

**Social Distribution of Agricultural Resources and Nature of  
Agricultural Development in Bihar**

*Dissertation submitted to the Jawaharlal Nehru University  
in partial fulfillment of the requirements  
for the award of the degree*

**MASTER OF PHILOSOPHY**

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**2009**



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21st July, 2009

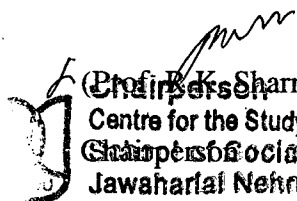
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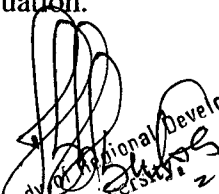
This is to certify that the dissertation entitled "SOCIAL DISTRIBUTION OF AGRICULTURAL RESOURCES AND NATURE OF AGRICULTURAL DEVELOPMENT IN BIHAR" submitted by me in partial fulfilment of the requirement for the award of Master of Philosophy has not been previously submitted for any other degree of this or any other university.

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**CERTIFICATE**

We recommend that this dissertation be placed for examiners for evaluation.

  
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## **Acknowledgement**

*I am sincerely grateful to my supervisor Professor B.S. Butola for his critical insights and helpful comments which have helped me clear the ambiguities in my arguments. He has imbibed in me the roots of critical thinking since my early days in J.N.U. I am thankful to Dr. Deepak Mishra, Dr. Sucharita Sen and Dr. Vikash Rawal for patiently listening to my queries and giving useful inputs.*

*I would like to thank the staff of Jawaharlal Nehru University for their kind support so that I could access the necessary documents. I would specially like to thank the office staffs of Centre for the Study of Regional Development for their support and co-operation during the course of my work.*

*My classmates Monorisha, Anuradha, Rima, Munmun, Sanghita, Saurav and Rajesh have been constant sources of encouragement when I was struggling with my writing. A special thank to my room-mate Deepshikha for tolerating my constant panic and being a constant source of entertainment. Manoj Jatav is one of those who proved "A friend in need is a friend in deed".*

*Handling NSSO data would not have been possible without the tremendous help from Mr. Verghese K.*

*I owe a lot to Kb, Vismay, Radhika, Prativadi and Tapasda for shaping my ideas and views on my topic.*

*All those who hardly care for any recognition and gratitude but will continue to shoulder the collective responsibilities are Abhishek, Vishal, Anurag, Khatija, Rajkumar, Martand, Ravi, Shephalika, Rajeev, Shweta, Piyush, Sandeep, Rajan, Rajesh, Chandan and Mobin.*

*Irrespective of all the differences who always stood by me with their affection, love and support are ma, baba, dada and pisi.*

Sucheta De

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## **Chapter I: Introduction**

### **Section I.1: Statement of the Problem:**

The overall scenario of the Indian economy in recent times comes out in the form of fast developing urban centres concomitant with the concept of economic growth and the aspiration to become like one of the 'developed countries'. These high ideals are counterbalanced by the perpetually disturbing questions of the impoverished masses both in rural and urban areas. Beyond the dichotomy of rural and urban sectors, the unavoidable issue of agriculture in planning and policy formation owing to the huge proportion of population that it supports has experienced the ills and wells of both hopes and despair in the past sixty-two years after India became an independent nation. Approaches of the successive governments at the centre towards this sector too have experienced a paradigm shift over these years. It has evolved from the question of land reform in a newly independent state where the aspirations against the colonial rule needed to be addressed, to the adoption of policy measures encouraging productivity raising 'new technology' through the green revolution package. The ruling interest in the central government has brought about economic reforms popularly known as the liberalisation of the economy. With liberalisation of the economy as a whole, the agricultural sector also became integrated with the world market. With this change in policy framework's approach to the lives and livelihoods of the people engaged in agriculture, the academic concerns regarding agriculture has also changed. The academic swing ranges from the debate over the developing tendency in mode of production in Indian agriculture to the efficiency of inputs used in the new package of productivity raising technologies after the 'green revolution'. Apart from this the recent concerns over agricultural sector mainly deals with the question of recent transformation in terms of commercialisation, diversification, market imperfections and impact of institutions like WTO over Indian agriculture.

In the din and clamour about these questions, some of the most fundamental questions in Indian agriculture have hardly been resolved as can be observed from the dichotomous picture of growing efficiency and scale of production on the one hand and unequal distribution of the benefits among the rural masses in regions like the north western part of India. At the same time the regional patterns in agricultural

development if measured through economic indicators like yield, value of production, labour productivity and market linkages show a huge variation.

In this national pattern of variation Bihar comes out as a distinct region in terms of the parameters of socio-economic development. Like most of the eastern states, Bihar has hardly experienced any breakthrough in production in agriculture through adoption of the new technologies and institutional arrangements associated with the green revolution. Not only agricultural production in Bihar, which is considered to be one of the most backward states in India, but also various features of the agrarian social structure of Bihar demand special academic attention. The backward production scenario is associated with the agrarian structure characterised by high tensions on the basis of caste hierarchies. Bihar is one of the regions in India which has experienced significant political assertion by different sections of the peasantry defined through caste association and possession over land. From pre-independence period of struggle against the colonial rule to post-independence movements and agitations regarding land distribution, proper wages for agricultural labourers, rights of tenants, favourable share of produce etc. the agrarian unrest in Bihar has always been associated with caste hierarchy. The movements and agitations of the oppressed class/caste of agricultural labourers, share croppers who mainly belong to the scheduled caste or backward classes have been characterised by violent conflicts with land owners and the state as well. This scenario of backwardness in agricultural production and stagnation in terms of adopting any change happening in other regions of the country, coupled with unrest within the peasantry over the question of land, wages and dignity necessitates analysis of the material situation in agricultural development and differential possession of the most important means of production i.e. land in a region like Bihar.

In the backdrop of such contradictions, the present research aims to assess the following objectives.

### **Section I.2: Objectives of the Study:**

The objectives of the present study are as following:

- I) To analyse the agrarian structure of Bihar dealing with the following aspects:
  - A) Analysing the social distribution of ownership over land
  - B) Analysing the social distribution of operational holding
  - C) Analysing the tenural patterns from the following aspects:

- 1) The pattern of leasing in of land
- 2) The pattern of the terms on which land is leased in.

Analysis on the above parameters has been done on a regional and temporal basis. Analysis has been done for two points of time i.e. for 1991-92 and 2002-2003. The above parameters have been analysed on the basis of size classes of ownership or operational land holding of the households and social groups. The caste status of the households has been considered while analysing on the basis of social groups. In the analysis for 1991-92, the social groups are scheduled tribe households, scheduled caste households and other caste households. In 2002-03, the social groups are scheduled tribe households, scheduled caste households, other backward class households and other caste households.

II) To analyse the dependence of different sections of the peasantry on agricultural production. This analysis is based on the following parameters:

- A) The pattern of use of farming resources
- B) Pattern of current expenditure in farming.

Analyses on above mentioned aspects have been done for 2002-03. The analyses have been done for different size classes of ownership holdings and the social groups. Within the social groups, analyses have been done for the scheduled tribe, scheduled caste, other backward class and other caste households. The regions for which the analyses have been done are northern Bihar, central Bihar and Jharkhand.

The above mentioned objectives have special significance in case of Bihar because of the region specific specificities along with the aspects related to the reorganisation of the state in 2000. In order to incorporate these specificities the following modifications have been done in relation to the study area.

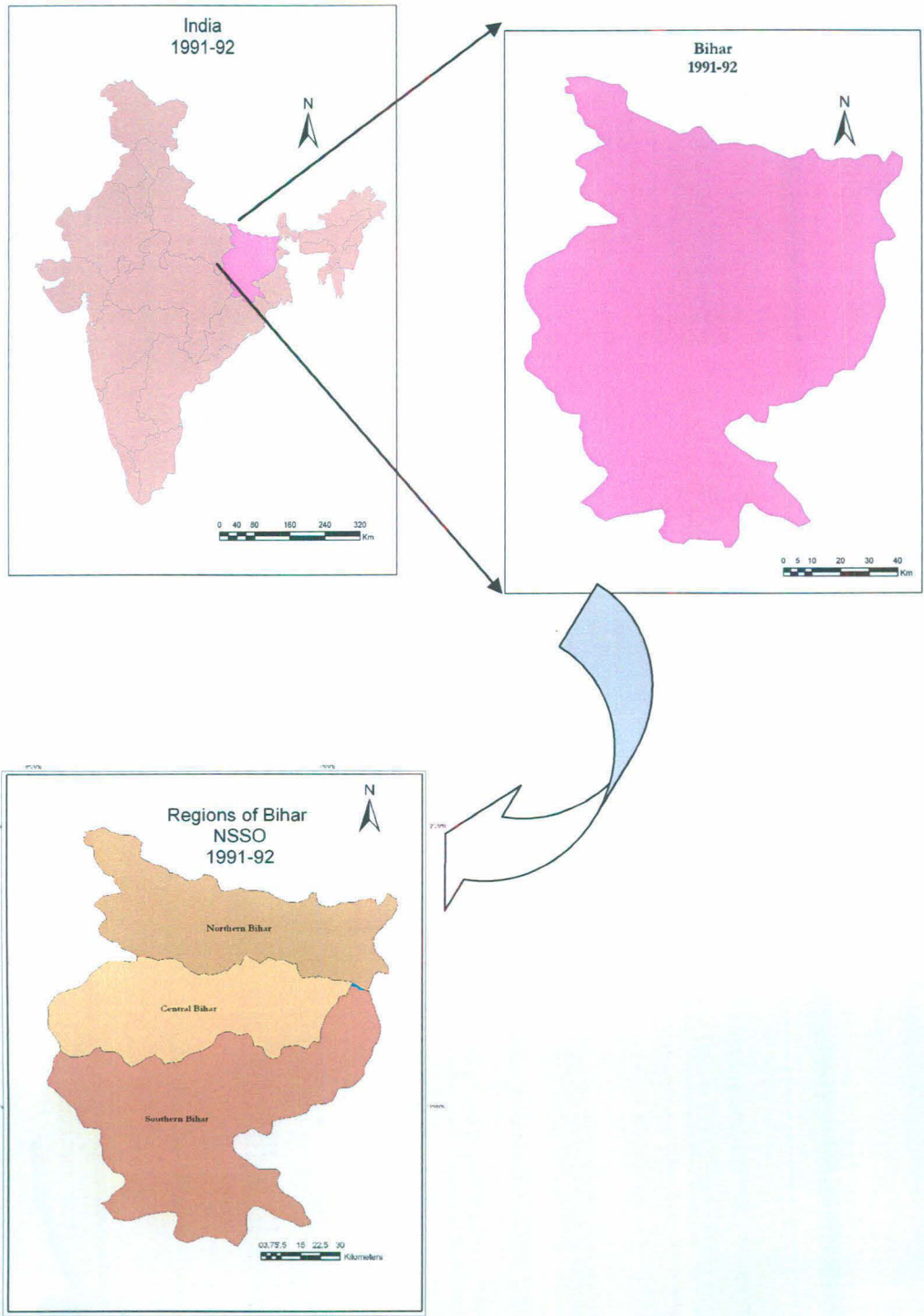
### **Section I.3: Study Area and its Specificities:**

The present research is concerned with analysing the social distribution of land and nature of agricultural development in the region of Bihar including the plateau region that was delineated as the separate state of Jharkhand in 2000. The present study refers to Bihar as the region including the present state of Jharkhand. These two separate states have been under one administrative unit for a long time. The same political and administrative institutions have interacted with the agrarian structure of these two states. Moreover, literature on the political economy of agricultural development in Bihar has analysed the agrarian scenario of both the

regions together. Consideration of these two states together in the present analysis is not with the intention of neglecting the separate regional identity of Jharkhand. Rather to maintain the continuation in analysis of agrarian structure these two states have been considered together. The region including the two states is in the eastern part of the country. The region extends approximately from lat 22° north to 27°31' north and from 83°20' east to 88°17' east. The maximum north-south extent of the region is about 605 km and the maximum east-west width is about 483 km. The region constitutes part of middle Ganga plain and Chotanagpur plateau. National Sample Survey Organisation divides the region in three regions. Figure I.1 shows the National Sample Survey sub-regions within the region of Bihar and Jharkhand. The regionalisation by NSSO remains almost the same in 2003 as in 1992. The southern Bihar region had been delineated as a separate state of Jharkhand. In the 2003 regionalisation by NSSO, the southern Bihar region appears as a separate state i.e. Jharkhand. The regions of NSSO broadly coincide with the physio-geographical regionalisation of Bihar. Northern Bihar region coincides with the plain region of Bihar lying north of the river Ganga. The central Bihar region of NSSO coincides with the plain region of Bihar lying south of the river Ganga. The southern Bihar region coincides with the plateau region of erstwhile Bihar (now Jharkhand) constituting the Kaimur plateau region, the Hazaribagh plateau, the Rajmahal hills and adjoining peneplains, the Damodar valley, the Ranchi plateau, the Chaibasa plains and the lower Subarnarekha valley. The southern Bihar plateau region is distinct from the other two regions not only in physiography, but also in the higher concentration of tribal population in this region. The plateau region is rich in mineral resources. Based on the mineral resources, industrial centres have developed in this region.

National Sample Survey Organisation provides household level data at district level as well, but the sample size at district level would be too little to enable any valid analysis on the various aspects of agrarian structure and investment in agriculture.

**Fig I.1: Location and Regions of Study Area**



#### **Section I.4: Research Questions:**

It is evident from the statement of the problem, objective of the study and the specificities of the study area that the issue of agriculture in Bihar is a complex one. There is ample scope for subjective interpretation. Thus, in order to avoid the same and meet the research objectives the following research questions and research methodologies have been followed.

The research questions of the present study are as following:

- 1) Does the distribution of the most important means of production i.e. land show acute inequality? How does the existence of any such inequality affect the dependence of huge population on small land holding with its overall effect on the agrarian relations in Bihar?
- 2) Is the caste hierarchy coterminous with size of land holding? In other words does the possession over land establish the material conditions of social hierarchy in the form of caste structure?
- 3) In what way does the union between the land ownership and caste hierarchy aggravate the vicious circle in agriculture in Bihar?

As mentioned before, minimising the subjectivity and enhancing the objectivity is the main aim of the present research. To achieve this, the research work has been built on objective and factual data and information. Some important data sources used are discussed in the next section.

#### **Section I.5: Data Sources:**

The present research is based on data provided by the National Sample Survey Organisation. NSSO household level data has been used to analyse various parameters related to the study. Data for the two points of time is based on 48<sup>th</sup> round survey conducted during 1992 and 59<sup>th</sup> round survey conducted during 2003.

Data on ownership and operational holding of the households and leasing patterns are based on Land and Livestock holding survey of NSSO. The data on Land and Livestock holding survey has been designed under schedule number 18.1 in both the rounds. The data on Land and Livestock holding was collected in two visits both in the 48<sup>th</sup> round and 59<sup>th</sup> round. In 48<sup>th</sup> round the data was collected in 1992 and the reference period was the agricultural year of 1991-92. In 59<sup>th</sup> round the data was collected in 2003 and the reference period was the agricultural year of 2002-2003. In both the rounds data collected in the first visit refers to the Kharif season of the agricultural year. In the present research the data of the first visit in both the years has

been used. Kharif is the main agricultural season in Bihar. The status of land holdings and tenural pattern in the Kharif season refer to the agricultural year for both the points of time in the present research. From the household level data provided by NSSO for both the points of time data on area of land owned by households, area operated by the households, land leased in and the terms for which land has been leased in are used for the present research. Household level data only for the rural area has been used in the study.

Data on use of farming resources and current expenditure is based on household level data of Situation Assessment Survey of Farmers conducted by NSSO in 2003. Schedule number 33 was designed to collect data on Situation Assessment Survey of Farmers. Situation Assessment Survey was first conducted by NSSO in the 59<sup>th</sup> round. That is why, analysis on use of farm resources and current expenditure could not be done for the agricultural year 1991-92. Data on Situation Assessment Survey of farmers was also collected in two visits. In the first visit data was collected for Kharif season of the agricultural year 2002-2003. In the second visit data was collected for Rabi season of the agricultural year 2002-2003. In the present study data on the Kharif season is used and this refers to the entire agricultural year of 2002-2003. Situation Assessment Survey of Farmers in the 59<sup>th</sup> round was conducted only in rural areas.

NSSO data has been used in the analysis of the present study because this organisation provides detailed data on various aspects of farming. Information on land holding, leasing pattern, investment in farming is available at household level from the data provided by NSSO. This makes detailed analysis at household level of various sections of farmers much easier. The data on agrarian structure and input in farming was available from the Agricultural Census of India as well. But, this data could not be used adequately mainly due to the availability of data at district level, not at household level. Secondly, the level of under reporting in Agricultural census is much more than NSSO. NSSO provides data based on household level survey, whereas the data in Agricultural Census is based on official land records.

Social and demographic characteristics of the states has been analysed on the basis of data from Primary Census Abstract, Census of India. Data for 1981 and 2001 has been used for analysis of social and demographic characteristics of the states.

It is an accepted fact that objective data is a pre-requisite of any good research. But data collection in itself is not a research. On the contrary, data analysed not



interpreted with the help of a sound logical and philosophical framework does not make a sound research. In the following section some logical and philosophical positions used in the present research has been made explicit so that it does not degenerate into the quagmire of infinite interpretations.

