of medium holdings between 1961 and 1971. The large holdings' average size recorded a relentless decline in all states except Assam during the period of study.

5.9 Regression Analysis

As described before we tried to provide the explanations for some of the important emerging trend in the ownership of land. The relevant aspects for which the multiple regression was used relates to (a) landlessness (b) size composition of ownership holdings and (c) the average size of ownership holding. As observed the reggression results regarding the variation in the proposition of households were very weak and insignificant to draw any definite conclusion. The only meaningful result was the inverse relation of proportion of rural non-agricultural worker with the incidence of landlessness. The higher proportion of rural non-agricultural employment tend to reduce the proportion of landless household. In other words opportunities of supplementary income in non-farm sector check the distress sale of land and held in control the possible increase in landlessness.

To sum up, the multiple regression analysis for proportion of small size holdings as dependent variable and selected explanatory variables of population pressure, technological change and industrialisation and urbanisation

confirmed our hypothesis in some respects but not others. The variable related to population pressure namely agricultural density and household size shows significant positive impact on proportion of small holdings during 1961, 1971 and 1982. Thus among the three factors, population pressure turns out to be the most significant factor in corss sectional analysis. The variable examining the impact of technological change in agriculture was found to be important only during 1961. While the availability of tractors tends to reduce the porportion of small holdings, the presence of irrigation facitlities induces the increase in the porportion of small size holdings. However, during 171-82 technological variables were insignificant in explaining inter state variation in the porportion of small size holdings. Similarly, the impact of industrialisation and urbanisation was insignificant during all the years under study.

To summarise, the results of the correlates of medium sized holding, we found that higher level of percapita land owned generally leads to higher proportion of medium sized holding. But the agricultural density has an opposite effect on medium sized holding. This was the case of these two variables both during 1961 and 1971. In the case of variables of agricultural technology, the important result we observed in 1961 and 1982 was the significant positive association to the impact of the tractor per hectare with

the level of medium sized holding but negative with the level of irrigation and fertilizer. The higher availability of tractor in the states tend to encourage the proportion of holdings of medium size, so that the service of tractor could be optimally used. On the other hand fertilizer and irrigation combine, tend to stabilised the size of holdings to the medium size due to higher productivity. Nevertheless, tentative conclusions are drawn from the cross section data and they would require more effective evidence from primary and disaggregate data.

Lastly the higher level of rural non-farm employment and higher level of urbanisation encourages the proportion of medium size holds to go up. This was an expected trend.

All the regression results with regard to the average size of ownership holding do not necessarily match with our expectations in its totality. However, some of the results are quite interesting and reflect the dyanmics of average size of ownership holdings. One of the important results is that population pressure through increase in agricultural density reduces average size of ownership holding is statistically found to be true at least in 1961. The second important result was the positive impact of tractorisation on average size of holding. The opposite was however true for irrigation level. This shows the influence of low ceiling limit on irrigated land and also productivity level.

The rest of the variables showed insignificant influence on average size.

In the conclusion we may say that although the result do not lend support to all hypothesis that were set out in the beginning, the results nevertheless throw light on the underlying forces influencing the ownership of land in India. Population pressure and technoloy variables did not show significant association with proportion of landless households. But the level of employment in non-farm sector and more importantly in the rural non-farm sector do. We have a reason to believe that higher employment opportunities in rural non-farm sector put some check on the further sub-division of marginal holdings and consequent distress sale and thereby the landlessness. If this is true it lends some support to the persistance perspective.

In case of size composition of holdings both the variables of population pressure and technology play an important role. Population pressure relentlessly increases partition of land and proportion of small holdings and reduces the size of holdings. The technologgy variable such as fertilizer and irrigation seem to complement and go hand in hand with continuous prevalence of small size holdings. These combined with the ceiling legislations and support from the government seem to result in the persistence of small family farms. This conclusion however needs a detailed examination. The process of tractorisation however

indicates that it influence on the proportion of small size holdings and average size works in the opposite direction, so far as it encourages proportion of large size holdings and average size to go up. This result lends some support to differentiation perspective in a limited way.

In the end we may say that in a cross sectional framework the effect of any single factor is not at work, but a combination of factors namely population pressure, nature of agricultural technology and level of employment in non-farm sector and their complex interaction ties at the root of emerging trend in land ownership pattern.

APPENDIX

LIST OF ABBREVIATIONS

1.	LL	=	Percentage of Landless Households
2.	SC1	=	Percentage of Small Sized Holding
3.	SC2	=	Percentage of Medium Sized Holding
4.	AS1	=	Average Size of Small Holding
5.	AD	=	Agricultural Density
6.	PCLO	=	Per Capita Land Owned
7.	PPH	=	Households Size
8.	T	=	Tractors per Hectare of Net Sown Area
9.	F	=	Fertilizers per Hectare of Gross Cropped Area
10.	NIA	=	Percentage of Net Irrigated Area to Net Sown Area
11.	NATA	=	Percentage of Workers Employ in Non-Agricultural Sector to Total Workers
12.	NW	=	Percentage of Rural Non-Agricultural Workers to Rural Agricultural Workers
13.	UPTP	=	Percentage of Urban Population to Total Population

RESULTS OF REGRESSION ANALYSIS

LS // Dependent Variable is LL61
Date: 1-01-1980 / Time: 6:54
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	15.525287	11.703952	1.3264996	0.209
PCLO61	-6.4194490	20.281896	-0.3165113	0.757
AD61	0.5667014	8.5590379	0.0662109	0.948

R-squared	0.013905	Mean of dependent var	14.34467
Adjusted R-squared	-0.150444	S.D. of dependent var	7.974012
S.E. of regression	8.552825	Sum of squared resid	877.8097
Durbin-Watson stat	2.667082	F-statistic	0.084609
Log likelihood	-51.80442		

LS // Dependent Variable is LL61 Date: 1-01-1980 / Time: 6:54
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	14.519987	5.0336602	2.8845783	0.015
T61	0.0210594	4.5947889	0.0045833	0.996
F61	0.5412326	0.7177168	0.7541032	0.467
NIA61	-9.1510367	21.443790	-0.4267453	0.678

R-squared	0.068554	Mean of dependent var	14.34467
Adjusted R-squared	-0.185477	S.D. of dependent var	7.974012
S.E. of regression	8.682073	Sum of squared resid	829.1624
Durbin-Watson stat	2.600352	F-statistic	0.269864
Log likelihood	-51.37682		

LS // Dependent Variable is LL61 Date: 1-01-1980 / Time: 6:54
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	13.652195	10.892299	1.2533805	0.236
UPTP61	32.458510	37.829980	0.8580102	0.409
NW61	-35.151180	39.649938	-0.8865381	0.394
NATA61	6.7516339	45.535960	0.1482704	0.885

R-squared	0.162585	Mean of dependent var	14.34467
Adjusted R-squared	-0.065801	S.D. of dependent var	7.974012
S.E. of regression	8.232183	Sum of squared resid	745.4572
Durbin-Watson stat	2.268230	F-statistic	0.711886

Log likelihood -50.57868

LS // Dependent Variable is LL61
Date: 1-01-1980 / Time: 6:55
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	48.743057	42.275928	1.1529743	0.293
PCLO61	-85.384543	61.615668	-1.3857602	0.215
AD61	6.1595836	19.920707	0.3092051	0.768
T61	4.5628759	8.7018412	0.5243575	0.619
F61	0.0739705	0.9630534	0.0768083	0.941
NIA61	-60.247020	52.326744	-1.1513619	0.293
UPTP61	136.32014	85.696016	1.5907407	0.163
NW61	59.487023	83.984713	0.7083077	0.505
NATA61	-140.43859	114.89597	-1.2223108	0.267

R-squared	0.395473	Mean of dependent var	14.34467
Adjusted R-squared	-0.410563	S.D. of dependent var	7.974012
S.E. of regression	9.470505	Sum of squared resid	538.1428
Durbin-Watson stat	2.707365	F-statistic	0.490639
Log likelihood	-48.13463		

LS // Dependent Variable is SC161
Date: 1-01-1980 / Time: 6:55
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	65.203261	12.357350	5.2764759	0.000
PCLO61	-18.857874	21.414177	-0.8806257	0.396
AD61	15.872296	9.0368647	1.7563941	0.104

R-squared	0.378270	Mean of dependent var	74.69233
Adjusted R-squared	0.274649	S.D. of dependent var	10.60298
S.E. of regression	9.030305	Sum of squared resid	978.5568
Durbin-Watson stat	2.464551	F-statistic	3.650494
Log likelihood	-52.61929		

LS // Dependent Variable is SC161
Date: 1-01-1980 / Time: 6:55
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	65.613971	5.1629687	12.708574	0.000
T61	-9.0304033	4.7128233	-1.9161345	0.082
F61	-0.8261216	0.7361541	-1.1222129	0.286

NIA61	65.125688	21.994654	2.9609780	0.013

R-squared	0.445775	Mean of dependent var	74.69233
Adjusted R-squared	0.294622	S.D. of dependent var	10.60298
S.E. of regression	8.905105	Sum of squared resid	872.3098
Durbin-Watson stat	2.980915	F-statistic	2.949173
Log likelihood	-51.75729		