#### **Section I.6: Explanation of the Concepts Used in Research Methodology:**

Household level data of the NSSO had to be aggregated for calculations in the present study. Data on land holding was provided on the basis of plots of land which had to be aggregated in ownership and operational holding of the households. Some other concepts based on which data was collected by NSSO and aggregation was done in the present study are as following:

**Ownership Holding:** The National sample survey Organisation defines ownership holding as following:

- (i) A plot of land was considered to be owned by a household if permanent heritable possession, with or without the right to transfer the title was vested in a member or members of the household. Land held in owner-like possession under long term lease or assignment was also considered as land owned. Thus, in determining the ownership of a plot of land two basic concepts were involved, namely,
  - (a) Land owned by the household, i.e. land on which the household had the right of permanent heritable possession with or without the right to transfer the title, e.g. Pattadars, Bhumidars, Jenmons, Bhumi-swamis, Rayat Sithibans, etc. A plot of land may be leased out to others by the owner without losing the right of permanent heritable possession.
  - (b) Land held under special conditions such that the holder did not possess the title of ownership but the right for long term possession of the land (for example, land possessed under perpetual lease, hereditary tenure and long term lease for 30 years or more) was considered as being held under owner-like possession. In states where land reform legislation has provided for full proprietorship to erstwhile tenants, they were considered as having owner-like possession, even if they had not paid the full compensation.
- (ii) Sometimes a plot may be possessed by a tribal in accordance to the traditional tribal rights from local chieftains or village/district council. Again, a plot may be occupied by a tenant while the right of ownership

vests in the community. In both the cases, the tribal or the other individual (tenant) was taken as owner, for in all such cases, the holder had the owner like possession of land in question.

In 48<sup>th</sup> round survey of land and livestock holding of NSSO, data on owned land was collected in separate block of the schedule. This included plots of land leased out by the household. Data collected on land owned by the household excluded homestead land in the 48<sup>th</sup> round. In 59<sup>th</sup> round, data on land owned by the household was given in the block where data on all the plots of land of the household was collected. That is why, in the calculation of ownership holding of the household, the area of homestead land could be included. Although, the inclusion of homestead land in the calculation of ownership holding of the household for the agricultural year 2002-2003 might make the comparability of ownership between 1991-92 and 2002-2003 difficult, homestead land was included in ownership in 2002-2003 because the calculation of operational holding included area under homestead land. To make the comparability of ownership and operational holding at least in 2002-2003, homestead land was included in the calculation of ownership in 2002-2003.

#### **Operational Holding:**

National Sample Survey Organisation defines operational holding as following:

An operational holding is defined as a techno-economic unit used wholly or partly for agricultural production and operated (directed/managed) by one person alone or with the assistance of others, without regard to title, size or location. The holding might consist of one or more parcels of land, provided they are located within the country and form part of the same technical unit. In the context of agricultural operations, a technical unit is a unit with more or less independent technical resources covering items like land, agricultural equipments and machinery, draught animals etc. Holdings used exclusively for livestock and poultry raising and for production of livestock and poultry products (primary) and/or pisciculture are considered as operational holdings whereas holdings put exclusively to uses other than agricultural production are not considered as operational holdings. Holdings operated by cooperative farms are also not considered as operational holdings.

Based on the above definition, if any household was identified to carry any agricultural production during the reference period, all the plots possessed by the

household during major part of the agricultural year was included in the calculation of operational holding. In the calculation of operational holding, homestead land was also included because kitchen gardening in homestead land can be incorporated. Especially in such regions where the average size of land holding is small and a considerable number of population has to depend on small piece of land such production in kitchen garden is important. Comparison of ownership and operational holding is difficult for the agricultural year 1991-92, but for 2002-2003 the comparison is possible.

#### **Size Classes of Ownership or Operational Holding:**

To represent the variation of different parameters size classes of ownership and operational holding has been used as categories of classification. The categorisations are at two levels in the present study. For representing inequality in land holding and pattern of current expenditure a more minute classification is adopted. The size classes in such cases are:

Less than .002 hectares, .002 to .003 hectares, .004 to .040 hectares, .041 to .5 hectares, .501 to 1 hectare, 1.001 to 2 hectare, 2.001 to 3 hectares, 3.001 to 4 hectare, 4.001 to 5 hectare, 5.001 to 7.5 hectares, 7.501 to 10 hectares, 10.001 to 20 hectares and more than 20 hectares<sup>1</sup>.

In other cases of explanation or analysis, these size classes have been merged into broader categories. Five size classes have been adopted as broad size classes. Along the lines of Agricultural Census of India, which has also been NSSO in the reports, the five broad size classes are:

Marginal category: less than 1 hectare

Small category: 1.01 to 2 hectares

Semi-medium: 2.01 to 4 hectares

Medium: 4.01 to 10 hectares

Large: more than 10 hectares

#### **Lease of land:**

Lease of land is defined by NSSO as following:

Land given to others on rent or free by owner of the land without surrendering the right of permanent heritable title is defined as land leased-out. It is defined as

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<sup>1</sup> Detailed data on various aspects of farming is provided with respect to this set of size classes in NSSO reports.

land leased-in if it is taken by a household on rent or free without any right of permanent or heritable possession. The lease contract may be written or oral.

#### **Current Expenditure in Agricultural Production:**

Expenses on agricultural production for the agricultural season i.e. August to December 2002 has been considered as the current expenditure on agricultural production. The expenses include expenditure on seeds, pesticides/insecticides, fertiliser/manure, irrigation, minor repairs and maintenance of machinery and equipment, interest, lease rent for land, wage paid for regular and casual labour and other expenses.

#### **Use of Farming Resources:**

Whether some of the important inputs were used in crop production by the household was considered while calculating the percentage of households using farming resources. The inputs were fertiliser, organic manure, improved seeds, pesticide, and veterinary service.

#### **Section I.7: Limitations of the Study:**

The analysis of agrarian structure could not bring out the comparison of ownership holding and operational holding of the households for the year 1991-92. The calculation of ownership holding did not include home stead land because of the pattern in which data was given in the 48<sup>th</sup> round. Changes in the distribution of owned land could not be made comparable because of the same reason.

A more detailed analysis of the regional pattern could be accomplished if the analysis was done on district level. District level data was available from the Agricultural Census of India. But because of the problems mentioned earlier data from agricultural Census was not used. District level data from NSSO could not be used because the sample size had become too little to give any significant analysis.

Moreover, data on agrarian structure and expenditure pattern was given in separate schedules. So these two aspects could not be analysed together at a more detailed basis. Depending on the findings of agrarian structure separately, the pattern of expenditure had to be interpreted.

The pattern of expenditure could not be analysed for the year 1991-92, whereas there is a comparative analysis of agrarian structure of 1991-92 and 2003. Situation Assessment Survey of farmers was first conducted in the 59<sup>th</sup> round in 2003. That is why; a comparative study of expenditure pattern could not be done with 1991-92.

It is clear that the concept used in the research have been used carrying definite meanings along with stringent other limitations. However, the study could find a way out through appropriate research methodologies.

### **Section I.8: Methodology:**

Statistical methods used for calculation in the present study are as following:

#### **1. Measuring the Inequality in Land Distribution:**

The inequality in distribution of land holdings has been represented through the following methods:

##### **A. Lorenz Curve:**

Lorenz curve provides the pictorial representation of degree of inequality. The cumulative percentages of two variables at certain points are represented in Lorenz Curve. In the present study to represent the inequality in distribution of owned land or the operational holding, the proportion of households to total number of households and proportion of owned land to total land owned in the entire region or proportion of area of operational holding to total area of operational holding in the entire region is arranged in a ascending order according to the size of ownership or operational holding of the households. The different points obtained by placing values of cumulative percentage of number of households and cumulative percentage of area owned or area of operational holding are joined by smooth curve. The diagonal line of the rectangle formed by the axis of the curve represents the line of equal distribution. The deviation of the curve joining different points of actual values of cumulative percentage of land respective to cumulative percentage of households from the line of equal distribution shows the extent of inequality.

##### **B. Gini's Co-efficient:**

Lorenz curve can represent the extent of inequality pictorially. The overall concentration of land can be measured numerically through Gini's co-efficient. It is a measure which is consistent with Lorenz Curve. The ratio of the area covered under the smooth curve and the triangle created by the line of equal distribution is measured in Gini's co-efficient in the following formula:

$$G = \frac{\sum X_i Y_{i+1} - \sum Y_i X_{i+1}}{10000}$$

Where  $X_i$  is cumulative percentage of number of households and  $y_i$  is cumulative percentage of area owned or area of operational holding.

2. Relation between area operated by the household and area leased in has been measured through Pearson's correlation co-efficient:

$$R = \frac{\sum XY/N - \bar{X}\bar{Y}}{\sigma_x \sigma_y}$$

Where  $X$  is area of operational holding,  $Y$  is area leased in,  $\bar{X}$  is mean of area of operational holding,  $\bar{Y}$  is mean of area leased in,  $\sigma_x$  is standard deviation of  $X$  and  $\sigma_y$  is standard deviation of  $Y$ .

3. Association between caste and other variables as area owned, area of operational holding and area leased in has been measured through Chi-square test for association:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

where  $\chi^2$  is the value of chi-square,  $O_i$  and  $E_i$  are the observed and estimated frequencies respective of the  $i^{\text{th}}$  class.

### **Section I.:9 Scheme of Chapterisation:**

The present research analyses the agrarian structure of Bihar in terms of the possession over the most important means of production i.e. land and the release of forces of production in terms of expenditure in agricultural production and use of inputs by different sections of the peasantry defined through access to land and position in the caste hierarchy. The analysis of backwardness in agricultural production in a region like Bihar has been approached through the following scheme of chapterisation:

- First chapter of the study contextualises the research questions of the study. This chapter introduces the theme of the research through statement of the problem. Objective of the research, research questions, data source and limitations, methodology and study area has been discussed in the first chapter.
- The second chapter explains the approach towards the study. The explanatory approach discussed in the second chapter includes the position of Bihar as a region in the post-independent scenario of development in various socio-economic and demographic parameters. Review of literatures in the second

chapter has added to the explanation of backwardness of Bihar in agricultural production.

- Third chapter is an analysis of the empirical work done on the agrarian structure of Bihar over the regions and for two points of time. Agrarian structure has been explained through the inequality in distribution of area owned and area operated as well as leasing pattern. The role of caste in the existing agrarian structure has also been analysed.
- Fourth chapter of the study empirically analyses the expenditure in agricultural production and use of inputs in farming by different land owning sections of the peasantry and farmer households belonging to different castes. This chapter attempts to explain the dependence of different sections of peasantry on the land owned by them and agricultural production depending on their access to land.
- Fifth chapter of the study concludes on the major findings. This chapter summarises the conclusion of different chapters and at the same time attempts to explain the interaction of different aspects of agrarian structure and agricultural production.

## **Chapter II: Theoretical Approach to the Study and Literature Review**

### **Section II.1: Bihar as a Part of the Indian Nation in the Post-independent Scenario:**

After independence in a post colonial country like India, regional specificities emerge as a manifestation of history, present state policies, and power structures operating in the political sphere and in the institutions. In the post-independence planning process<sup>1</sup>, colonial experiences had been recognized and the necessity of centrally planned development to overcome the crises that the country was going through had been accepted. In the federal structure of the country, along with centrally planned development, local level decentralization to ensure an inclusive development program are the characteristics of the initial phase of building up a constitutional democracy<sup>2</sup>. The country has also experienced a major change in economic policies since the 1990s. Consequently, these changes in the economic policy had an impact on various sectors; the change in the state's priorities and its attitude towards its role as the backbone of a planned economy has become a major point of debate.

In this light, the manner in which the different regions which were brought under the arena of the Indian state experienced changes after independence can be understood through the socio-economic and demographic characteristics of the states:

#### **Section II.1.a: Regional Pattern in Demographic Characteristics:**

The various demographic parameters not only bring out the characteristics of population, but also the impact of the overall socio-economic situation in the dynamics of development. There are various parameters which reflect the phase of demographic transition which the particular population finds itself in. This reflects the long term impact of socio-economic development. But other parameters also bring out the immediate effects of the present standard of the population. As mentioned earlier,

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<sup>1</sup> An economy in which state authorities rather than market forces directly determine prices, output and production. Although planned economies can take variety of forms, their most important feature usually include: a) production targets for different sectors of the economy, that determine the supply of different commodities b) rationing of certain commodities, to determine demand for them c) price and wage-fixing by state bodies d) (sometimes, a conscripted labour market in which labourers can take jobs assigned to them.- Dictionary of Economics , Delhi: Replica Book Private Ltd.

<sup>2</sup> Fundamental laws and rules governing the politics of the newly independent nation like India being defined through constitution. Constitution has been key to define the arena of sovereignty, fundamental rights and duties of the citizens within that arena and responsibilities of the state.



post 1991<sup>3</sup> has experienced major shifts in the economic policies and shifts in terms of composition in sectors. The service sector has undergone a major boom. Following that change, along with the fact that the preferences in government policies have also undergone a shift, the immediate result of demographic characteristics has been in terms of urbanization, sex ratio etc.

The comparative changes in these parameters between 1981 and 2001 can bring reveal the level to which the various states have experienced the changes.

In 1981, as shown in the table below, the percentage of people living in urban areas was comparatively high in states like Gujarat, Maharashtra, Karnataka etc.

TableII.1: Demographic Characteristics of the States, 1981<sup>4</sup>

States	%Urban Population	Sex Ratio	Literacy Rate	Female Literacy Rate
A P	23.32	975.35	29.94	20.39
Bihar	<b>12.47</b>	<b>945.83</b>	<b>26.20</b>	<b>13.62</b>
Gujarat	31.10	941.92	43.70	32.30
Haryana	21.88	870.15	36.14	22.27
Hp	7.61	972.79	42.48	31.46
Karnataka	28.89	962.50	38.46	27.71
Kerala	18.74	1031.78	70.42	65.73
M P	20.29	940.72	27.87	15.53
Maharashtra	35.03	936.88	47.18	34.79
Manipur	26.42	970.79	41.35	29.06
Meghalaya	18.07	953.78	34.08	30.08
Nagaland	15.52	863.22	42.57	33.89
Orissa	11.79	981.27	34.23	21.12
Punjab	27.68	878.54	40.86	33.69
Rajasthan	21.04	918.99	24.38	11.42
Sikkim	16.14	834.75	34.05	22.20
Tamil Nadu	32.95	976.84	46.76	34.99
Tripura	10.99	946.31	42.12	31.99
U P	17.95	884.79	27.16	14.04
West Bengal	26.47	911.03	40.94	30.25

Among the states which had comparatively low proportion of people living in urban areas, Himachal Pradesh, Orissa, and Bihar are significant. Among those states which had a comparatively favourable sex ratio, Kerala, Himachal Pradesh, Andhra Pradesh, and Orissa are noticeable. Gujarat, MP, Haryana, Punjab had quite a low sex

<sup>3</sup> In 1991 the policy of liberalization, privatization and globalization was adopted by the government.

<sup>4</sup> Source: Census of India, 1981

ratio. Bihar had a sex ratio which was not as low as these states, but when compared to the states mentioned earlier, its sex ratio was lower. In terms of literacy, almost all the states showed a poor performance. But among them, Kerala had a literacy rate as high as 70 percent. Bihar was one of the states which had the lowest literacy rates in the country. Bihar's literacy rate was as low as 26 percent. The picture of the poor status of basic educational capability becomes all the more clear when one looks at the female literacy rate. Those states which had low literacy rate also showed even lower values for female literacy. Bihar is the state which not only showed a low literacy rate, but also the gender disparity in literacy was also among the highest in the country.

The broad pattern of changes from 1981 to 2001 has been shown in the table number II.2.

Table II.2: Demographic Characteristics of the States, 2001<sup>5</sup>

States	% Urban population	Sex ratio	Literacy rate	Female literacy rate
H P	9.80	968.27	76.48	67.42
Punjab	33.92	875.93	69.65	63.36
Uttaranchal	25.67	962.44	71.62	59.63
Haryana	28.92	860.67	67.91	55.73
Rajasthan	23.39	920.71	60.41	43.85
Uttar Pradesh	20.78	897.99	56.27	42.22
Bihar	10.46	919.32	47.00	33.12
Sikkim	11.07	874.80	68.81	60.40
Arunachal Pr	20.75	893.24	54.34	43.53
Nagaland	17.23	900.45	66.59	61.46
Manipur	26.58	976.77	70.53	60.53
Mizoram	49.63	935.43	88.80	86.75
Tripura	17.06	948.09	73.19	64.91
Meghalaya	19.58	971.64	62.56	59.61
Assam	12.90	934.78	63.25	54.61
West Bengal	27.97	933.54	68.64	59.61
Jharkhand	22.24	940.64	53.56	38.87
Orissa	49.30	972.32	63.08	50.51
Chattisgarh	20.09	989.06	64.66	51.85
Madhya Pr	26.46	919.24	63.74	50.29
Gujarat	37.36	920.41	69.14	57.80
Maharashtra	42.43	922.17	76.88	67.03
Andhra Pr	27.30	978.07	60.47	50.43
Karnataka	33.99	964.78	66.64	56.87
Kerala	25.96	1058.45	90.86	87.72
Tamil Nadu	44.04	987.38	73.45	64.43

<sup>5</sup> Source: Census Of India, 2001

States which had high percentages of urban population in 1981 continue to be the ones that have high urban population in 2001 as well. Gujarat, Karnataka, Maharashtra, Tamil Nadu, Mizoram, and Orissa have higher percentage of population living in urban areas. All of these have experienced an increase in urban population. Orissa is one state which has shown a significant increase in urban population. Among those states which continue to have lower percentage of urban population are Himachal Pradesh, Assam and Bihar. Bihar is not only a state which has significantly lower percentage of urban population, rather the percentage of people living in urban areas have decreased in this state from 1981. This stagnation is an exceptional characteristic of Bihar, particularly in a phase when the condition has changed at all India level. In such a period where the boom in service sector and consequent change in occupational patterns has worked as a major attracting force towards the urban areas, such a feature of decreasing urban population in Bihar signifies the stagnation of the economy as a whole, if the rural push factor has not decreased at a significant scale to effect the urbanization pattern.

Another associative aspect closely linked to such spatial differences is the gender composition of the society. Sex ratio of the country has increased a little for this period. But the state-wise picture is shows continuing gender disparity. There appears to be a clear north-south divide among different states. Kerala, Karnataka, and Tamil Nadu continue to be the states having a favourable sex ratio. Bihar, Punjab, Haryana, Uttar Pradesh, and Rajasthan are the states with a very low sex ratio. In Bihar, the sex ratio has even decreased over the period. Bihar's sex ratio is the fifth lowest in the country.