LS // Dependent Variable is SC161
Date: 1-01-1980 / Time: 6:56
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	72.336339	12.446776	5.8116528	0.000
UPTP61	-106.88757	43.228824	-2.4725996	0.031
NW61	10.871719	45.308515	0.2399487	0.815
NATA61	65.344380	52.034551	1.2557883	0.235

R-squared	0.381538	Mean of dependent var	74.69233
Adjusted R-squared	0.212867	S.D. of dependent var	10.60298
S.E. of regression	9.407026	Sum of squared resid	973.4135
Durbin-Watson stat	1.968614	F-statistic	2.262019
Log likelihood	-52.57977		

LS // Dependent Variable is SC161
Date: 1-01-1980 / Time: 6:56
SMPL range: 1 - 15
Number of observations: 15

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	18.996154	36.590752	0.5191518	0.622
PCLO61	58.345886	53.329725	1.0940594	0.316
AD61	15.043263	17.241813	0.8724873	0.416
T61	-5.6003784	7.5316362	-0.7435806	0.485
F61	-0.4908540	0.8335440	-0.5888760	0.577
NIA61	55.364365	45.289955	1.2224425	0.267
UPTP61	-131.01586	74.171799	-1.7663838	0.128
NW61	-7.6846307	72.690628	-0.1057169	0.919
NATA61	144.67544	99.445010	1.4548285	0.196

R-squared	0.743865	Mean of dependent var	74.69233
Adjusted R-squared	0.402351	S.D. of dependent var	10.60298
S.E. of regression	8.196932	Sum of squared resid	403.1381
Durbin-Watson stat	2.282365	F-statistic	2.178139

```
Log likelihood          -45.96830
================================================================

LS // Dependent Variable is SC261
Date: 1-01-1980 / Time: 6:56
SMPL range:    1  -    15
Number of observations: 15
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
================================================================
        C          9.3278238    2.5382936     3.6748403     0.003
      PCLC61      30.208452     4.3986345     6.8676887     0.000
       AD61       -9.1602084    1.8562407    -4.9348172     0.000
================================================================
R-squared              0.922276    Mean of dependent var   8.961533
Adjusted R-squared     0.909323    S.D. of dependent var   6.159838
S.E. of regression     1.854893    Sum of squared resid    41.28754
Durbin-Watson stat     2.140538    F-statistic             71.19672
Log likelihood        -28.87791
================================================================

LS // Dependent Variable is SC261
Date: 1-01-1980 / Time: 6:56
SMPL range:    1  -    15
Number of observations: 15
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
================================================================
        C         16.042678     2.5856854     6.2044201     0.000
       T61         6.1839597    2.3602464     2.6200483     0.024
       F61        -0.1426242    0.3686760    -0.3868551     0.706
      NIA61      -37.250260     11.015224    -3.3817070     0.006
================================================================
R-squared              0.588133    Mean of dependent var   8.961533
Adjusted R-squared     0.475806    S.D. of dependent var   6.159838
S.E. of regression     4.459798    Sum of squared resid    218.7878
Durbin-Watson stat     2.759329    F-statistic             5.235893
Log likelihood        -41.38447
================================================================

LS // Dependent Variable is SC261
Date: 1-01-1980 / Time: 6:56
SMPL range:    1  -    15
Number of observations: 15
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
================================================================
        C         11.107120     6.4185249     1.7304786     0.111
      UPTP61      68.145299     22.292141     3.0569203     0.011
       NW61       40.907323     23.364591     1.7508255     0.108
      NATA61     -76.460581     26.833058    -2.8494919     0.016
================================================================
R-squared              0.512710    Mean of dependent var   8.961533
Adjusted R-squared     0.379813    S.D. of dependent var   6.159838
```

```
S.E. of regression      4.850993    Sum of squared resid    258.8535
Durbin-Watson stat      2.223348    F-statistic             3.857943
Log likelihood         -42.64567
================================================================
LS // Dependent Variable is SC261
Date: 1-01-1980 / Time: 6:56
SMPL range:    1  -    15
Number of observations: 15
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
================================================================
       C         -2.6075327     4.3580174    -0.5983300     0.571
      PCLO61      38.076647     6.3516560     5.9947590     0.001
       AD61       -2.0344835    2.0535276    -0.9907262     0.360
       T61         3.9449534    0.8970300     4.3977943     0.005
       F61        -0.1039663    0.0992764    -1.0472409     0.335
      NIA61       -5.1684973    5.3941065    -0.9581749     0.375
      UPTP61      12.626625     8.8339806     1.4293245     0.203
       NW61       -6.2357879    8.6575708    -0.7202699     0.498
      NATA61       8.8140778    11.844061     0.7441770     0.485
================================================================
R-squared               0.989235    Mean of dependent var   8.961533
Adjusted R-squared      0.974881    S.D. of dependent var   6.159838
S.E. of regression      0.976268    Sum of squared resid    5.718592
Durbin-Watson stat      1.923311    F-statistic             68.91887
Log likelihood         -14.05162
================================================================

LS // Dependent Variable is AS161
Date: 1-01-1980 / Time: 6:56
SMPL range:    1  -    15
Number of observations: 15
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-Sate: 1-01-1980 / Time: 7:00
SMPL range:    1  -    17
Number of observations: 17
================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
================================================================
       C          1.0776608     0.1105909     9.7445726     0.000
      PCLO71      0.3063150     0.0718099     4.2656379     0.001
       AD71       0.0350539     0.0310718     1.1281584     0.280
      PPH71       0.0241387     0.0163430     1.4770050     0.163
================================================================
R-squared               0.673791    Mean of dependent var   1.304194
Adjusted R-squared      0.598512    S.D. of dependent var   0.039720
S.E. of regression      0.025168    Sum of squared resid    0.008234
Durbin-Watson stat      2.955492    F-statistic             8.950580
Log likelihood         40.75561
================================================================

LS // Dependent Variable is AS171
Date: 1-01-1980 / Time: 7:00
SMPL range:    1  -    17
```

Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.3266919	0.0225687	58.784664	0.000
T71	0.0006424	0.0047702	0.1346724	0.895
F71	-0.0009701	0.0007045	-1.3769736	0.192
NIA71	-0.0227189	0.0690718	-0.3289178	0.747

R-squared	0.168771	Mean of dependent var	1.304194
Adjusted R-squared	-0.023051	S.D. of dependent var	0.039720
S.E. of regression	0.040175	Sum of squared resid	0.020982
Durbin-Watson stat	2.302278	F-statistic	0.879833
Log likelihood	32.80499		

LS // Dependent Variable is AS171
Date: 1-01-1980 / Time: 7:00
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.3632249	0.0407582	33.446678	0.000
UPTP71	0.2261500	0.1585495	1.4263677	0.177
NW71	-0.1313802	0.2052160	-0.6402046	0.533
NATA71	-0.2754177	0.1671749	-1.6474826	0.123

R-squared	0.295514	Mean of dependent var	1.304194
Adjusted R-squared	0.132941	S.D. of dependent var	0.039720
S.E. of regression	0.036985	Sum of squared resid	0.017783
Durbin-Watson stat	2.382201	F-statistic	1.817726
Log likelihood	34.21121		

LS // Dependent Variable is SC171
Date: 1-01-1980 / Time: 7:01
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	69.662611	31.370493	2.2206412	0.045
PCLO71	-38.981709	20.369779	-1.9137031	0.078
AD71	13.341760	8.8139162	1.5137153	0.154
PPH71	1.3500168	4.6358973	0.2912094	0.775

R-squared	0.613843	Mean of dependent var	79.58294
Adjusted R-squared	0.524730	S.D. of dependent var	10.35559
S.E. of regression	7.139125	Sum of squared resid	662.5724
Durbin-Watson stat	2.653262	F-statistic	6.888361
Log likelihood	-55.25674		

LS // Dependent Variable is SC171
Date: 1-01-1980 / Time: 7:01

SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	70.328077	5.7077772	12.321447	0.000
T71	0.4582507	1.2064154	0.3798449	0.710
F71	0.0225919	0.1781747	0.1267965	0.901
NIA71	31.628935	17.468745	1.8106014	0.093

R-squared	0.217821	Mean of dependent var	79.58294
Adjusted R-squared	0.037319	S.D. of dependent var	10.35559
S.E. of regression	10.16053	Sum of squared resid	1342.072
Durbin-Watson stat	2.515085	F-statistic	1.206748
Log likelihood	-61.25638		

LS // Dependent Variable is SC171
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	82.979906	10.851493	7.6468651	0.000
UPTP71	-85.088041	42.212396	-2.0157122	0.065
NW71	13.144509	54.636917	0.2405793	0.814
NATA71	36.340528	44.508817	0.8164793	0.429

R-squared	0.265341	Mean of dependent var	79.58294
Adjusted R-squared	0.095805	S.D. of dependent var	10.35559
S.E. of regression	9.847047	Sum of squared resid	1260.536
Durbin-Watson stat	2.324778	F-statistic	1.565097
Log likelihood	-60.72363		