Another important social indicator is the literacy rate. Literacy rate in Kerala, Maharashtra, Tamil Nadu, Tripura, and Himachal Pradesh is quite high as compared to other states in the county. Uttar Pradesh, Jharkhand, and Bihar are the states having lowest literacy rates in 2001. Among these, Bihar has the lowest literacy rate in the country. The increase in literacy rate of various states like Rajasthan is noticeable. This state had the lowest literacy rate in the country in 1981, but in 2001 has overtaken states like Bihar in terms of literacy. For female literacy as well, Bihar has the lowest rate in 2001.<sup>6</sup> Where other states have been able to recover the gap between male and female literacy to a limited extent, no such trend can be noticed in Bihar.

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<sup>6</sup> The definition of literacy rate has changed from 1991. Literacy rate is calculated for the population above seven years of age. This may effect the positively the change in literacy rate from 1981 to 2001.

In terms of demographic characteristics, the different states are at different levels of achievement. Among those states that are at a lower level of acquiring dynamism in demographic characteristics, Bihar is most noticeable in showing persisting stagnation over time in various demographic parameters. Other than the demographic parameters, it is important to look at various other factors that define the level of development of any state. Occupational characteristics of the states that can be differentiated in terms of achievements in demographic parameters can be looked into to capture a broader understanding.

### Section II.1.b: Occupational Character of the Population:

The changes in economic priorities of the state justified by the logic of creating more economic opportunities for the people are in a way reflected in the occupational characteristics of the population. Are people capable of being engaged in economically productive activity for major part of the year? Is there any shift from the traditional occupational structures? These are some of the issues to be raised while evaluating the impact of development in the economic scenario. In 1981, less than 50 percent of the population was engaged for more than 6 months in economically productive activity.

Table II.3: Occupational Characteristics of the States, 1981<sup>7</sup>

States	% Main Workers to total population	% Cultivators to total main workers	% Agricultural labourers to main workers	% Household workers to main workers	% Other workers to main workers
Andhra Pr	42.26	32.74	36.79	4.70	25.77
Bihar	29.68	43.57	35.50	2.39	18.55
Gujarat	32.22	37.46	22.65	2.43	37.45
Haryana	28.35	44.68	16.11	2.81	36.41
Himachal Pr	34.36	68.08	2.72	1.84	27.36
Karnataka	36.76	38.26	26.78	4.10	30.87
Kerala	26.68	13.06	28.23	3.69	55.01
Madhya Pr	38.41	51.96	24.24	3.52	20.28
Maharashtra	38.71	35.12	26.63	2.55	35.69
Manipur	40.35	63.60	4.99	9.68	21.73
Meghalaya	43.44	62.56	9.98	0.84	26.62
Nagaland	47.53	72.29	0.81	0.40	26.51
Orissa	32.75	46.94	27.76	3.30	22.00
Punjab	29.35	35.86	22.16	2.58	39.39
Rajasthan	30.48	61.59	7.32	3.26	27.83
Sikkim	46.60	60.10	3.31	1.08	35.51
Tamil Nadu	39.30	29.22	31.73	4.72	34.33
Tripura	29.64	43.28	24.00	1.44	31.27
Uttar Pr	29.22	58.52	15.98	3.70	21.80
West Bengal	28.26	29.76	25.22	3.52	41.49

<sup>7</sup> Source: Census of India, 1981

Bihar, Punjab and Kerala are the states which had less than 30 percent main workers to total population. Percentage of cultivators to main workers was quite high for almost all the states. Other than the north eastern states and Kerala, Maharashtra and Punjab, all other states had more than 40 percent main workers working as cultivators. Bihar had 43.57 percent of main workers as cultivators. Percentage of agricultural labourers to main workers bring out the proportion of people who are engaged in the agricultural sector without possessing any land and thus dependent on the land owner. Bihar is a state which had one of the highest percentage of people engaged as agricultural labourers working on land owned by others. Percentage of people engaged in household manufacturing activities was quite low for every state. Proportion of other workers to main workers shows the opportunities created by secondary and tertiary sector in providing livelihood to the people. This parameter was quite high for states like Punjab, Maharashtra, Haryana, and Kerala. Bihar is most noticeable for having the lowest value of percentage of other workers to total main workers. Manufacturing and tertiary sector had created very limited job opportunities for the people in Bihar.

The impact of major changes in broader economic policies of the country on occupational characteristics of the population can be understood from a comparison of occupational characteristics of different states from 1981 to 2001. The broad changes in the occupational characteristics in 2001 are shown in the table number II.4.

Table II. 4: Occupational Characteristics of the States, 2001<sup>8</sup>

States	% M. W. to population	% Cultivators to M.W.	% Agricultural Labourers to M. W.	% Household Workers to M. W.	% Other Workers to M.W.
Himachal Pr	32.31	55.46	1.84	1.78	40.92
Punjab	32.17	24.17	13.50	3.12	59.21
Uttaranchal	27.36	45.97	6.14	2.11	45.77
Haryana	29.52	35.64	9.74	2.45	52.17
Rajasthan	30.86	54.95	5.78	2.88	36.39
Uttar Pr	23.67	46.98	15.14	5.32	32.56
Bihar	25.37	32.16	42.85	3.56	21.44
Sikkim	39.36	47.53	4.27	1.49	46.71
Arunachal Pr	37.80	56.59	2.57	1.00	39.84
Nagaland	35.38	65.16	1.71	1.64	31.49
Manipur	30.43	43.35	6.34	6.55	43.77
Mizoram	40.79	55.97	2.99	1.21	39.83
Tripura	28.52	27.66	18.47	2.18	516.89
Meghalaya	32.65	50.24	12.54	1.84	22.17
Assam	26.69	37.67	8.94	2.55	50.84
West Bengal	28.72	19.79	19.64	6.24	54.33
Jharkhand	23.92	41.20	16.32	4.38	38.10
Orissa	26.05	35.82	21.88	4.22	38.08
Chattisgarh	33.86	49.45	22.00	2.25	26.30
Madhya Pr	31.65	26.42	20.32	3.83	29.20
Gujarat	33.60	27.67	17.91	1.80	52.62
Maharashtra	35.87	29.30	21.99	2.33	46.38
Andhra Pr	38.11	25.47	33.83	4.66	36.04
Karnataka	36.64	31.95	19.54	4.11	44.40
Kerala	25.87	7.12	12.40	3.35	77.13
Tamil Nadu	38.07	19.95	33.94	5.31	49.23

M.W. = main Workers

The above table shows that in 2001, Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, and Sikkim had a comparatively larger population as main workers. Assam, Bihar, Jharkhand, and Kerala continue to show lower percentage of people engaged as main workers. The percentage of cultivators to total main workers has decreased for many of the states. In case of Bihar also, percentage of cultivators to total main workers has decreased. But it was still high as compared to other states, barring the north eastern states. A possible explanation of such a decrease can be understood if one looks into the change in percentage of agricultural workers from 1981 to 2001. When for almost every other state the percentage of agricultural workers has decreased along with the decrease in the percentage of cultivators, it has increased for Bihar. That in a way signifies that there has not been a major shift in the proportion of people dependent on agriculture for their livelihood, rather many of them have lost any type of possession over land, but continue to depend on agriculture

<sup>8</sup> Source: Census of India, 2001

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in the state of Bihar. There has not been any major change in the percentage of household manufacturing workers either. The percentage of people working as other workers which includes manufacturing and tertiary sector workers have undergone major increase, specially in the states like Maharashtra, Gujarat, Punjab, Haryana etc. In Bihar, the percentage of other workers has increased very marginally. Thus, the changes in the sectoral composition of the economy have created a very little impact on the economy of Bihar within this period. How this change or stagnation in sectoral composition of the work force is linked to other developments in the economic parameters is important to be enquired into.

### Section II.1.c: State wise Variation in Developments in the Economy:

It is clear from the above description that the developments in manufacturing and tertiary sectors have not contributed significantly in creating alternative job opportunities. Those states which had an initial edge in such sectors have definitely moved a little ahead. But for those states where cultivation and working as agricultural workers is borne out of optionlessness for the population at large, agricultural development needs critical insight. The analysis of the agricultural output produced and the productivity of those engaged in agriculture can establish the dynamics in the agricultural sector or the absence of it. It becomes all the more important when the country has gone through a phase of productivity increase through adoption of the 'green revolution' package in at least certain regions.

Table II.5: State Wise Growth of Agricultural Out Put for Major 43 Crops<sup>9</sup>

States	1980-83 over 1970-73	1992-95 over 1980-83
Haryana	3.02	4.74
Himachal Pradesh	0.96	2.2
J&k	3.47	0.33
Punjab	4.74	3.87
Uttar Pradesh	2.77	2.83
Assam	2.8	2.15
Bihar	-0.41	2.08
Orissa	2.65	1.15
West Bengal	0.68	5.39
Gujarat	3.12	1.96
Madhya Pradesh	1.28	4.71
Maharashtra	6.57	2.87
Rajasthan	1.26	5.02
Andhra Pradesh	3.61	3.08
Karnataka	2.32	3.92
Kerala	-0.91	2.24
Tamil Nadu	-0.57	4.59

<sup>9</sup> Source: Bhalla and Singh

The above table brings out the growth of agricultural output for different states for two time periods. 1970s was a period when the whole paradigm of increase in productivity of major crops was in focus, not only at the policy level, but also in the material change experienced in several parts of the countryside. If one looks at the increase in output for that particular decade, states like Punjab, Maharashtra and Gujarat show comparatively higher percentage growth for production, although the values did not increase as much as expected. In such a period one can see that states like Kerala, Tamil Nadu and Bihar showed negative growth rates. Those states which did not experience such a major leap in production during the 1970s increased their output for major crops in the next decade (during 1980s). Although, in this phase Bihar also experienced an increase in production, yet the rate of growth was low as compared to other states that started late in increasing the output in major crops.

Apart from increase in output, the change in the value created by individual workers in the agricultural sector is also an important indicator of the dynamics of agrarian development. The broad pattern of the changes in the productivity of agricultural workers is evident from the following table:

Table II.6: Percentage Distribution of Districts by Level of Male Agricultural Workers' Productivity, 1970-73<sup>10</sup>

States	>Rs 16000	Rs 12000- 16000	Rs 9000- 12000	Rs 6000- 9000	<Rs 6000
Haryana	28.57	42.86	28.57	0.00	0.00
J&k	0.00	0.00	0.00	0.00	100.00
Punjab	54.55	36.36	9.09	0.00	0.00
Up	0.00	2.08	12.50	25.00	60.42
Assam	0.00	42.86	0.00	28.57	28.57
Bihar	0.00	0.00	0.00	6.67	93.33
Orrisa	0.00	0.00	0.00	54.55	45.45
W B	0.00	0.00	7.14	42.86	50.00
Gujarat	11.11	16.67	27.78	33.33	11.11
M P	0.00	0.00	9.30	53.49	37.21
Maharashtra	0.00	0.00	0.00	28.00	72.00
Rajasthan	0.00	3.85	11.54	38.46	46.15
A P	0.00	0.00	5.88	35.29	58.82
Karnataka	10.53	0.00	21.05	57.89	10.53
Kerala	100.00	0.00	0.00	0.00	0.00
Tamil Nadu	0.00	0.00	18.18	81.82	0.00

<sup>10</sup> Source: Bhalla and Singh



The above table shows the level of male agricultural workers' productivity in different states in terms of percentage of districts falling under different levels during 1970-73. In states like Uttar Pradesh, Bihar, Maharashtra, Andhra Pradesh, and West Bengal, most of the districts showed low levels of male agricultural workers' productivity. Bihar, among such states, had almost all the districts falling under the category of lowest male agricultural workers' productivity. States with high concentration in low to medium level of male agricultural workers' productivity were Tamil Nadu, Karnataka, Orissa, and Madhya Pradesh. States where a substantial percentage of districts fall under high to highest level of productivity are Kerala, Punjab, and Haryana. Bihar had no district falling under medium, high or highest level of male agricultural workers productivity.

The period of 1970 to 1990 had experienced productivity increase in several states in India due to adoption of productivity raising technologies. The level of agricultural workers' productivity had definitely risen to a considerable level. The position of different states in terms of percentage of districts in various levels of male agricultural workers' productivity in 1990-93 can be understood from the following table.

Table II.7: Percentage Distribution of Districts by Level of Male Agricultural Workers Productivity, 1990-93<sup>11</sup>

States	> Rs 16000	Rs 12000- 16000	Rs 9000- 12000	Rs 6000- 9000	<Rs 6000
Haryana	85.71	14.29	0.00	0.00	0.00
J&k	0.00	0.00	0.00	0.00	100.00
Punjab	100.00	0.00	0.00	0.00	0.00
Up	2.08	10.42	18.75	45.83	22.92
Assam	0.00	0.00	28.57	42.86	28.57
Bihar	0.00	0.00	0.00	0.00	100.00
Orissa	0.00	0.00	70.00	30.00	0.00
WB	0.00	0.00	35.71	42.86	21.43
Gujarat	55.56	33.33	5.56	0.00	5.56
Mp	2.33	16.28	20.93	25.58	34.88
Maharashtra	0.00	16.00	56.00	28.00	0.00
Rajasthan	3.85	3.85	26.92	38.46	26.92
AP	0.00	11.76	35.29	41.18	11.76
Karnataka	10.53	26.32	31.58	26.32	5.26
Kerala	66.67	16.67	16.67	0.00	0.00
Tamil Nadu	0.00	27.27	54.55	18.18	0.00

<sup>11</sup> Source: Bhalla and Singh

The level of production is increasing in terms of proportion of districts having a certain level of agricultural workers' productivity. States like Punjab and Haryana have almost all of their districts falling under highest to high level of productivity. The number of districts falling under the lowest level of agricultural workers' productivity in states like Uttar Pradesh, Maharashtra, Andhra Pradesh and West Bengal have decreased to a significant extent in 1990-93. The experience of Bihar is just the contrary to it. During 1990-93 all the districts in Bihar fell under the category of lowest per agricultural workers' productivity.

The overall scenario that emerges indicates the fact that there are some states which lag in some indicators of development but perform relatively better in other indicators or have experienced positive change over a time period. Whether or not the increased productivity in some states has led to gender-just development, and more equitable distribution of the increased benefits is however another question all together. There are states which have not performed better in increasing production. But those states have achieved more in terms of improved demographic parameters. Bihar is a state where the non-development persists not only for almost every indicator, but also over a time period. The continuity of stagnation in Bihar demands special attention as to, "what can be the possible explanations or what should be the approach to understand the problem". Only then the issue of overcoming the constraints can be approached properly.

## **Section II.2: Explanations and Approaches to the Study of the Overall Backwardness of Bihar:**

Planning in India has evolved since independence depending upon the priorities of the particular period. Initially, the post-independence crisis of the national economy was taken care of at least at the policy level by prioritizing distribution of resources not only among the masses, but also on a regional scale. Later phases focused on local development packages and also at increasing the output of some sectors of the economy through massive investments. After the liberalization policy in 1991, the shift in planning priorities was reflected through the decrease in subsidies and need to build a conducive atmosphere for market forces to operate. Whatever be the approach towards building up a national economy, they have hardly been successful in addressing the persistent stagnation and low standard of living in a state like Bihar.

There are several approaches to analyze such a phenomenon of persisting backwardness, be it in the agricultural sector or the economy as a whole. It has been formulated that the lack of sub-nationalism in a country like India with a colonial history, where the anti-colonial sentiment helped in building up the nationalist movement, has a major role to play in the non-development of Bihar as an economic entity.<sup>12</sup> The necessity to protect the local market for national bourgeoisie has historically provided the material conditions for building up of national sentiments. Even during the colonial period, the movement against British products being sold at the Indian market was countered by the Swadeshi Movement, when not only British products were boycotted, but this also led to the emergence of an assertive national bourgeoisie to take care of the local market. The non-participation of the Bihari bourgeoisie in that phase, and also their consolidation in the anti-colonial struggle on a caste and community basis did provide a historical background for Bihar's not being able to prepare itself for breaking the stagnation imposed by feudal structures which was further strengthened by the colonial rulers.<sup>13</sup> The explanation given in such an approach indicates the fact that investment in different sectors through policy planning of the state may not effectively result into what it promises. The flow of means of production and the associated relations of production have to be understood before any of the planning has to be implemented. Planning based on the assumption of resource constraints in order to match the varying necessities of different regions within the broad framework of similarities in relations of production across regions contributed in adding to the regional disparities and social inequalities. The consequences of the state policies reflect the fact that production relations have to be considered in its present form<sup>14</sup>. There have been significant changes in the agricultural scenario as a consequence of adoption of 'green revolution' packages in certain parts of the country. Even in Bihar, there have been attempts after independence to promote new agricultural technologies. The administrative infrastructure which was set up to bring about this change in the agricultural scenario was based on the assumption of existence of harmony among all sections of the agrarian population. The belief was that individuals, groups and classes in a village are bound together with common interest and any conflict is easily reconcilable based

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<sup>12</sup> Gupta Shaibal (1981), "Non-development of Bihar: A Case of Retarded Sub-Nationalism"

<sup>13</sup> *ibid*

<sup>14</sup> Prasad Pradhan H (1973), "Production Relations: Achilles' Heels of Indian planning."

on the strong binding ground of that community. It was also accepted that development work that can be materialized through traditional leaders in any community or rich peasantry would automatically benefit the entire community.<sup>15</sup> This conceptual lack in approaching the problem of persisting backwardness in a state like Bihar has been overcome in various theoretical models by different scholars. One of the most accepted models which has been able to analyze the phenomenon of persisting backwardness is the Marxist model of analysis.