LS // Dependent Variable is SC171
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	127.04265	55.845420	2.2748983	0.057
PCLO71	-14.875946	57.041882	-0.2607899	0.802
AD71	23.108278	22.034091	1.0487511	0.329
PPH71	-11.108293	9.4188327	-1.1793705	0.277
T71	3.7528892	2.2632626	1.6581767	0.141
F71	-0.4881682	0.3590099	-1.3597627	0.216
NIA71	13.376695	18.265813	0.7323351	0.488
UPTP71	-76.899079	77.546115	-0.9916561	0.354
NW71	-79.738643	70.703365	-1.1277913	0.297
NATA71	96.647106	108.85967	0.8878137	0.404

R-squared	0.767103	Mean of dependent var	79.58294
Adjusted R-squared	0.467663	S.D. of dependent var	10.35559

S.E. of regression	7.555585	Sum of squared resid	399.6080
Durbin-Watson stat	1.873072	F-statistic	2.561796
Log likelihood	-50.95876		

LS // Dependent Variable is SC271
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-0.7548266	7.2376521	-0.1042916	0.919
PCLO71	39.360992	4.6996193	8.3753576	0.000
AD71	-5.6316664	2.0335051	-2.7694380	0.016
PPH71	0.9104590	1.0695723	0.8512365	0.410

R-squared	0.946610	Mean of dependent var	8.082353
Adjusted R-squared	0.934289	S.D. of dependent var	6.425439
S.E. of regression	1.647105	Sum of squared resid	35.26842
Durbin-Watson stat	2.464358	F-statistic	76.83034
Log likelihood	-30.32504		

LS // Dependent Variable is SC271
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	13.521854	3.4239242	3.9492272	0.002
T71	0.4743617	0.7236923	0.6554743	0.524
F71	-0.1320485	0.1068816	-1.2354651	0.239
NIA71	-14.444023	10.478976	-1.3783812	0.191

R-squared	0.268921	Mean of dependent var	8.082353
Adjusted R-squared	0.100210	S.D. of dependent var	6.425439
S.E. of regression	6.094994	Sum of squared resid	482.9364
Durbin-Watson stat	1.922184	F-statistic	1.593979
Log likelihood	-52.56866		

LS // Dependent Variable is SC271
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	10.449853	6.1889266	1.6884758	0.115
UPTP71	63.131549	24.074973	2.6222895	0.021
NW71	-4.1169819	31.161044	-0.1321195	0.897
NATA71	-48.136362	25.384690	-1.8962754	0.080

R-squared	0.379301	Mean of dependent var	8.082353
Adjusted R-squared	0.236062	S.D. of dependent var	6.425439
S.E. of regression	5.616061	Sum of squared resid	410.0218
Durbin-Watson stat	1.840871	F-statistic	2.648038
Log likelihood	-51.17743		

LS // Dependent Variable is SC271
Date: 1-01-1980 / Time: 7:02
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-15.361639	12.891739	-1.1915879	0.272
PCLO71	41.770232	13.167938	3.1721164	0.016
AD71	-4.1368736	5.0865002	-0.8133045	0.443
PPH71	2.8105041	2.1743077	1.2925972	0.237
T71	-0.0705754	0.5224670	-0.1350811	0.896
F71	0.0614917	0.0828763	0.7419692	0.482
NIA71	1.5724886	4.2166052	0.3729276	0.720
UPTP71	16.044136	17.901275	0.8962566	0.400
NW71	9.1368411	16.321648	0.5597989	0.593
NATA71	-13.148935	25.129911	-0.5232384	0.617

R-squared	0.967763	Mean of dependent var	8.082353
Adjusted R-squared	0.926315	S.D. of dependent var	6.425439
S.E. of regression	1.744183	Sum of squared resid	21.29522
Durbin-Watson stat	2.194238	F-statistic	23.34899
Log likelihood	-26.03674		

LS // Dependent Variable is AS181
Date: 1-01-1980 / Time: 7:03
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.2042188	0.1252667	9.6132375	0.000
PCLO81	0.2028021	0.1163515	1.7430119	0.105
AD81	-0.0434461	0.0281554	-1.5430802	0.147
PPH81	0.0145494	0.0188923	0.7701215	0.455

R-squared	0.594803	Mean of dependent var	1.283600
Adjusted R-squared	0.501296	S.D. of dependent var	0.047699
S.E. of regression	0.033684	Sum of squared resid	0.014750
Durbin-Watson stat	1.586907	F-statistic	6.361050
Log likelihood	35.80057		