The Marxist model of analysis emphasizes the mode of production of any particular economy as a tool to analyse the development or non-development of various forces of production and the consequent nature of their impact on the class of laborer and non-laborer. A mode of production is defined as an articulated combination of relations and forces of production structured by the dominance of relations of production. The relations of production define a particular mode of appropriation of surplus-labour<sup>16</sup> and the specific form of social distribution of the means of production. Forces of production refer to the labour process in which a determinate raw material is transformed into a determinate product. There can be no independent definition of relations and forces of production without the particular reference to existing mode of production<sup>17</sup>. That is why if one mechanically tries to compare the effectivity of production increasing and crop diversification techniques in different parts of the country and thus end up in concluding that the intensity of policy implementation are the only factor behind such differences, then such an approach will hardly be able to understand the complexities of the Indian situation. The fact that means of production are differentially distributed and the level of difference determines the level of labour power engaged in the production process, also points towards the necessity of recognizing some mechanism in the society through which such structures are maintained. The political level has to be taken into consideration as the space of representation of the different classes of decision makers and laborers. Each particular mode of production characterizes certain economic, political and ideological conditions which legitimize the particular distribution system in the society. That is why legal structures are necessary to ensure the maintenance of rights

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<sup>15</sup> Das Arvind N. (1983) "Agrarian Unrest and Socio-economic Change in Bihar, 1900-1980".

<sup>16</sup> Surplus labour is labour over and above necessary labour. Necessary labour is the labour time necessary to secure the conditions of reproduction of the labourer. Surplus labour provides conditions of reproduction of the economy

<sup>17</sup> Hindess, Barry and Hirst, Paul Q. (1975) "Pre-capitalist Modes of production".

over distribution. These different political, economic and ideological levels may have dominance in different social formations depending on the dominant mode of production. Before going into analyzing which particular level is dominant, the dominant mode of production has to be recognized.

Mode of production in Indian agriculture has been an important debate to analyse the path of development experienced by the agrarian sector. Although, the main body of literature was produced at a particular juncture of Indian agricultural development, the debate continues to be important in providing the main logistics as to how to look into relations among the peasantry while describing any development. There has been debate over the development of capitalist tendencies in Indian agriculture, at least in certain regions of the country in terms of using wage labour, mechanization, accumulation and reproduction of the capital<sup>18</sup>. The opinions regarding backward agriculture and the existence of semi-feudalism as the main constraint to the development of capitalist tendencies are one of the explanations to the issue of persistent stagnation even in a phase when other regions are showing significant dynamism in agricultural production<sup>19</sup>. The specificities of a colonial country have been analysed in defining the dominant mode of production as colonial mode of production<sup>20</sup>. The concept of social formation<sup>21</sup> has also been used to build up an understanding about the various complexities of the relations and forces that can be seen.

The brief description of the agrarian structure in Bihar, the importance of mode of production and related distribution of means of production may help in characterizing the nature of development in the agricultural production system. A review of the literature which has dealt with such questions and can help in further analysis, has been discussed in the next section:

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<sup>18</sup> The debate between Ashok Rudra and Utsa Patnaik is important in this context. Among other contributors to this debate were Andre gundre Frank, Paresh Chattopadhyay.

<sup>19</sup> Amit Bhaduri, Pradhan H. Prasad, Nirmal Chandra and Ranajit Sau are among the main contributors to this concept.

<sup>20</sup> Hamza Alavi, ashok Rudra, Gail Omvedt, Jairus Banaji, Amiya Bagchi and Kathleen Gough have contributed to the analysis of colonial experience.

<sup>21</sup> Marxism conceives of social formation as an articulated combination of distinct structural levels, economic, political and ideological, each with its own specific effectivity and modes of intervention with respect to the others- Barry Hindess and Paul . Hirst.

## **Section II.2.a: Literature Review:**

Various literature have brought out different aspects of the agrarian scenario in Bihar. The issues that the literature brings out range from analysis of the agrarian structure of Bihar, implications of policy measures adopted by the government, theories regarding backwardness of agriculture to the position of Bihar in adopting new production increasing technologies.

### **Section II.2.a.i: Historical Consequences of Agrarian Social Structure of Bihar:**

The discussion on present forces of production in Bihar has to be considered keeping in view the evolution of relations of production as determined by particular interests dominant at a particular time. Specially, for a state like Bihar, much has been deliberated about the existing backwardness and constraints to adopt the 'pro-efficient' changes elsewhere. That is why it becomes all the more important to look into the historical processes which has developed such institutions to maintain a particular relation in the production system. Then it would be more meaningful to enquire about the changes that have taken place or the lack of any dynamism in terms of paving the way for new relations and forces of production.

Bihar is one of the states where *zamindari* system of landed property had persisted. Various academic studies have analysed the impact of colonial history on the agricultural sector of our country. Manoshi Mitra in her study on the dynamics of agrarian social structure in Bihar, emphasises the historical roots of the much talked about backwardness of Bihar's agriculture. One of the most important land policies i.e. the permanent settlement through the land revenue settlement act of 1793, introduced in the Bengal Province, had come about to serve a certain purpose of the colonial state. The dual purpose of introducing capitalism in agriculture and the draining off of agrarian surplus had to be ensured through mechanisms of intervention of the state in the traditional land relations<sup>22</sup>. This was intended to be done by replacing the inefficient landed property owners with potential capitalist producers through the operation of a land market. Along with expanding the economic interests of the colonial rulers, the intention was also to make the landed property owners staunch allies of the colonial rulers<sup>23</sup>. The interest of the *zamindars* vis-à-vis the other classes of the landed society were protected in view of the expectation that these

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<sup>22</sup> Mitra Manoshi (1985), "Agrarian Social Structure: Continuity and Change in Bihar 1786-1820".

<sup>23</sup> Gupta Rakesh (1982), "Bihar Peasantry and The Kisan Sabha"

proprietors would invest in the production system and thus would add to the surplus accumulated by the colonial rulers from the agrarian sector of this country.

Land market operation did not result in the transfer of landed property to potential capitalists who would be investing in productivity increase. Rather, it set into motion the emergence of ownership structures into two sections, one being the big and medium landowners and the other the trader-cum-moneylender and the well-off peasantry. The strengthening of land structures to these sections did not result in increased productivity or renewed interest in increased productivity by the land owning class. The role of the traders cum moneylenders in the agrarian relations emerged as the provider of credit to the *zamindars* to meet the revenue burden. Their emergence in the agrarian relations brought in a section who was not interested in agricultural production, but in draining of surplus from the agrarian sector. The new land policy also worked in a way to strengthen the concentration of land in the hands of some of the bigger *zamindars*. A section of well-off peasantry was also able to take advantage of the situation and break the feudal shackles imposed on them by utilising those provisions in the land policy which aimed at protecting the rights of the tenants to a certain extent. Apart from this the condition of the actual producers, who could be differentiated in various classes depending on their distance in the hierarchical scale from the land owner, worsened as a consequence of the heavy burden of tax being imposed on them. This resulted in a process of depeasantisation where the actual tiller of the soil had to lose their land as a result of the over burden of revenue. Differentiation within peasantry was a pre-British phenomenon. The differentiation only intensified as a result of growing commercialisation, land hunger and depeasantisation<sup>24</sup>. The mechanism of rent in nineteenth century India was used not only as an economic factor. Non-economic coercions were much more important in deciding the quantum of rent<sup>25</sup>. Thus, inequitable rent distribution was maintained by the land owning classes to suit the needs of the dominant peasantry. The resulting agrarian structure from the colonial land policy and the associated rent structure is categorized by Jannuzi in certain layers or classes in terms of possession over land and the limitations of right over land. The supreme ownership was vested with the state of Bihar which is termed as "the super-landlord". Below this supreme ownership

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<sup>24</sup> Mitra Manoshi (1985), "Agrarian Social Structure: Continuity and Change in Bihar 1786-1820".

<sup>25</sup> Ibid.

was the class of *zamindars* who were legally a proprietor class, but acted as intermediary of the state in the collection of rent from the tenant. Another important class of intermediary below the *zamindars* was the tenure-holder<sup>26</sup> who was not a proprietor but acted as an intermediary to collect rent from the cultivator. Below this class of rent collectors were the occupancy tenants who paid rent on land and had the right of occupancy over that land. A more insecure class below the class of occupancy *raiya*s<sup>27</sup> was that of non-occupancy *raiya*s who had only temporary possession over the land of cultivation without the right of occupancy over the land in possession. The under-*raiya*s were the class who had rent paying temporary possession over land from the *raiya*t. The bottom level of the hierarchy was constituted by the labourers who sold his/her labour power on wage payment without any right over the land of cultivation<sup>28</sup>. This brief description of the hierarchy based on the rights over land clearly delineates the increasing distance of the class of actual cultivator from the ownership right over land and their insecurity in terms of possession.

This huge burden of rent on the labouring classes facilitated the condition of their bondage which ensured the supply of labour in the production system. Permanent settlement failed most in the provision of ensuring rights of the tenants or the *raiya*s with occupancy rights. Above that the main distress of the peasantry was operated through sub-infeudation where land was rented out to lower sections by the official or recognised tenants.

The colonial land policy not only intensified the differentiation within the peasantry, but also interacted with the traditional hierarchy in terms of caste structure. Right over land is important in determining the position of the individual in the social hierarchy. Various literature has dealt with the role of caste in shaping the agrarian structure of Bihar.

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<sup>26</sup> "Primarily a person who has acquired from a proprietor or from another tenure holder a right to hold land for the purpose of collecting rent or bringing it under cultivation by establishing tenants on it and includes also the successor in interest of person who have acquired such a right"-Agricultural Legislation in India, VI, Government of India, cited by Jannuzi

<sup>27</sup> "Primarily a person who has acquired from a proprietor or from another tenure holder a right to hold land for the purpose of cultivating it by himself, or by members of his family or by hired servants or with the aid of partners, and includes also the successor-in-interest of persons who have acquired such a right(ibid)

<sup>28</sup> Jannuzi F. Tomasson (1974), " Agrarian Crisis in India, the Case of Bihar"



## **Section II.2.a.ii: Caste as an Important Determinant of Class in the Agrarian Structure of Bihar:**

The repeated emphasis on caste in the analysis of agrarian structure especially for a state like Bihar necessitates looking into the relation between caste and class of an individual in the hierarchical arrangement of social structure.

Agrarian class structure has to be understood in terms of the arrangement of groups determined by access or denial to the main means of production in an agrarian economy i.e. land. Agrarian class structure is embedded in caste in Bihar<sup>29</sup>. Class is understood not only in terms of the possession of the major means of production and the relations of labour but also in terms of the antagonistic nature of that relation. Thus, the two phenomena caste and class need not be looked into autonomously while discussing the agrarian violence or exploitation. Caste determines the way in which access over land is determined, control over labour process or the way in which surplus is appropriated in the production system. Bihar stands as an exception to the extent to which caste continues to determine the ways in which class relations are maintained because of its persisting backward economy. The backward economy as characterised by the absence of alternative employment opportunities outside agriculture and the low productivity in agriculture maintains the dependence on land relations and thus the basis of caste-based exploitation<sup>30</sup>. The discussion on the agrarian class structure of Bihar in the colonial period can be compared with the post independence era as characterized by the dynamism introduced through land policies and developmental changes. A field survey conducted in a village in central Bihar in the year 1979, bring out the persistence of the same pattern of land relations as has been described to have developed after the colonial land policy had created its impact on the agrarian structure. The land owners pre-dominantly belong to upper castes. The *ryots* with occupancy rights over the land constitute mainly the upper caste and the dominant portions of the middle caste. The difference between the land owning class and the *ryots* hardly matters in terms of economic situation as their similar caste status provided them with the opportunity to control the labour power according to terms suitable to them. The under tenants pre-dominantly belonged to the lowest castes or the lower sections of the middle castes. The agricultural labourer section was pre-

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<sup>29</sup> Chakravarti Anand (2001), "Caste and Agrarian Class: A View from Bihar".

<sup>30</sup> *ibid*

dominantly dalit. The condition of the share cropper who also came from the lowermost section of the caste hierarchy could be hardly distinguished from that of the agricultural labourer, as the mechanism of labour control through their indebtedness to the land owning section was similarly applicable for them along with the utmost insecurity of eviction from land that they cultivated. The embeddedness of caste structure with that of class is maintained through the failure of land reform, the unequal access to educational opportunities, the nexus between state power and caste and the skewed impact of agrarian capitalism that had taken place in some parts of Bihar.<sup>31</sup> The specific example of development of agrarian capitalism in certain areas such as the Kosi river project brings out that at least in this specific case the gulf between the under class and the dominant class has widened. The use of land for producing commodities necessitated the use of hired labour. Thus, the share croppers depending on land for subsistence have also been forced to become labourers. The labourers who work for the landed do not operate in a free labour market.<sup>32</sup>

The antagonistic relations of the economic classes as manifested through caste in a state like Bihar has been discussed in the analysis of the political processes of electoralism or the conflict of the classes in various fields of struggle in the available literature. Political processes are understood as platforms for articulating collective demands through some collective agency<sup>33</sup>. Not only in deciding the economic class of any individual in a backward economic structure as Bihar, caste is shown to play as the major factor of mobilisation in a political system where demands are articulated based on primary groups. Way aback in the late 1960s it was mainly the higher castes and a section of the middle caste that had overwhelming representation in the state political arena<sup>34</sup>. The same time period of late 1960s witnessed political struggles against the economic and extra-economic exploitation by the upper castes. The election of 1967 has shown some trends of these struggles of the lower castes, where the poor and agricultural labourer had consolidated as a formation against the representatives of the high caste landlords<sup>35</sup>. The struggle for social dignity and economic rights of the lower castes of the society had built up from 1967 to 1977, and

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<sup>31</sup> *ibid*

<sup>32</sup> *ibid*

<sup>33</sup> Blair Harry W. (1972), "Ethnicity and Democratic Politics in India: Caste as a Differential Mobiliser in Bihar".

<sup>34</sup> *ibid*

<sup>35</sup> Sinha Arun (1978), "Class War in Bhojpur-I".

after a major set back has continued after 1977. The form of the struggle was mainly, at least in the formative phase, armed resistance and claims over rights, led by various political groups termed as 'naxalites'. Spread in various parts of central and south Bihar (undivided), the social base of these movements was landless small peasants with marginal land holdings and middle peasants. The caste base was lower to intermediate castes<sup>36</sup>. The atrocities led by the higher castes on the lower sections and the various policies adopted by the state in the form of laws to defend the interests of the higher castes cum land owning section was the retaliation that came from the higher castes<sup>37</sup>. But not all literature analysing the social character of these struggles would agree that the atrocities done on the lower castes could be explained as atrocities done on a caste basis. The class character of those who joined the movement and become victims of atrocities has to be looked into<sup>38</sup>. This assessment is in contradiction with those who have analysed the agrarian class as embedded in caste in Bihar.

Whatever the debate be over the nexus between caste and class in agrarian structure of Bihar, it becomes clear from literature that caste continues to be strongly associated with the position of any individual in the hierarchy based upon possession over agricultural resources, determinants of their use and the supply of labour power in the production system. This continues even after the country has adopted several policies to intervene in the agrarian economy and increase the productivity; moves that were expected to break the stagnation and introduce dynamics in agriculture.

### **Section II.2.a.iii: On the Stagnation of Backward Agriculture:**

The issue of persistence of backwardness in agriculture is of unavoidable importance in such a scenario where the exploitative agrarian structure as well the determinant role of caste has continued even after the country has adopted several policy measures for 'agricultural development'. The specific character of backward agriculture showing a resistance to adoption of 'new technology' and development in agricultural production and income has also been theorized and empirically analyzed in various literatures.

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<sup>36</sup> Bhatia Bela, (2005), "Naxalite movement in central Bihar".

<sup>37</sup> Sinha Arun (1977), "Class War, not Atrocities Against Harijans".

<sup>38</sup> *ibid*

The viewpoints that try to characterize our agrarian structure, as discussed by Nirmal Chandra (1974) can be categorized as being a peasant economy (marginalist theories), positing capitalist development (Marxist theories) and semi-feudal (by Marxist theorists). Under every assumption of marginalist theories self-cultivation turns out to be superior to capitalist farming. But the empirical study in West Bengal based on the data of Farm Management Studies, none of the conclusions of the marginalist theories holds good in such an agrarian structure characterized by backward traditional technology and huge under employment.<sup>39</sup> The theory of capitalist development in the agrarian sector as formulated by Kautsky and Lenin, does not seem to be applicable in such an economy as confirmed from history. It leads one to look into the probability that capitalist development has not taken place at all or there are certain socio-economic conditions that impede capitalist development<sup>40</sup>.

But this attempt to prove the predominance of backwardness in the agricultural sector by denying the operation of capitalist tendencies in some places in India, citing non conformity with the Kautsky-Lenin 'laws of motion for agriculture', might not be a proper understanding about what both of them had to say about the developments in agriculture, as has been discussed by Ranajit Sau.<sup>41</sup> The arguments to deny the development of capitalist tendencies in agriculture has been drawn from the understanding of continuous differentiation among peasantry caused by the superiority of large scale farming as formulated by Lenin and the absence of any such cause in the Indian scenario from the available data source. As contrary to the understanding in denial of development of any capitalist trend anywhere in India, Lenin nowhere had talked about a continuous process of differentiation. Rather, he emphasized the importance of uneven development under capitalism and uneven development of individual capitalist enterprises.<sup>42</sup> Thus, we find a theoretical variance in accepting and analyzing backwardness under semi-feudalism at the same time arguing for the possibility of alternative development in the country.

Backwardness and differential development in agriculture can also be analysed through the condition of agricultural poor. As revealed by the data of 1960s

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<sup>39</sup> Chandra Nirmal (1974), "Farm Efficiency under Semi-Feudalism: a Critique to Marginalist Theories and Some Marxist Formulation".

<sup>40</sup> *ibid*

<sup>41</sup> Sau Ranajit (1975) "Farm Efficiency under Semi-Feudalism: a Critique to Marginalist Theories and Some Marxist Formulation-aComment".

<sup>42</sup> *ibid*

and 1970s, it comes out that in most of the states majority of the agricultural poor are willing to take up regular job. Moreover, consumption expenditure of the rural poor is many times higher than their income<sup>43</sup>. In such a condition, the rural poor are enforced to take consumption loans from the rich house holds. Along with such evidences of bondage, another method of enforcing it has been through leasing out land. Such bondage of those who provide labour power and lease in land has made the rural poverty qualitatively different from that in advanced capitalist economy. Such bondage is crucial to the character of semi-feudal production relations, because it provides the basis of existence of a class which is non-enthusiastic about agricultural development. The character of extra economic appropriation is such that, in a state like Bihar, it is known to both the parties ( the moneylender and the borrower) that it is impossible for the deficit household to pay back the loan even in long run. Whereas, in a state like Punjab, where semi-feudal bondages have weakened, the loan is given in advance to the attached labour<sup>44</sup>. In a semi-feudal set up, loan repaid is always less than loan taken and the amount outstanding is more than total assets. Such backwardness, at least in certain regions, has been theorized through analyzing the interaction between relations and forces of production. With the help of an empirical study from villages in West Bengal, the stagnation in agricultural sector has been theorized by Amit Bhaduri as having the characteristics of semi feudal production relations. The newer development elsewhere, have been resisted by such characteristics of the relations of production as

1. Share cropping where the actual cultivator of the soil has only cultivation right over the small piece of land by sharing a proportion of the agricultural product with the person who has ownership right over that piece of land.
2. The small tenants are perpetually indebted.
3. The above condition of indebtedness feeds into the semi feudal production relations with the condition that the owner of the land is also the moneylender to the small tenant.
4. The small tenant does not have access either to capital or commodity market.

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<sup>43</sup> Pradhan H. Prasad(1976), "Poverty and Bondage".

<sup>44</sup> *ibid*

The small tenant household is perpetually indebted as well as deficit household. Even when the land owner is sure that the tenant would not be able to pay back the loan, he continues to give loan because no system can allow less than subsistence condition of the direct producer<sup>45</sup>. Accumulated indebtedness strongly ties the cultivator to the land owner and thus the economic and political control is exercised by the land owner<sup>46</sup>. This situation also forces the small cultivator to be in a situation of unequal exchange, in the context of terms of hiring in land, bullocks or irrigated land<sup>47</sup>. Such unequal exchange cause a higher proportion of paid out cost to gross output for the tenant than for others, even in a situation where the tenant has been economizing on all the inputs. This has also caused losing out of land by the rural semi-proletariat<sup>48</sup>.

Given a fixed share of the crop ensured by law, the land owner's income can only fall by a reduction in the income from usury. Now, any such new development which may ensure that the cultivator's available balance of crop is more than the long run consumption of the household (because of a increase in the per capita income of the tenant household through increased production) will be resisted by the land owner because that might lead to a situation where the tenant is able to be free himself/herself from the accumulated debt. If this is not ensured than, another constrain to the adoption of new technology by the land owner is that the increased income from new technology has to exceed the loss from decrease in usury income. From the given constraints, two broad possibilities may emerge at the advent of new technology. Firstly, the new productive forces may be consciously resisted by the semi feudal land owner to continue the economic and political power over the small tenants. Otherwise, the accommodation of the new technology while maintaining the status quo may be ensured by lowering the share of the tenant or charging extra rent for the use of improved technology from the tenant<sup>49</sup>. The operation of semi-feudal production relations on restricting the productivity raising capital investment has been empirically validated from village level data on Bihar<sup>50</sup>. The proportion of small cultivators has a positive correlation with the land productivity.

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<sup>45</sup> Prasad Pradhan H. (1974), "Reactionary Role of Usurer's Capital".

<sup>46</sup> Bhaduri, Amit(1973), "Agricultural Backwardness Under Semi-Feudalism".

<sup>47</sup> Prasad Pradhan H. (1974), "Reactionary Role Of Usurer's Capital".

<sup>48</sup> *ibid*

<sup>49</sup> Bhaduri, Amit (1973), "A Study of Agricultural Backwardness under Semi-Feudalism".

<sup>50</sup> Prasad Pradhan H. (1987), "Towards a Theory of Transformation of Semi-Feudal Agriculture".

On the adoption of new yield increasing technologies in a production relation which is characterized by these 'semi feudal' characteristics, several other views have elaborated the discussion. Without contradicting the basic argument of Bhaduri's model, it has been argued that Bhaduri has overstated because new technology have been adopted in the several villages of West Bengal, where share tenancy exists.<sup>51</sup> One important dimension has been said to be missing from Bhaduri's model. The aspect of huge underemployment can withhold the capitalist development. Capitalism at its initial phase would be choked by the existence of such a huge existence of surplus labour.<sup>52</sup> When such arguments come across, it can not be neglected that there is a complete negligence of the understanding that whether a specific size of population would be considered as surplus population or not would depend upon the existing and adopted level of technology which determines the labour employment for a production process and also the level of production. Maintaining the existing size of population as surplus population may be in the interest of the class that decides the direction of development as that ensures the optionlessness of the labour force. The importance of such huge underemployment in agriculture as feeding into semi-feudal production relations has been accepted in literatures. But one apparently more important question as to why urban industrial capital does not transform the semi-feudal production relations in agriculture, has been raised<sup>53</sup>. The reason has been found in one of the limits of capitalist agriculture formulated by Kautsky. In the absence of alternative job opportunities in industry, the small peasants would survive on their land by reducing the consumption to an unbelievable minimum<sup>54</sup>.

Those who do not agree with the methodology formulated by Bhaduri to explain the resistance provided by the land owning class argue that with increase in the production, in every possible case (under the assumption specified by Bhaduri's model), the landlord's income also increases. So he has incentives to adopt 'new technology' in contrast to Bhaduri's conclusion<sup>55</sup>. With the power to set the interest rate, the land lord's interest income does not decrease. Given the landlord's political power, if he has a power to decide the tenant's share of the crop he can push the

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<sup>51</sup> Chandra, Nirmal K. (1974), "Farm Efficiency under Semi-Feudalism: Marginalist Theories and Some Marxist Formulations".

<sup>52</sup> *ibid*

<sup>53</sup> Sau, Ranaji (1975), "Farm Efficiency Under Semi-Feudalism: A Critique To Marginalist Theories And Some Marginalist Formulation-Comment".

<sup>54</sup> *ibid*

<sup>55</sup> Srinivasan T. N. (1979), "Agricultural Backwardness under Semi-Feudalism-Comment".

tenant's 'steady state' consumption to a subsistence level. Thus the entire increase in production can be appropriated by the landlord and his interest income also does not decrease.<sup>56</sup> But, such an approach which does not recognize any change or modification or resistance provided by the existing relations of production at the release of new forces of production is a stagnant approach and thus leads nowhere to understand the backwardness in agriculture when the 'new technology' is available and has been adopted elsewhere.

From those who argue that the interest of the semi-feudal landlord can not resist the adoption of new technology for ever, we can find explanations of how usury plays different roles in building economic dominance of the landlord over the tenant in a labour-surplus and labour-scarce economy.<sup>57</sup> While first establishing the fact that, it is the ownership over land (as means of production), and not indebtedness of the tenant that builds primarily the landlord's economic and political dominance, it has been argued that in a labour-scarce economy the tenant is in such a weak bargaining position regarding the contract that no surplus is left to be appropriated by the landlord. In such condition, not the flow of interest income, but extra contractual economic exploitation of the tenant or the appropriation of the assets of the tenant work as additional income of the landlord. So, usury does not necessarily work as the primary factor of tying a tenant to the land. In a labour-surplus economy, where the tenant has better bargaining power, usury has more important role in appropriating the entire surplus and tying the tenant to the land.<sup>58</sup> The other model denying Bhaduri's arguments of land lord resisting the introduction of production increasing technology, argues that more the level of exploitation by the landlord, the more sure he is about the tenant not being able to break free the perpetual indebtedness. Thus, with greater levels of the tenant's indebtedness, the landlord's freedom to adopt new technology increases, given the landlord's knowledge about the productivity raising capacity of the new technology. The landlord would definitely, resist the new technology for some time, which if adopted immediately, would make the tenant free from indebtedness. The main logic which works behind such a conclusion is that usury income was only notional in the established model. It only formed the basis of extra

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<sup>56</sup> *ibid*

<sup>57</sup> Ghose, Ajit K and Ashwani Singh (1976), "Indebtedness, Tenancy And The Adoption Of New Technology In Semi-Feudal Agriculture".

<sup>58</sup> *ibid*



contractual economic benefits and ownership over land formed the main basis of economic and political control by the landlord. Thus, the non-adoption of new technology can not be ascribed to the semi-feudal production relations in certain regions. Rather, the interaction between the relations and forces of production can be studied as the semi-feudal relations gets transformed under the new forces of productivity raising technology<sup>59</sup>

Extending the view that landlord's interest to maintain his economic and political power does not cause the non-adoption of 'new technology', it has been tried to establish that rather the tenant's incentive not to employ the necessary extra effort, resists the adoption of yield increasing technology<sup>60</sup>. If the new innovation necessitate the replacement of land for labour, then it becomes difficult for the landlord to know whether that has happened or not. Although share tenancy is preferred mode for the land owner and the tenant for certain reasons (such as risk sharing), such moral hazards engaged in the contract work as impediment for adoption of new technology. In such a case the landlord might prefer resuming the land for own cultivation by hired labour.<sup>61</sup> This alternative explanation is again lacking in recognizing that the moral hazard problem in share cropping existed even before the advent of innovation. Even then, the agreed upon share tenancy contract carries some means by the land owner through which he can take care of his economic interest. Without considering any such related means of appropriation and the landowner's necessity to use the labour of the tenant, it fails to explain how the existing relations of production react to the adoption of newer forces of production.

To strengthen the same argument that the tenants act to resist 'new technology', it has been said that Bhaduri's argument that the probability of the tenant being free from indebtedness does not work because the adoption of the newer technologies have increased the credit of the cultivators in the green revolution experience of India. That is why rather the land owning classes have adopted new technology because of their access to capital and credit. There is an increase in credit with the increase in productivity.<sup>62</sup> This generalized understanding about credit does not work in the complexities of semi-feudal mode, because indebtedness of the

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<sup>59</sup> *ibid*

<sup>60</sup> Newbery, D.M.G.(1975), "Tenural Obstacles to Innovation".

<sup>61</sup> *ibid*

<sup>62</sup> *ibid*

tenants is different from taking credit by big farmers simply by the criterion of non accessibility to the credit market and the source of loan being the landowner himself. Other than the above mentioned economic reason, the other factors that might resist new innovations (often temporarily) have also been explained. Citing an empirical work by Mendras(1970) in south India, it has been explained that many times the traditional social norms of deciding the wage acts as a cause of indifference by the cultivator to adopt new innovations because the traditional norms are adopted to decide wage based on average productivity and not on marginal productivity. On the advent of new production forces the productivity at the margin becomes important, and a cultivator who gets wage on average productivity does not feel any incentive to put the extra effort.<sup>63</sup> The abolition of customary labour relations are said to be necessary before the adoption of any such technology. This explanation does not contradict the earlier attempt to establish interaction between relations and forces of production with a slight negligence of the logic that the release of new forces of production causes the change in relations, not vice versa.

The explanations and theorizations regarding the backwardness of agriculture somewhere agree to the point that relations of production as determined by possession over land, supply of credit and contractual agreements for land and labour have impact over the decision to employ new technology for productivity increase. How these processes work or whether they result into perpetual stagnation or not can be a matter of debate.

#### **Section II.2.a.iv: Dynamics of land Reform and Its Implications on Changing Agrarian Structure:**

The above mentioned discussions regarding the agrarian structure that has persisted in a region like Bihar, caste as an important factor determining the hierarchy in that agrarian structure through institutionalizing norms of land ownership and the operation of backward agriculture strongly point towards the fact that ownership over land and mechanisms of determining land relation between the owner and the labourer, are the factors that determine the interest of different classes in agricultural production. In a post colonial situation, the newly independent Indian nation responded to various issues that founded the basis of mass anger against the colonial

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<sup>63</sup> ibid

rule. The accountability of the first government defining the post colonial state structure necessitated the deliverance at least at the policy level of the recognition of certain rights of the people which was denied by imperial rule. Land reform policy as adopted by the state is one of such important policies which came out as the necessity of the time to legitimise an anti colonial struggle and a democratic state structure. In region like Bihar, the traditional agrarian structure and colonial land policies resulted in highly unequal land distribution. Revenue structure and intermediaries between the actual cultivator and the state proved to be the main reason behind poor agricultural development and living condition of those who cultivate.

Land reform policy as adopted by the state came as a response of the government to these constraining factors. Various literature has discussed the implications and implementation of the policy of land reform in Bihar.

The particular material condition that necessitated the implementation of such laws as land reform has been discussed in various literature describing the agrarian situation in the pre-independence situation. Those situations had also produced dissent from the peasantry. This was manifested through the organised peasant movements in the colonial period, the main essence being mainly against the *zamindari* system. By the time independence came, the organised peasant movement had split into many factions. But the sentiment it had generated and the vigour among the peasantry for a structure without the oppression of the agrarian situation then prevailing compelled the state government to reform the agrarian structure to prevent the peasant fury for overthrowing the very institution of private property.<sup>64</sup> The response of the independent state in implementing *zamindari* abolition as a part of land reform policy, to aspirations generated from the existing agrarian structure in Bihar, has been analysed by Pradhan H. Prasad. Although, the policy of permanent settlement had not economically benefited the *zamindari* class much in Bihar as the main motive was to mop up agrarian surplus to the *metropolis*, the *zamindari* class never came in conflict with the colonial government as it enjoyed certain localised political power. But the high land rent generated anti-British anger among the big peasants and tenant-landlords. This class was mainly made up of higher caste hindus. These factors led them to participate in the anti- British struggle in the late 1920s against rent reduction. But no where in the movement did the issues related to land less and the poor tenants

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<sup>64</sup> Das Arvind N (1983), "Agrarian Unrest and Socio-Economic Change in Bihar, 1900-1980".

find place. The anti-British sentiment also led them to participate in the independence movement in rural Bihar. *Zaminadari* abolition in the post independence phase can be seen in connection with this political assertion<sup>65</sup>. Before going into the detailed discussion of literature bringing out the actual implementation and implications of land reform, one thing needs to be understood is that land reform means transfer of land from one hand to other. Transfer of land also associates transfer of power. Land reform is also related to the development of productive forces along with the social mobility of certain class and caste<sup>66</sup>. These implications of land reform was addressed in the first election manifesto of the Congress party in 1936 as is reflected from a statement by Nehru describing the policy as

a reform of the system of land tenure and revenue and rent, and an equitable adjustment of the burden on agricultural land, giving immediate relief to the smaller peasantry by a substantial reduction of agricultural rent now paid by them and exempting uneconomic holdings from payment of rent and revenue.

These same implications had brought certain contradictions within the power of the congress party especially in a state like Bihar to restrain effective implementation of land reform. Even after independence the fashion of language of an effective land policy and social change along with very conservative action became the standard, especially within Bihar<sup>67</sup>.

The implementation of various reforms within the land reform policy has been discussed in a varied range of literature. Through the Bihar Land reform Act, 1950 the government of Bihar legally abolished the interests of the *zamindars* and tenure holders and vested these interests in the state.<sup>68</sup> The act provided for opportunities for the state to increase income from revenue by abolishing all intermediary interests in revenue collection. Though the act made no reference to agricultural production, it could be understood that ending of exploitation of the peasantry through rent collection by the *zamindar* class would have created an indirect opportunity for the agricultural development of the state. The legal vesting of the responsibility from the *zamindars* and intermediaries to the state had varying affects on this class depending on the differentiation among them. There were intermediaries who were not apart

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<sup>65</sup> Prasad Pradhan H. (1979), "Caste and Class in Bihar".

<sup>66</sup> Choudhary K. Prasanna (1993), "Land Reforms in Bihar: Need For A Fresh Appraisal" in Iyer K. Gopal and Yughandhar B.N. (eds.) *Land Reforms in India Volume 1, Bihar-Institutional Constraints*.

<sup>67</sup> Januzzi F. Tomasson (1974), "Agrarian Crisis in India, the Case of Bihar".

<sup>68</sup> *ibid*

from the land and maintained control over land. In the post-*zamindari* abolition era, such intermediaries have shown increasing interest in developing their residual land. For all those sections in the *zamindari* class such as absentee landlords or landlords living in the urban areas, the legal provisions abolished the possibility to maintain economic status through the proprietary rights. But it was more the decline in social status than in economic status that was most disturbing to that class<sup>69</sup>.