LS // Dependent Variable is AS181
Date: 1-01-1980 / Time: 7:03
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.3124984	0.0188702	69.554082	0.000
T81	0.0026869	0.0017876	4.8596019	0.000
F81	-0.0009904	0.0004134	-2.3954716	0.032
NIA81	-0.0774368	0.0416259	-1.8603036	0.086

R-squared	0.670258	Mean of dependent var	1.283600
Adjusted R-squared	0.594164	S.D. of dependent var	0.047699
S.E. of regression	0.030387	Sum of squared resid	0.012003
Durbin-Watson stat	2.550886	F-statistic	8.808250
Log likelihood	37.55210		

LS // Dependent Variable is AS181
Date: 1-01-1980 / Time: 7:03
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.2527959	0.0517573	24.205182	0.000
UPTP81	-3.962D-06	1.852D-05	-0.2139075	0.834
NW81	-0.0085272	0.2188020	-0.0389723	0.970
NATA81	0.1114706	0.1454007	0.7666441	0.457

R-squared	0.051091	Mean of dependent var	1.283600
Adjusted R-squared	-0.167888	S.D. of dependent var	0.047699
S.E. of regression	0.051547	Sum of squared resid	0.034543
Durbin-Watson stat	2.590099	F-statistic	0.233314
Log likelihood	28.56759		

LS // Dependent Variable is AS181
Date: 1-01-1980 / Time: 7:03
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	1.1237554	0.1756771	6.3967088	0.000
PCLO81	0.2982400	0.1149027	2.5955871	0.036
AD81	-0.0141765	0.0276054	-0.5135417	0.623
PPH81	0.0182211	0.0248055	0.7345568	0.486
T81	0.0025458	0.0026843	0.9484003	0.375
F81	0.0003844	0.0006406	0.6000245	0.567
NIA81	-0.0303931	0.0546176	-0.5564716	0.595
UPTP81	-7.903D-06	1.003D-05	-0.7881568	0.456
NW81	-0.1188517	0.1584767	-0.7499630	0.478
NATA81	0.0907252	0.0750114	1.2094850	0.266

R-squared	0.885661	Mean of dependent var	1.283600
Adjusted R-squared	0.738653	S.D. of dependent var	0.047699
S.E. of regression	0.024385	Sum of squared resid	0.004162
Durbin-Watson stat	1.543727	F-statistic	6.024581
Log likelihood	46.55479		

LS // Dependent Variable is SC181
Date: 1-01-1980 / Time: 7:04
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	60.573353	23.328228	2.5965689	0.022
PCLO81	-77.530549	21.667964	-3.5781188	0.003
AD81	-0.3797647	5.2433426	-0.0724280	0.943
PPH81	6.3735992	3.5182820	1.8115658	0.093

R-squared	0.621872	Mean of dependent var	81.67706
Adjusted R-squared	0.534611	S.D. of dependent var	9.195303
S.E. of regression	6.272982	Sum of squared resid	511.5539
Durbin-Watson stat	1.574851	F-statistic	7.126620
Log likelihood	-53.05799		

LS // Dependent Variable is SC181
Date: 1-01-1980 / Time: 7:04
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	75.384733	6.0172327	12.528140	0.000
T81	-0.5045773	0.5700159	-0.8851986	0.392
F81	0.1187536	0.1318385	0.9007510	0.384
NIA81	10.940869	13.273468	0.8242661	0.425

R-squared	0.097813	Mean of dependent var	81.67706
Adjusted R-squared	-0.110384	S.D. of dependent var	9.195303
S.E. of regression	9.689529	Sum of squared resid	1220.531
Durbin-Watson stat	1.816334	F-statistic	0.469810
Log likelihood	-60.44949		

LS // Dependent Variable is SC181
Date: 1-01-1980 / Time: 7:04
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	84.967055	9.8855103	8.5951107	0.000

UPTP81	-0.0025617	0.0035381	-0.7240311	0.482
NW81	10.180706	41.790581	0.2436124	0.811
NATA81	-16.766802	27.771136	-0.6037492	0.556

R-squared	0.068550	Mean of dependent var	81.67706
Adjusted R-squared	-0.146400	S.D. of dependent var	9.195303
S.E. of regression	9.845420	Sum of squared resid	1260.120
Durbin-Watson stat	1.566612	F-statistic	0.318910
Log likelihood	-60.72082		