The related legislation of imposing ceiling on agricultural land was not simultaneously enacted with the abolition of *zamindari* act. The bill on agricultural land ceiling was framed in 1955, but could not be passed from the legislature due to severe opposition to the law even from within the ruling Congress party. The landed class was fully mobilised and consolidated to oppose any such legislation. The ex-intermediaries who were affected by the *zamindari* abolition law were further threatened by the possibility of any such law that could add to their decline in status after the legal abolition of their rent collector status. This consolidation of the land owning class was manifested in the general elections of 1967, when those among the ruling Congress party who were most vocal for the implementation of the law, got a major set back. This reaction held back the government and ultimately in 1961, a new version of the law was put forth with sufficient loop holes to satisfy the interest of the landed class (ex-intermediaries, ex-tenure holders and other *raiyyats* with occupancy rights in land).<sup>70</sup> The provisions in the act that was to defend the interest of this class was the recognition of individual landholder instead of a family, the provision to transfer excess land over ceiling to family members, the allowance to possess large amount of homestead and orchard land over the very liberally fixed ceiling amount and the permission to resume land for personal cultivation from non-occupancy under-*raiyyats*. The intervening period between the bill being proposed and ultimately getting passed in a much modified form was sufficient for the land holders to transfer land as a mechanism to avoid the ceiling measures. Even this much modified version of the ceiling measures could not be enforced to a satisfactory level<sup>71</sup>. The loopholes in the bill encouraged large scale of *benami* transfer of land in the name of family members. The provision of personal cultivation also helped in definite way to

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<sup>69</sup> *ibid*

<sup>70</sup> *ibid*

<sup>71</sup> Iyer K. Gopal (1993), "Evaluation of Land Ceiling Measures in Bihar" in Iyer K. Gopal and Yughandhar B.N. (eds) *Land Reforms in India Volume 1, Bihar- Institutional Constraints*.

maintain the status-quo in the land holding status. The definition included cultivation by hired labourer or by servants and occasional supervision by family members. Thus, the definition in the Bihar land ceiling act is a virtual negation of the policy of *land to the tiller*. This clearly explains the high incidence of absentee landlord in the south Bihar districts. Personal labour not being recognised in the definition of personal cultivation has denied the basic objective of the laws of land reform<sup>72</sup>. The definition has also encouraged the eviction of thousands of under-*raiyats* from the land that they have been cultivating for years without rights of occupancy reducing them to the status of landless agricultural labourers. The virtual non-implementation of land ceiling through loop-holes in the act itself had invited tremendous unrest in the state. The land grab movement of 1970 succeeded in generating tremendous pressure on the government. A fresh act was enacted in 1971. There are varying opinions regarding the implementation of the ceiling act after the unrest caused by land grab movement. With some empirical data collected, it has been stated that the identification of surplus land was indicative of administrative effectiveness. The norm of distribution of surplus land to the backward section was adhered to by the state. Although, the average amount of allotment of surplus land was quite low, it made substantial impact on the social status of the beneficiaries. With reference to agricultural census and NSSO data it is said that there has been a clear decrease in the concentration of land holding as well as increase in the amount of marginal and small holding from 1961 to 1981 which is considered to be the most effective period of implementation of land reform legislation. But one of the various constraints that the effective implementation had to face was the physical possession of the land by the beneficiaries. The time lag that the act took to be implemented effectively at least in policy level gave much scope for those whose land was to be taken as surplus. A very insignificant amount of land could be acquired because of the number of cases that were pending in court against the acquisition. A noticeable amount of land was released to the landlords on various grounds which were not very sound. These factors along with other

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<sup>72</sup> Banerjea D.(1993), "Personal cultivation: the crucial issue in land reform" in Iyer K. Gopal and Yughandhar B.N. (eds.) *Land Reforms in India Volume1, Bihar- Institutional Constraints*.

administrative unwillingness and inefficiency in implementing ceiling act have resulted into the weak implementation of the act.<sup>73</sup>

Tenancy reform within the arena of land reform is considered to be of major importance in changing the exploitative agrarian structure that existed. Various literatures theorise the role of tenancy patterns in deciding the agrarian development of such states like Bihar. The role of implementation land reform act in effecting the existing tenancy pattern has also been evaluated in different literatures. The act of 1986, had defined personal cultivation to exclude cultivation on crop sharing basis under personal supervision. This act provides that a non occupancy tenant or an under-*raiyat* working for more than 12 years in the same village is entitled to the status of occupancy *raiyat*. Empirical studies in villages of Bihar has brought out that the implementation of the provisions regarding the security of tenants have resulted into a very insignificant effect to change the large scale informal or oral tenancy that dominate the cultivation of agrarian fields in Bihar. To acquire occupancy rights the under-*raiyats* have to provide proof of their continuous cultivation in the same village. The situation in rural Bihar has made this virtually impossible for the non occupancy tenants. The survey and settlement operations carried by the government could be one of the measures to confirm the status of tenancy. But this depends on the will of the government. The political inclination of the government has never been in favour of the share croppers to ensure their secured status in conflict with the landed class. Moreover, the hold of the landed class has been so strong that whenever any such attempt of recording has been initiated, the agrarian tensions took a pick and the government in its character has stopped recording the rights of the share croppers. The empirical study brings out the forms in which tenancy operated even after the implementation of the law. The most pre-dominant form of tenancy is leasing under share of output agreement. The arrangement on which leasing of land is agreed varies among different combinations of cost and output share. If the end return to the tenant is considered, then it is found that the tenant end up in paying much more than the statutory provision of 25 percent of gross produce.<sup>74</sup>

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<sup>73</sup> Iyer K. Gopal (1993), "Evaluation of Land Ceiling Measures in Bihar" in Iyer K. Gopal and Yughandhar B.N. (eds) *Land Reforms in India volume1, Bihar- Institutional Constraints*.

<sup>74</sup> Iyer K Gopal (1993), "Concealed Tenancy: Dilemmas of Share Croppers in Bihar" in Iyer K. Gopal and Yughandhar B.N. (eds) *Land Reforms in India volume1, Bihar- Institutional Constraints*.

The provisions and implementation of land reform has to be evaluated in the changes that the basic assumption of any such law promises in the livelihood of those who cultivate the land. A range of literatures deal with the existing agrarian structure in Bihar. The political struggles in which one of the major demands has been the distribution of surplus land and fair terms for the tenants bring out the acute failure of the land reform policy in addressing the issues that it has promised to. What impact the policy of land reform has ultimately made over the agrarian structure can be understood from the very intention of its implementation, the huge opposition that it generated from not only the land owning class but also within the ruling Congress party, the existing ownership pattern of land in rural Bihar and also the mechanism of labour supply-

The ruling circles depend primarily on legislation as the instrument of agrarian reform to the serious neglect of implementation. They believe that once legislation has been enacted, the required socio-economic results would follow automatically. The lack of political will has been a key factor behind ineffective implementation.<sup>75</sup>

#### **Section II.2.a.v: Economic and Political Assertion of the Middle Peasantry and Backward Caste: Consequences for Agrarian Structure and Agricultural Development in the Post-Land Reform Scenario:**

The policy of land reform had recognised the acute problems persisting with the *zamindari* system and the large number of intermediaries in hindering agricultural development in the country. Although implemented with insignificant effects resulting into the persistence of unequal land ownership and large amount of concealed tenancy associated with the exploitative terms of contract and labour supply mechanism, the changes in the juridical level had certainly some impacts on the pattern of dominance in the rural India. In this particular context it is important to discuss the literatures that have brought out the significant changes in the economic and political dominance in the pattern of class-caste nexus in north India, Bihar being a special case in the general pattern.

The implementation of land reform in Bihar has been discussed by Prasanna K. Choudhury. Like all major initiatives land reform has been phrased with the transfer of land to the lower most section of the society. Given the extremely unequal

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<sup>75</sup> National Commission on Agriculture 1976: a Bridged Report, cited by Arvind N. Das (1983), "Agrarian Unrest and Socio-economic Change in Bihar, 1900-1980".



pattern of distribution of land and power structure, the dalits and adivasis constituting the agricultural labourers and non-occupancy tenants were unable to fill the vacuum created by the abolition of intermediaries as well as implementation of ceiling land for the large land holders. Naturally, the political power had transferred to the upper caste *raiyats* and under *raiyats* as well as intermediate cultivating castes.<sup>76</sup> In a state like Bihar, although the implementation of ceiling surplus land remained mostly on papers, the caution among the higher caste land lords and big peasants made them sell their surplus land mainly to the middle caste peasants because of their better paying capacity. The existence of semi-feudal relations in Bihar has been manifesting in the way the higher caste big land owners have been indifferent to any agricultural development which could result into the break down of the traditional mechanism of the domination over the lower caste poor peasants and labourer. But the middle and poor middle peasantry did not suffer from any such inhibition and they were eager to utilise the newly acquired status of owning larger land. They started emerging as the most efficient class in the breaking down of the semi-feudal agrarian structure.<sup>77</sup> The political objective of the land reform had been achieved with the erstwhile *raiyats* and under *raiyats* evolving into independent *kisans* and their vocal assertion in the political scenario. At the first stage of post land reform era this caste/class of kisan proprietors mainly belonged to bhumihaar, kurmi, yadava, koeri.<sup>78</sup>

The rise of the other backward classes in north India was a common and contemporary phenomenon to challenge the traditional dominance of the higher caste ruling alliance in the political field. This trend has been brought out by various literatures. In north India two kinds of approaches have worked to destabilise the upper caste urban establishment. The first group relied on mobilisation based on the identity of *kisan*. The second group relied more on identity based on caste and social justice. Although there was much in common between these two groups, they did not coincide. The mobilisation based on *kisan* identity posed as if there is no internal differentiation within the peasantry. The two strategies have contributed first to the rise of middle caste peasantry and then to other backward classes in the politics of

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<sup>76</sup> Choudhury, Prasanna K. (1993), "Land Reform in Bihar: Need for fresh appraisal" in Iyer K. Gopal and Yugandhar B.N. (eds) *Land Reforms in India, Volume 1: Bihar-Institutional Constraints*.

<sup>77</sup> Prasad H. Pradhan (1999), "Caste and Class in Bihar".

<sup>78</sup> Choudhury Prasanna K. (1993), "Land Reform in Bihar: Need for Fresh Appraisal" in Iyer K. Gopal and Yugandhar B.N. (eds) *Land reforms in India, Volume 1: Bihar-Institutional Constraints*.

north India.<sup>79</sup> The combination of the two fronts operated in a way to mobilise a large section of the population especially rural in influencing the Indian politics for long time. The first entrance of this combination in Bihar and UP assembly was in the late 1960s. The domination of the 'socialist' agenda and consequent emphasis on caste based justice culminating in the implementation of quota for the other backward classes resulted into the breaking of the *kisan* front along caste lines. The *kisan* front was championed by such agenda as 'kulak budget' by Charan Singh focusing on subsidies for various agricultural inputs and infra-structures. The kisan politics very evidently had denied to recognise the crisis of marginal and poor farmers and agricultural labourers. The dominance of this class in the north Indian politics is mainly associated with the new innovations in agricultural production increasing practices. Participation in this scheme developed a sharpened interest by the peasants in all the facilities that have been championed by Charan Singh. The electoral performance in UP of his party championing the politics of the prosperous peasants had shown significant correlation with agricultural development in various terms. This was also associated with high level of land transfer resulting into more marginalisation of the land holding.<sup>80</sup> The politics of peasant proprietors not only appealed to the prosperous peasant section, but also added to appeal to caste based identities of the prosperous section of the caste designated as backward classes.<sup>81</sup>

The assertion of this class is associated with the development of capitalism in agriculture in the late 1960s as has been discussed earlier. This dominance in the form of political struggle with the traditional ruling class has developed after the class interest of the capitalist middle peasantry or the 'kulaks' of India came in conflict with those of the ruling class. In India this phenomenon has got complicated because of the traditional feudal identities related to caste.<sup>82</sup> In states like Punjab and Haryana this process has taken place consequent upon the development in terms of increase in productivity per unit of area as well as labour productivity. In Bihar, this process has taken place in the influence of the neighbouring state UP, although the development of capitalism in agriculture was at a very low level. The empirical evidences drawn from surveys in two time period- one in 1981 and the another in 2001 shows

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<sup>79</sup> Jaffrelot Christofer (2000), "The Rise of Other Backward Classes in the Hindi Belt".

<sup>80</sup> Duncan, Ian (1997), "Agricultural Innovation and Political Change in North India: The Lok Dal in Uttar Pradesh".

<sup>81</sup> *ibid*

<sup>82</sup> Prasad Pradhan H (1991), "Rise of Kulak Power and Caste Struggle in North India".

indications of breaking down of semi-feudal agrarian structure as associated with the upward mobility of the middle castes, especially the dominant ones to higher levels of hierarchy.<sup>83</sup> This was associated with decrease in the proportion of area leased in, increased leasing in by the larger land holding peasants, increasing casualisation of wage labour in the intervening period of the two surveys.

#### **Section II.2.a.vi: Adoption of New Technology and Emerging Agrarian Structure in Bihar as Compared to Other Regions in India:**

The above mentioned discussions bring out the dynamics associated with the agrarian structure and emergence of a new politically and economically assertive class that has challenged the persisting semi-feudal ties and introduced dynamism in the production scenario. The present research area is concerned about the agrarian structure in terms of accessibility to resources and consequent agricultural development. In that context, it is necessary to look into the developments in the country overall in comparison to Bihar in relation to the forces that lead to such development, to understand the specificity about the agrarian structure of Bihar.

There are several analyses to the material conditions of new technology being adopted in different regions of India, experiencing different production relations. But it is equally important to look into the agrarian structure that comes out under such varying conditions. In those regions where new technology has been adopted on a large scale, what are the patterns of class formation and class action has to be analysed in order to differentiate them from the regions of agricultural stagnation. The new technology being adopted after 1960 in some parts of India were biased toward rich peasants in its very character<sup>84</sup>. In the initial period of independence, after the land reform was adopted, the land lord class was affected by the legislation, although the legislation in itself had many inclinations towards their interest along with their successful manipulation in retaining much of their land. The poor peasant and small tenants were worse affected by the attempt to evict them from land. The beneficiary was the rich peasants. Even before the adoption of 'green revolution' technology the rich peasantry was a strong class in itself able to direct agricultural gains in their

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<sup>83</sup> Sharma Alakh N (2005), "Agrarian Relations and Socio-economic Change in Bihar".

<sup>84</sup> Byres, T J (1979), "The new Technology, Class Formation and Class Action in The Indian Countryside".

favour. The new technology was steered towards these regions<sup>85</sup>. The necessity of the new technology demanded even more increase in operated area by the rich peasantry. Thus, one can find resumption of land by the rich peasantry or reverse tenancy whereby the rich peasant lease in land from the poorer ones. The new technology has no doubt, increased the differentiation within peasantry. Along with the rich peasants, the middle peasantry also in a way has participated in such a process. The participation of the small peasants in north western India has come about with unfavourable terms. Along with the process of partial proletarianisation, there has been a shift from employing casual labour to permanent labour in the farms of big landholders in North West India. Such a shift in the labour process has caused a conflict in interest of the casual labour and the permanent labour. In all the processes of development and manipulations in the labour employing process, the rich peasantry has gained dominance in terms of their impact on policies relating to agriculture. Thus, the process of green revolution has been associated in causal relation with the rise of kulak power in the Indian politics and agricultural economy<sup>86</sup>. In those areas where green revolution technologies have not been adopted in such a scale as north-western India such as Bihar, the 'new technology' has increased the dependence of small and marginal farmers on interlocking rural market dominated by rich farmers as experienced in Nalanda district<sup>87</sup>. The middle peasantry who hire in labour are seen to be associating with the rich farmers when it comes to wage dispute with the agricultural labourers as they get the required arrangements like pumps or other agricultural instruments at lower rent from the rich farmers. The rich farmers have even been successful in mobilizing the small farmers in such matters.

The comparison of such a region as Punjab where green revolution technologies have been adopted to a region of persisting backward agriculture like Bihar brings out clear contrast. With empirical analysis of household level data from selected villages in both of the states it has been found that in terms total man days employed in farm activity, Bihar has an edge over Punjab. But when per hectare and per man day earning on farm employment is compared, the situation in Punjab is far

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<sup>85</sup> *ibid*

<sup>86</sup> *ibid*

<sup>87</sup> Wilson, Kalpana (2002), "Small Cultivators in Bihar and 'New Technology': Choice or Compulsion?"

better than that in Bihar<sup>88</sup>. In terms of availability of non-farm employment and earning both in urban and rural sector the situation in Punjab again is far better. Even the bottom section of the poor in Punjab is in better condition than those in Bihar. The explanation given to such situation is that the gains from agricultural productivity and generation of employment opportunities have trickled down to the bottom section of the rural population in Punjab<sup>89</sup>. This approach which propagates the adoption of green revolution technologies as an all encompassing solution to such problems as acute poverty lacks in understanding the fact that mere mechanical imposition of whatever technology can never change the agrarian structure and condition of the peasantry. Any new development or new forces in production has to be lead by a dominant class in the production system that gets benefited from such developments. The major share of the gains from the new developments is enjoyed by that dominant or deciding class. Thus, until the production relations inhibiting or advancing any new development are explained, any problem of unrewarded labour, acute poverty and stagnation can not be understood properly nor can be the contradictions with in any new development in the forces of production can be traced.

The effect of the adoption new production raising technologies in a stagnant agrarian economy like Bihar has been empirically analysed with the evidence of their effect on income distribution and poverty alleviation<sup>90</sup>. Not only the per capita income was much higher in the technologically more developed districts, but also income was more equally distributed in such places. Even the proportion of income derived from wage labour was lower in the technologically developed villages. This has been explained by asserting that with improvement in income people tend to deny such occupation. Thus, technological innovation tends to favour the lower income group more. Non-agricultural activities apparently have mostly contributed to the equal distribution of income in the technologically developed villages.<sup>91</sup>

This paradigm that adoption of new technology causes income diffusion has been opposed in other studies where it has been argued that the adoption of new technology by small farmers is a matter of compulsion lead by their status of debt and

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<sup>88</sup> Chadha, G K and Khurana M R (1989), "Backward Agriculture, Unrewarded Labour and Economic Deprivation: Bihar's Contrast with Punjab".

<sup>89</sup> *ibid*

<sup>90</sup> Thakur, Bose, Hossain and Janaiah (2000), "Rural Income Distribution and Poverty in Bihar: Insights from Village studies".

<sup>91</sup> *Ibid*

high rents being paid by them as rent<sup>92</sup>. In a village level study in Bihar it has been found the small and marginal holding operate at a high technological level. The product they cultivate on their land is mainly for the market. But the level of monetization among large land holders and the marginal farmers are qualitatively different because in the later case, it reflects distress sell by the farmers. The increased technological levels adopted by the small and marginal farmers who mainly have to lease in land have resulted into higher rent extraction in the form of fixed rent by the land owners. More importantly, the introduction of mechanization does not imply increased wage labour employment. Rather their possession by rich farmers has strengthened their dominance because the small and marginal farmers have to hire them, in the absence of any means of production possessed by them. All these new developments in the form of increased cost of production, indebtedness of the farmers, dependence in terms of hiring mechanical inputs and the increased rent of leased in land has compelled the farmers to operate on high technological level and marketise their product in a distress condition<sup>93</sup>. During early 1980s transformative changes were seen to occur among a specific group of castes, mainly the backward castes. But the study at Nalanda district brings out that this trend did not continue after 1980s. The process of extended reproduction that started with monetization of the economy and adoption of production increasing technologies necessitate gradual concentration of land among the particular group leading the change. But nothing like that sort could be experienced in the concerned area of study. Along with that the machineries possessed by landowners primarily for non-agricultural use (such as hiring out) reflects the absence of the process of reproduction of any capitalist tendency. The process of adoption of some 'green revolution' packages that started under compulsion of drought conditions in the concerned study area could not reproduce itself in a sustained form. The huge lack of infrastructural facilities, de-electrification acted as an important barrier to the process of accumulation. Not only in this form, the dominant class that emerged that time among a particular caste group specially among the backward castes, followed the same path of the earlier dominant

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<sup>92</sup> Wilson, Kalpana(2002), "Small Cultivators in bihar and 'New Technology': Choice or Compulsion?"