LS // Dependent Variable is SC181
Date: 1-01-1980 / Time: 7:04
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	63.234314	46.492945	1.3600841	0.216
PCLO81	-84.358876	30.408994	-2.7741422	0.028
AD81	-3.2369171	7.3057638	-0.4430635	0.671
PPH81	8.8055369	6.5647864	1.3413288	0.222
T81	-0.2943987	0.7103964	-0.4144146	0.691
F81	0.1137180	0.1695402	0.6707437	0.524
NIA81	-0.7200087	14.454540	-0.0498119	0.962
UPTP81	-0.0018052	0.0026539	-0.6802063	0.518
NW81	-22.408127	41.940859	-0.5342792	0.610
NATA81	-35.016026	19.851770	-1.7638743	0.121

R-squared	0.784513	Mean of dependent var	81.67706
Adjusted R-squared	0.507459	S.D. of dependent var	9.195303
S.E. of regression	6.453381	Sum of squared resid	291.5228
Durbin-Watson stat	1.741922	F-statistic	2.831623
Log likelihood	-48.27815		

LS // Dependent Variable is SC281
Date: 1-01-1980 / Time: 7:04
SMPL range: 1 - 17
Number of observations: 17

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-6.0437431	6.8684547	-0.8799276	0.395
PCLO81	51.623216	6.3796284	8.0918844	0.000
AD81	-1.0409595	1.5437804	-0.6742925	0.512
PPH81	0.8236672	1.0358764	0.7951405	0.441

R-squared	0.907213	Mean of dependent var	7.022353
Adjusted R-squared	0.885800	S.D. of dependent var	5.465355
S.E. of regression	1.846934	Sum of squared resid	44.34513

```
Durbin-Watson stat      2.204848    F-statistic           42.36839
Log likelihood         -32.27167
==========================================================================

LS // Dependent Variable is SC281
Date: 1-01-1980 / Time: 7:05
SMPL range:    1  -    17
Number of observations: 17
==========================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
==========================================================================
        C         11.877589     2.8674041     4.1422794     0.001
       T81         0.8147263    0.2716308     2.9993883     0.010
       F81        -0.1650764    0.0628253    -2.6275488     0.021
      NIA81       -5.0619316    6.3252326    -0.8002760     0.438
==========================================================================
R-squared              0.420069    Mean of dependent var    7.022353
Adjusted R-squared     0.286239    S.D. of dependent var    5.465355
S.E. of regression     4.617371    Sum of squared resid     277.1615
Durbin-Watson stat     2.569048    F-statistic              3.138824
Log likelihood        -47.84874
==========================================================================

LS // Dependent Variable is SC281
Date: 1-01-1980 / Time: 7:05
SMPL range:    1  -    17
Number of observations: 17
==========================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
==========================================================================
        C          7.7349291    6.0433989     1.2798972     0.223
     UPTP81        0.0007801    0.0021630     0.3606532     0.724
      NW81        -5.2363253   25.548216     -0.2049585     0.841
     NATA81        0.8755882   16.977581      0.0515732     0.960
==========================================================================
R-squared              0.014584    Mean of dependent var    7.022353
Adjusted R-squared    -0.212819    S.D. of dependent var    5.465355
S.E. of regression     6.018890    Sum of squared resid     470.9515
Durbin-Watson stat     2.254675    F-statistic              0.064135
Log likelihood        -52.35506
LS // Dependent Variable is SC281
Date: 1-01-1980 / Time: 7:05
SMPL range:    1  -    17
Number of observations: 17
==========================================================================
     VARIABLE    COEFFICIENT   STD. ERROR      T-STAT.   2-TAIL SIG.
==========================================================================
        C         -3.9184731   12.829117     -0.3054359     0.769
     PCLO81       54.969063     8.3909623     6.5509844     0.000
       AD81       -0.4853587    2.0159295    -0.2407618     0.817
      PPH81       -0.2369188    1.8114665    -0.1307884     0.900
       T81         0.1161981    0.1960246     0.5927732     0.572
       F81        -0.0058138    0.0467824    -0.1242741     0.905
      NIA81        2.4315205    3.9885404     0.6096266     0.561
```

UPTP81	-0.0002559	0.0007323	-0.3494002	0.737
NW81	-5.5730937	11.573029	-0.4815588	0.645
NATA81	9.4860952	5.4778350	1.7317234	0.127

R-squared	0.953555	Mean of dependent var	7.022353
Adjusted R-squared	0.893841	S.D. of dependent var	5.465355
S.E. of regression	1.780726	Sum of squared resid	22.19688
Durbin-Watson stat	2.632345	F-statistic	15.96858
Log likelihood	-26.38923		

BIBILOGRAPHY

Attwood, D.W. 1979 "Why some of the Poor Get Richer : Economic Change and Mobility in Rural Western India," *Current Authropology,* 20, 3, September, 495-515.