<sup>93</sup> *ibid*

land holding class mainly constituted of the higher castes in diverting agricultural resources to unproductive avenues<sup>94</sup>.

The pattern that can be understood from the literature that has discussed the agrarian scenario in Bihar is that land has always been a major determinant of the relations of production in Bihar agriculture. The possession over land has always been associated with the caste of the individual. The contradiction of possession over land and agricultural work being done mainly by the tenants or the laborers has provided material conditions for the conflict between mode of production and the release of forces of production. There are many theorizations about the mode of production in a backward agricultural system such as that in Bihar. Where to fit the mode of production of Bihar agriculture has to be a part of the analysis based on recent developments. The fact that land ownership, caste/class nexus and use of political power in the form of coercion as well as policy determination has had a major impact on the agrarian structure of Bihar leads one to understand how these relations exist in determining the development of forces of production. The ownership and operational pattern of land holding, caste factor in determining such land holding pattern, labour supply in the production process as well as investment in the agricultural production by such interest groups (classes) are important in understanding the empiricism of the theories in the particular context of Bihar. The pattern may or may not follow any distinctive trend as understood in the available literature. In a social formation, the different levels might not be at the same level. But except in the transitional phase, any social formation is characterized by a dominant mode of production.<sup>95</sup> This study aims at determining the agrarian structure in terms of relations of production and the corresponding impact on the incentives of agricultural production.

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<sup>94</sup> *ibid*

<sup>95</sup> Hindess, Barry and Hirst, Paul Q. (1975) "Pre-capitalist Modes of production".

### Chapter III: Dynamics<sup>1</sup> of Agrarian Structure in Bihar

The agrarian question<sup>2</sup> needs detailed understanding of agrarian structure characterised by the pattern of land holding, the relations of production determined by the existing ownership pattern over means of production. Land constitutes the most important means of production in agriculture. Although there are opinions to argue that only the size of land holding can not be considered while deciding the class of peasantry<sup>3</sup>. But the possession over land can act as a major determinant of other factors that influences the class structure within the peasantry. In a state like Bihar, land has been determining the position of an individual in the hierarchy of agrarian structure, as can be understood from the literatures that have discussed the changing agrarian structure of Bihar and provided probable explanations behind the persisting backwardness. Other than the general theorisations on the agrarian question of the backward economy and historical review of the agrarian structure as influenced by colonial history, very little empirical work has been done on the present agrarian structure of Bihar and related developments.

As mentioned in previous chapter the present study aims at analysing the agrarian structure of Bihar from secondary data source primarily from the National Sample Survey Organisation. The two points of time for which the analysis have been attempted are 1991-92 (NSSO 48<sup>th</sup> round) and 2002-03(NSSO 59<sup>th</sup> round). Although, land reform (adopted after 1950) had the potential to materialise major changes in the agrarian structure, it was expected that the proposed study at these two points of time would bring out the recent changes in the relations of production as determined by the access over land and mechanism of labour supply. Moreover, various regions in the country have experienced considerable change in the production scenario after 1960s.

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<sup>1</sup> The different aspects of agrarian structure have been analysed through change over the time period of 1991-92 to 2002-03. The spatial variation over the three regions of Bihar and Jharkhand has also been analysed.

<sup>2</sup> The agrarian question may be defined as the continuing existence in the country side of a poor country of substantive obstacles to an unleashing of the forces capable of generating economic development, both inside and outside agriculture-A Dictionary Of Marxist Thought,2000, New Delhi: Maya Publishers.

<sup>3</sup> One of the most important contributors to this concept is Utsa Patnaik. In her analysis of the class differentiation within peasantry, how other factors as labour employment cannot be neglected has been brought out. (Ascertaining the Economic Characteristics of Peasant Classes in Themselves in Rural India: a Methodological and Empirical Exercise in The Long Transition: Essays in Political Economy,1999)



The release of the new forces of production has induced changes in the agrarian structure as well. In a region like Bihar, (including the Chotanagpur plateau region), where no such major breakthrough has been identified, it would be important to know at what level of change this region is in. The changes in agrarian structure has to be understood not only through the parameters of possession or access to the means of productions and relations of labour supply, but also its association with caste which has been playing a major role in determining the economic status of a person in the hierarchy of agrarian structure. The data for 1991-92 provides information on three social groups, namely scheduled caste, scheduled tribes and others. But as the literatures establish that other backward classes constitute an important group in terms of their role in the agricultural scenario, especially after land reform. The data for 2002-03 do provide information for this group separately. To analyse the dynamics of agrarian structure in Bihar, the present study would consider the following parameters:

1. Aspects of ownership of land
2. Aspects of operational holding
3. Tenorial structure in terms of leasing in pattern of land

### **Section III.1: Aspects of Ownership Holding of Land:**

Ownership over the agricultural land plays an important role (if not the most important) in determining the class status of an individual in the agrarian structure. The huge body of literatures discussing the agrarian structure of a backward economy emphasises the role of ownership over land in determining the control over means of production. The fact that land ownership has been highly concentrated historically in a region like Bihar provides explanations to the economic and extra economic coercions that the class of actual cultivator has been facing. As can be established from literatures, there has been existing a class of land owners possessing huge size of land who were hardly interested in investing in agriculture as ownership over land provided them with economic, social and political power to appropriate the surplus production produced by actual cultivator. Those sections of the peasantry who owns land large enough to generate surplus over and above the consumption necessities, employ labour to cultivate the land. The ownership over land ensures their customary or legal rights over the entire or a major part of the produce that is generated from the

land. Labour can be employed in a variety of forms depending on the dominant mode of production. The size of ownership and concentration of land thus decides the appropriation of surplus produce in an agrarian economy.

### **Section III.1.a: Inequality in the Distribution of Ownership Holding:**

Inequality in ownership over land arises when a section of peasantry constituting a proportionately smaller section of the population have ownership rights to a larger proportion of land. Before going into the details of the empirical results obtained for the two points of time, it is important to remind that there has been changes in the method of data collection for ownership holding from NSSO 48<sup>th</sup> round (reference time 1991-92) and NSSO 59<sup>th</sup> round (reference time 2002-03). Because of the change in the way data on plots of land was collected, homestead land could not be included in the calculation of ownership holding in 1991-92 and the same could be included in ownership holding in 2002-03. That is why there can be a problem in comparison of inequality in ownership holding for the two points of time. Although, a regional pattern of the changes in terms of inequality can be brought out.

An attempt has been made in the following discussion to bring out the inequality over land ownership in Bihar for the two reference time points and the changes in the intervening time period:

#### **Section III.1.a.i: Inequality in ownership holding in 1991-92:**

Land reform as a policy has brought about major changes in the ownership holding pattern of land at least in the juridical level. Earlier studies have brought out significant lacuna in the implementation of land reform. After 1970s due to several movements like the land grab movement, the government had to take up land reform, especially implementation of ceiling surplus land more seriously<sup>4</sup>. That is why the inequality in the ownership pattern of land holding for the year 1991-92, may point towards how far inequality in ownership holding has been taken care of. Inequality in land ownership in the northern Bihar can be understood from the following table

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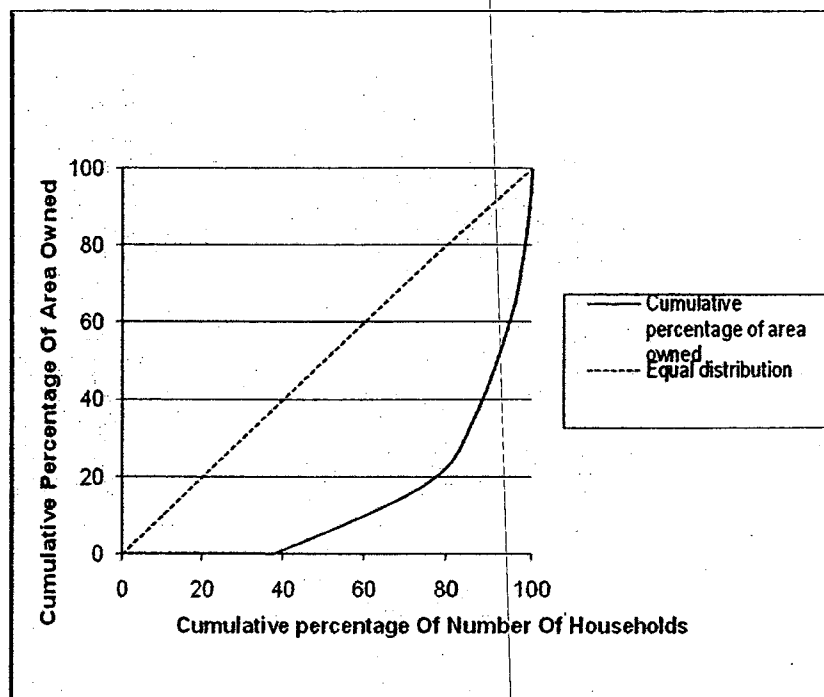
<sup>4</sup> Prasad, Shankar (1993), "Implementation of Land Reform Legislation in Bihar" in Yugandhar, B.N. and Iyer K. Gopal (eds) *Land Reforms in India, Volume 1: Bihar- Institutional Constraints*.

Table III.1: Proportion of Households and Land Owned Under Each Ownership Holding Category, Northern Bihar, 1991-92

Class of ownership holding(hectares)	Proportion of households	Proportion of area owned
< .002	34.82	0.00
.002 - .003	0.13	0.00
.003 - .040	3.60	0.19
.041- .500	36.96	18.01
.501 - 1.00	11.38	17.69
1.001 - 2	8.14	25.11
2.001 - 3.00	2.35	12.19
3.001 - 4.00	1.21	8.84
4.001 - 5.00	0.66	6.14
5.001 - 7.500	0.51	6.42
7.501 - 10.00	0.17	2.94
10.001 - 20.00	0.07	1.95
>20	0.01	0.52

From the above table it becomes clear that the households having very small ownership holding constitute the major percentage of number of households in northern Bihar. But the proportion of land they own is almost negligible in the total land owned by all the house holds in the same region. The number of households that owns less than 0.5 hectare of land constitutes more than 75 percent of the total number of households in northern Bihar. This 75 percent of households owns around 18 percent of the total land owned in that region. But for the households having larger ownership holding, the proportion of land owned is significantly greater than the proportion of households they constitute. That is why it can be seen that the households owning more than 10 hectares of land constitute only 0.08 percent of the total number of households. But the land they own is more than 2.5 percent of the total land owned in that region. This inequality in distribution of ownership holding becomes all the more clear from the deviation from equal distribution pattern:

Figure III.1: Inequality in Distribution of Land Owned, Northern Bihar, 1991-92



The deviation of the curve depicting actual distribution of area owned from the line of equal distribution shows the distribution of owned land in favour of the larger land holding households. The Gini's Co-efficient quantifying the inequality in land holding is 0.72 reflecting a very high inequality in the distribution of land owned (see Appendix, table A.III.1).

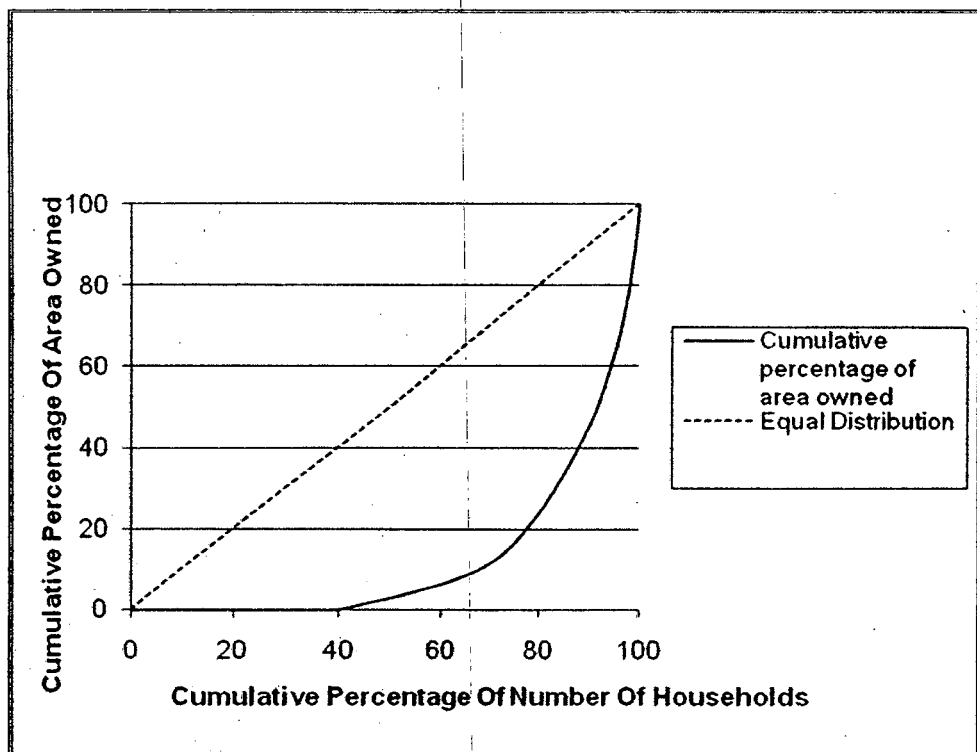
The pattern of inequality in central Bihar in 1991-92 shows almost a similar pattern with the northern Bihar region.

Table III.2: Proportion of Households and Land Owned Under Each Ownership Holding Category, Central Bihar, 1991-92

Class of ownership holding (hectares)	Proportion of households	Proportion of area owned
< .002	38.39	0.00
.003 - .040	1.94	0.07
.041 - .500	26.71	9.25
.501 - 1.00	12.45	13.55
1.001 - 2	10.75	22.55
2.001 - 3.00	4.81	16.99
3.001 - 4.00	1.75	8.69
4.001 - 5.00	1.21	7.75
5.001 - 7.500	1.12	9.71
7.501 - 10.00	0.68	8.23
10.001- 20.00	0.18	3.22

In Central Bihar no household reported to own more than 20 hectares of land. The households owning less than 0.5 hectare of land constituted more than 67 percent of the total number of households in Central Bihar. But the percentage of land these households owned was around 13 percent. Following the similar pattern as in northern Bihar the households in the larger land owning category own disproportionately more percentage of land as compared to the proportion of households that they constitute. The disproportionate pattern of ownership becomes all the more clear in the largest land owning categories. The households having more than 7.5 hectares of ownership holding constitute less than 1 percent of all the households in the region. But the proportion of land that they own is more than 11 percent. The graph depicting deviation from equal distribution of land in terms of proportion of households and proportion of land owned brings out the inequality in terms of cumulative percentage:

Figure III.2: Inequality in Distribution of Land Owned, Central Bihar, 1991-92



Like in northern Bihar, major part of the area below the line of equal distribution in the Lorenz curve is covered by the curve of actual distribution of land owned showing an acute inequality in the distribution of land owned. The Gini's coefficient of distribution of land owned is .73 showing even higher in equality than northern Bihar (see Appendix table III.2).

Land ownership distribution in the southern Bihar (Chotanagpur plateau, presently Jharkhand) in 1991-92 shows significant inequality in distribution of land owned, although the extent is not the same as northern and central Bihar.

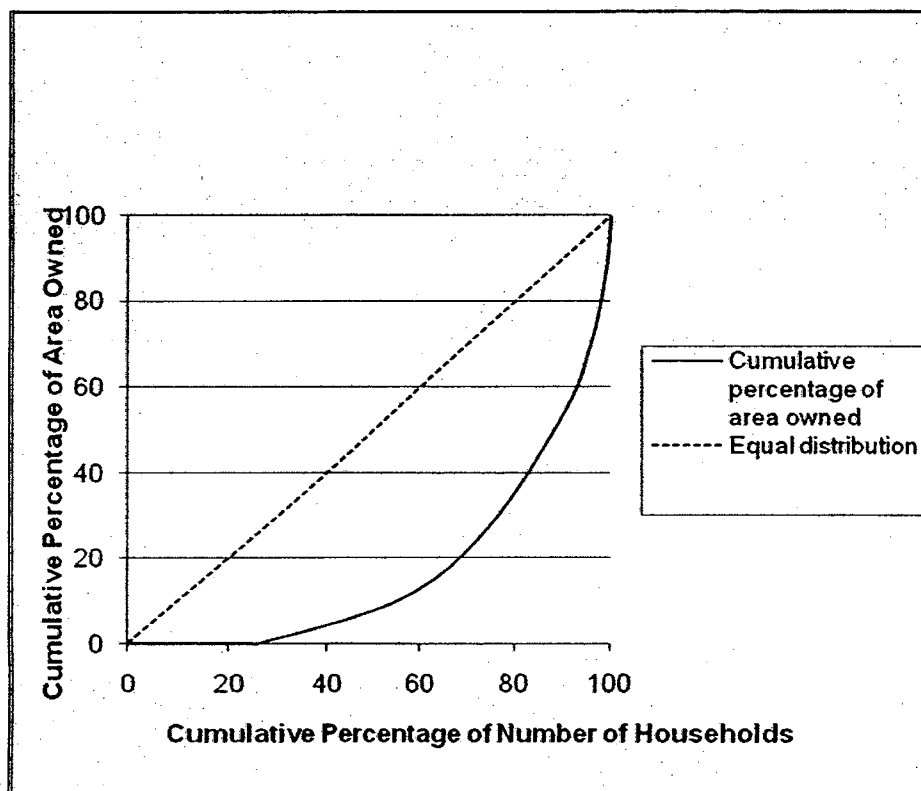
Table III.3: Proportion of Land Owned under Each Ownership Holding Category, Southern Bihar, 1991-92

Class of ownership holding (hectares)	Proportion of households	Proportion of area owned
< .002	24.54	0.00
.003 - .005	1.37	0.04
.041 - .500	30.45	10.62
.501 - 1.00	18.12	16.63
1.001 - 2	16.20	27.75
2.001 - 3.00	5.06	15.00
3.001 - 4.00	1.87	8.08
4.001 - 5.00	0.52	2.94
5.001 - 7.500	1.05	7.68
7.501 - 10.00	0.38	3.89
10.001 - 20.00	0.39	5.78
>20	0.05	1.59

In southern Bihar region as well the proportion of households in the smallest category of ownership holding i.e. less than 0.04 hectares of land owned is disproportionately higher than the proportion of land that these households own. One important phenomenon to be noted is that the proportion of households in ownership holding category of less than .04 hectares is less than that in northern and central Bihar by 17 percent and 11 percent respectively. More than 56 percent of households in the land owning category of less than 0.5 hectares of ownership holding own around 27 percent of the total land owned. Moreover, the extent of concentration of land in the middle size holding categories is less than that in both Northern and Central Bihar. But the percentage of land owned by the large ownership holding i.e.

households owning more than 10 hectares of ownership holding is more than that in both central and northern Bihar. Less than 0.5 percent of households in the land ownership category of more than 10 hectares of land own nearly 7 percent of the total area of land owned. The curve depicting inequality in land ownership brings out the concentration of land owned in particular groups of ownership holding:

Figure III.3: Inequality in Distribution of Land Owned, Southern Bihar, 1991-92



The Lorenz curve for inequality in land owned in terms of cumulative percentage shows that the extent of land concentration in the middle size classes of land ownership is comparatively less than the other two regions.