Bagchee, 1987. "Poverty Alleviation Programmes in Seventh Plan : An appraisal". *Economic and Political Weekly.* XXII, 4, 24 January. 139-148.

Bardhan, P.K. 1986. *"The Political Economy of Development in India"* Oxford : OUP.

Beteille, A. 1965. "Caste, Class and Power: Changing Patterns of Stratification in a Tanjore Village", Berkeley.

Bhalla, G. and G, Chadha 1982. "Green Revolution and the Small Peasant : A Study of Income Distribution in Punjab Agriculture," *Economic and Political Weekly,* 15 ad 22 May ad 22.

Bhalla , G. and G. Chadha 1982. "Green Revolution and the Small Peasant: A Study of Income Distribution in Punjab Agriculture i," *Economic and Political Weekly,* XVII, 2, 15 May 15. 826-833.

Bhalla, G. and Y. Alagh 1978. *"Performance of Indian Agriculture: A District wise Study"* New Delhi : Sterling Publishers.

Bhalla, S. 1976. "New Relations of Production in Haryana Agriculture," *Economic and Political Weekly,*II March. A23-30.

Chakravarty, S. 1987. *"Development Planning: The Indian Experience,"* Oxford : Clarendon Press.

Dandekar, V. 1986 "Agriculture, Employment and Poverty". *Economic ad Political Weekly.* XXI, 38, 39, 20-27 September A-90-101.

Dantwala, M. 1986. "Agrarian Structure and Agrarian Relations in India, " in *Indian Agricultural Development Since Independence,* Indian Society of Agricultural Economics, Bombay : Oxford and IBH. 60-87.

Dantwala, M. 1985. "Technology, Growth and Equity in Agriulture" in Mellor and Desai. (eds).

Dantwala, M. 1987. "Growth and Equity in Agriculture". *Indian Journal of Agricultural Economics.* XLII, 2, April-June. 149-160.

Government of India. 1976. *Report of the National Commission on Agriculture,* (Part XV, Agrarian Reforms), Ministry of Agriculture and Irrigation, New Delhi : Government Press.

Khusro, A. 1973. *"Economics of Land Reform and Farm Size in India,"* Institute of Economic Growth, Delhi: Macmillan.

Lakshminarayan, H. and S. Tyagi. 1976. "Some Aspects of Size Distribution of Agricultural Holdings, " *Economic and Political Weekly,* 9 October 1637-1640.

N.S.S., 1961. *"Tables with Notes On Some Aspects of Landholdings In Rural India 16th Round (July 1960 - June 1961)"* National Sample Survey Organization, Department of Statistics, Ministry of Planing, Government of India.

N.S.S. 1976. *"Tables On Landholdings," Twenty-sixth Round: July 1971 - September 1972"* (All India and Statewise Reports for Punjab, Kerala, Gujarat and Maharashtra) National Sample Survey Organization, Department of Statistics, Ministry of Planing, Government of India, February.

N.S.S. 1982. *Tables on the Pattern of land ownership"* 37th Round. National Sample Survey Organization. Department of Statistics, Ministry of Planing, Government of India.

Parthasarathy, G., 1979. "Land Reform and the Changing Agrarian Structure, in C. Shak and C. Vakil, (Eds.), *Agricultural Development of India,* New Delhi, Orient Longmans.

Rao, C. 1975. *"Technological Change and The Distribution of Gains in Indian Agriculture,* Delhi : Macmillan.

Rao, C. 1976. "Rapporteurs Report on Changes in The Structural Distribution of Land Ownership and Use (Since Independence)," *Indian Journal of Agricultural Economics,* 31, 33, July - September 56-62.

Schlutz, T. 1964. "Transforming Traditional Agriculture," New Haven : Yale University Press, 1984

Singh, A, and A. Kahlon. 1976. "The Impact of New Technology n Farm Size, Terminal Relations and Land Rents in the Punjab," *Indian Journal of Agricultural Economics.* XXXI, 3, July - September.

Singh, H. 1976. "Structural Changes in the Size Distribution of Holdings: A Macro View," *Indian Journal of Agricultural Economics.* 31, 3, July - September.

Sirohi, A., G. Ram, and C. Singh. 1976. "Interstate Disparities in the Structural Distribution of Land Holdings in Rural India," *Indian Journal of Agricultural Economics.* 31, 3, July - September, 14-23.

Vyas, V. 1979. "Structural Change in Agriculture and The Small Farm Sector," *Economic and Political Weekly.* XI, I and 2, 10 January.

Vyas, V. 1979. "Some Aspects of Structural Change in Indian Agriculture," Presidential Address, *Indian Journal of Agricultural Economics.* XXXIV, 1 January/March.