The Gini's co-efficient, although has a very high value of 0.63, is less than that in northern and central Bihar showing smaller extent of inequality in land holding in this region.

The pattern of land ownership that can be found in all the regions is that there are a very high proportion of households in the smaller category of land ownership. The households owning less than 0.5 hectares of land is more than 50 percent of the total number of households in all the regions. But the percent of land that they own is

less than 20 percent in all the regions. Those households owning 0.5 to 4 hectares of land own more than 60 percent of the total land owned in all the regions. The proportion of land owned by these categories of households is the highest in northern Bihar. In this region the percent of land owned by the large land owning category (more than 10 hectares of land owned) is the lowest as compared to the other two regions. But still it is quite high if the proportion of households is considered in this category. Thus, it can be formulated that the traditionally existing land owning structure as intervened by the land reform of the independent nation to whatever extent has failed to provide ownership rights to a large proportion of peasantry constituting the most deprived section in terms ownership rights over land. Inequality in distribution of land ownership is more in the plain regions in Bihar as compared to the southern plateau region.

### **Section III.1.a.ii: Inequality in Distribution of Ownership Holding in 2002-03**

Land reform policies started to be effectively implemented in Bihar only after 1970s. The political implications of land reform could be seen in the assertion of a particular class-caste constituting the middle peasantry and other backward classes in India's political- electoral sphere after 1970s. This political assertion has been identified to be associated with the developments in the production scenario after the adoption of 'green revolution' technologies. But no such developments have been reported in the eastern part of the country in the same time period of 1970s. Rather the eastern part of the country, especially West Bengal has experienced development in agricultural production in the later decade of 1980s. How far such developments can be established for Bihar has also to be enquired. Other than a few empirical field surveys, the recent development in Bihar agriculture has not been enquired. Whether there has been any change in the land ownership pattern in the later decades has to be enquired before looking for any recent development in the investment in agricultural production. In the calculation of the present study, homestead land, if owned has been included in the calculation of ownership holding to make it comparable with operational holding in 2002-03. That is why the absolute extent of inequality in ownership may not be comparable with that of 1991-92, but the concentration of land in different categories of ownership holding households and the nature of inequality in the three regions can be established even with this limitation. The following table



brings out the distribution of land ownership in different land owning categories of households in northern Bihar:

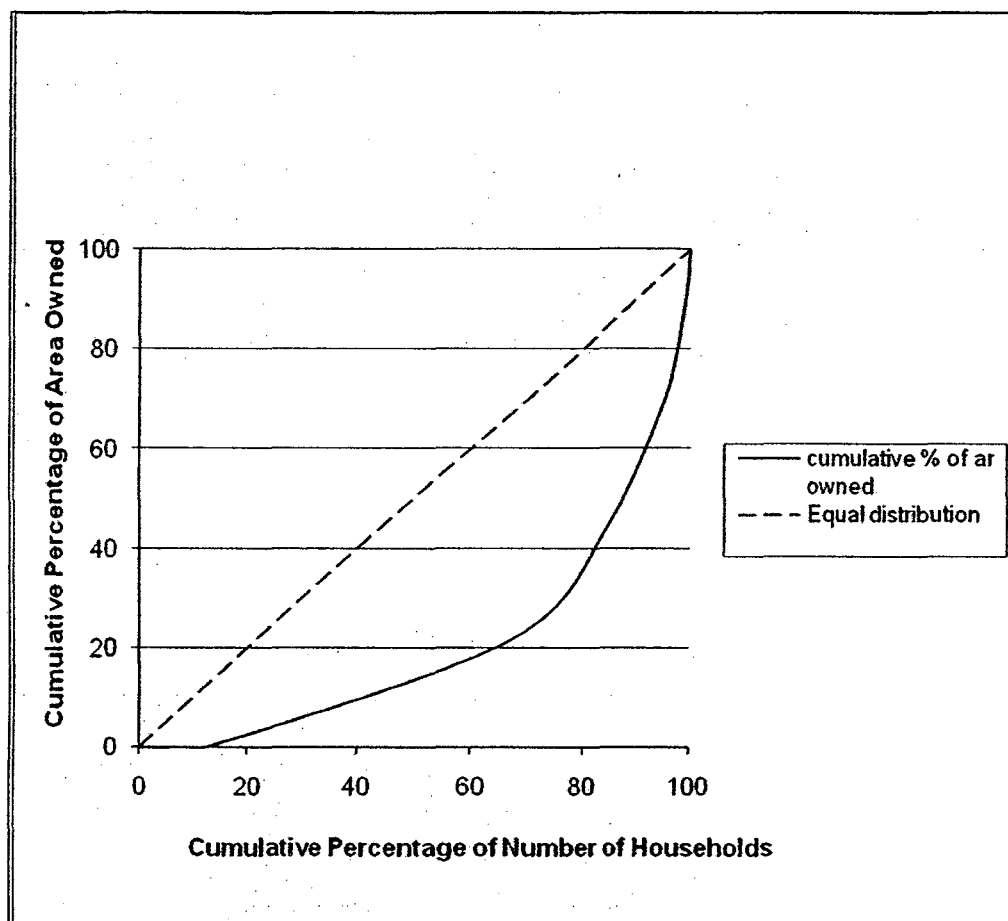
Table III.4: Proportion Of Land owned Under Each Ownership Holding Category, Northern Bihar, 2002-03

Categories Of Ownership Holding (hectares)	Proportion Of Number Of Households	Proportion Of Area Owned
< .002	0.21	0.00
.003 - .005	2.22	0.02
.006 - .040	11.19	0.42
.041 - .500	53.18	20.98
.501 - 1.00	17.91	23.31
1.001 - 2	10.16	24.06
2.001 - 3.00	2.85	11.85
3.001 - 4.00	1.08	6.41
4.001 - 5.00	0.61	4.48
5.001 - 7.50	0.33	3.57
7.501- 10.00	0.12	1.78
10.001-20.00	0.12	3.12

The proportion of households in the land owning category of less than 0.5 hectares is more than 65 percent. But the percentage of land that these households own is less than 21 percent. The difference in calculation of ownership holding may have increased the number of households in the smallest categories to a great extent as compared to 1991-92. Even then, the fact that such a great proportion of households owns less than one fourth of the total land can not be neglected. But the same phenomenon of owning more than proportionate land to the proportion of households can also be found in 2002-03 as the higher land owning categories are looked into. The larger land owning categories constitute a meagre proportion of households, but the proportion of land that they own are quite high as compared to their proportion of households. In 2002-03 also one can find that in northern Bihar, the proportion of

households as well as the proportion of land owned is more concentrated in the small and semi-medium land owning categories of households. There was no household according to the reported data owning more than 20 hectares of land. The graph showing the cumulative percentage of land owned can show the concentration of land owned in the hierarchy of land owning categories.

Figure III.4: Inequality in distribution Of Land Owned, Northern Bihar, 2002-03



The Lorenz Curve showing inequality in ownership over land shows that about 35 percent of the households in the higher land holding categories owns more than proportionate land as compared to their proportion in number of households. The Gini's co-efficient of land owned by the households is 0.57 which is a quite high value to bring out the persisting inequality in land ownership (see Appendix table A.III.4).

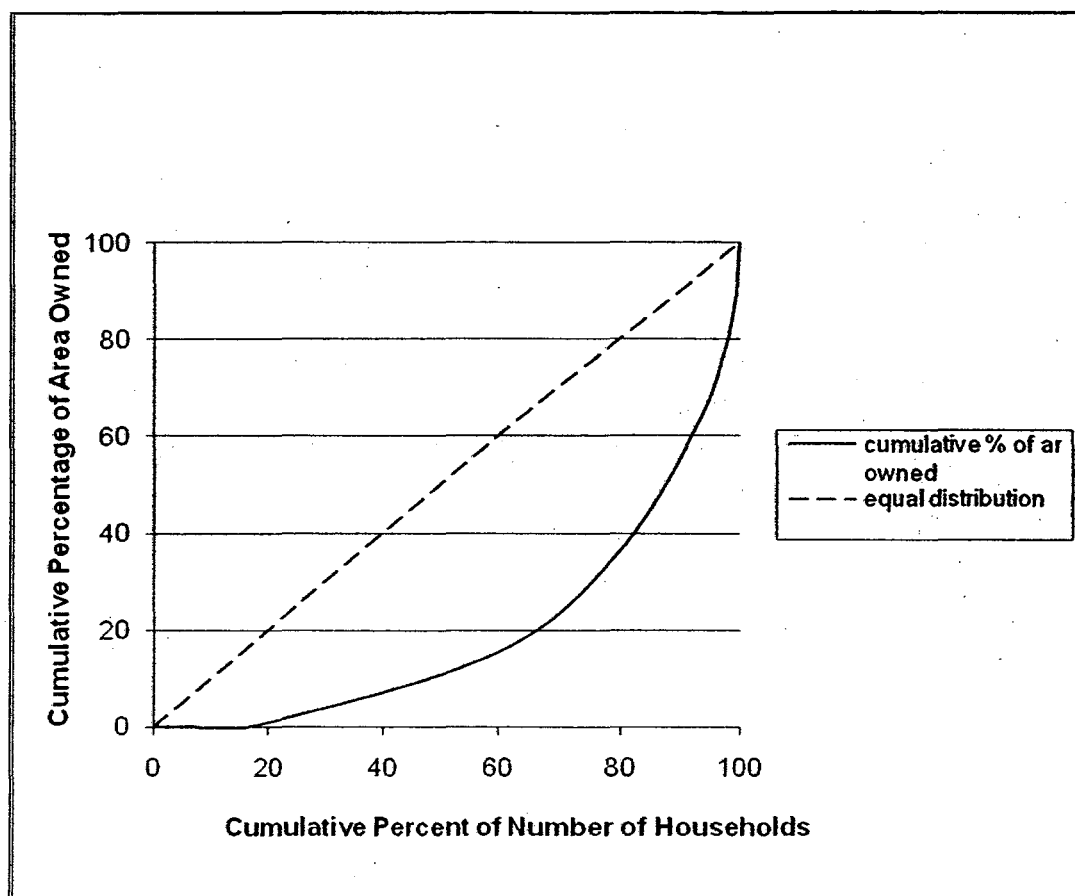
The pattern of land ownership in central Bihar can be compared with that in northern Bihar from the following table:

TableIII.5: Proportion Of Land owned Under Each Ownership Holding Category, Central Bihar, 2002-03

Categories Of Ownership Holding (hectares)	Proportion Of Number Of Households	Proportion Of Area Owned
< .002	1.49	0.00
.003 - .005	4.91	0.03
.006 - .040	11.75	0.30
.041 - .500	41.80	15.02
.501 - 1.00	20.29	21.19
1.001 - 2	13.18	27.23
2.001 - 3.00	3.70	12.77
3.001 - 4.00	1.34	6.74
4.001 - 5.00	0.69	4.72
5.001 - 7.50	0.24	2.03
7.501- 10.00	0.25	2.91
10.001-20.00	0.37	7.06

More than 57 percent of the households in the land owning category of less than .5 hectares own around 15 percent of the total land owned in central Bihar. The proportion of land owned by this category is less than that of northern Bihar. Following the same pattern as in northern Bihar the percentage of households in the marginal, small and semi-medium category of land ownership show significant concentration as compared to larger land owning categories. The large land owning category although constitute only 0.37 percent of the total number of households, the percent of land that they own are over 7 percent of land owned in the area. The curve depicting inequality in land owned would reflect the concentration of land owned in the hierarchy of land ownership categories

Figure III.5: Inequality in Distribution of Land Owned, Central Bihar, 2002-03



Like in northern Bihar, the Lorenz curve showing inequality in land ownership shows that the 30 percent of the household in the higher land owning categories own proportionately more amount of land. The Gini's co-efficient for distribution of land ownership is 0.6, which shows acute inequality in the distribution of land ownership in central Bihar (see Appendix table A.III.5). The extent of inequality is more than that in northern Bihar region. In 1991-92, as well the extent of inequality in central Bihar was more than that in northern Bihar.

The state of Jharkhand was formed in 2000 constituting the plateau region of southern Bihar. The pattern of land ownership in this region can be understood from the following table:

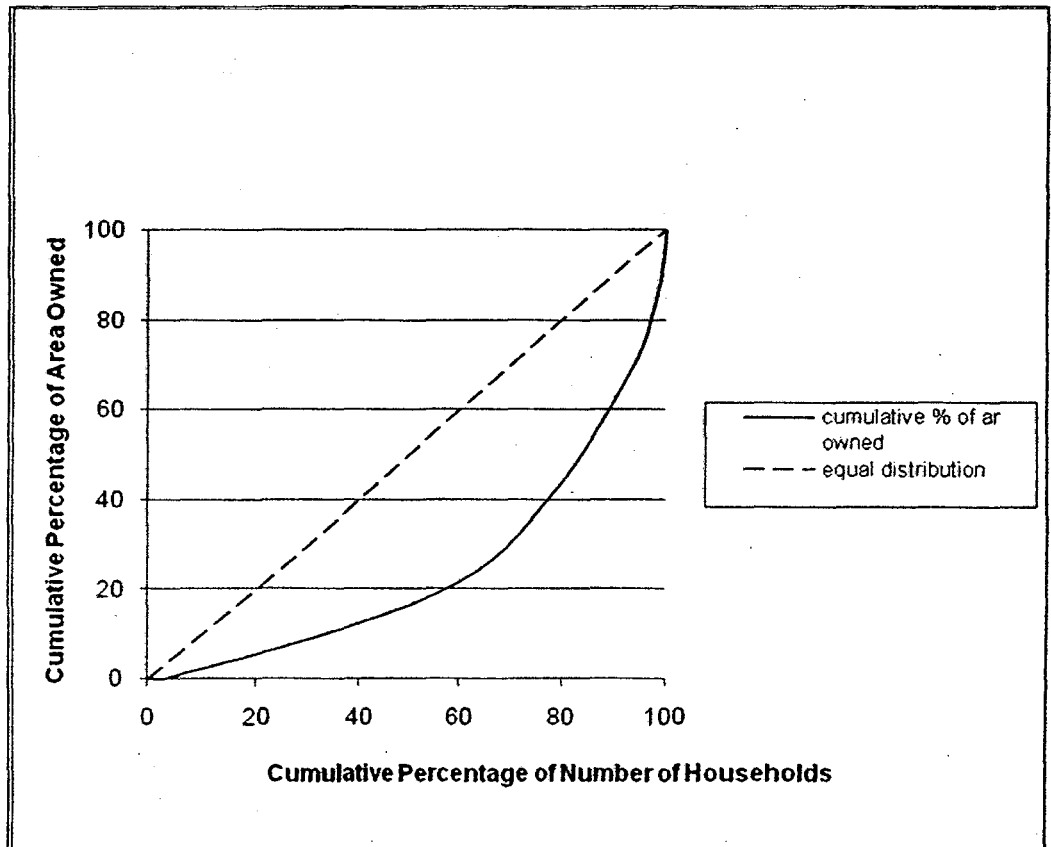
Table III.6: Proportion of Households and Land Owned under Each Ownership Holding Category, Jharkhand, 2002-03

Categories Of Ownership Holding (hectares)	Proportion Of Number Of Households	Proportion Of Area Owned
< .002	0.22	0.00
.003 - .005	0.56	0.00
.006 - .040	2.78	0.08
.041 - .500	52.55	19.26
.501 - 1.00	22.08	21.95
1.001 - 2	15.75	28.73
2.001 - 3.00	3.49	11.78
3.001 - 4.00	1.08	5.07
4.001 - 5.00	0.71	4.41
5.001- 7.500	0.47	3.93
10.001-20.00	0.31	4.79

Following the similar pattern as the northern and central region of Bihar, in Jharkhand as well, the proportion of households owning less than 0.5 hectares of land constitute around 56 percent of total number of households. But the percentage of land that this category of households own is around 20 percent. The marginal and small categories of land owner households constitute more than three fourth of the total number of households. The households owning more than 1 hectares of land own land more than the proportionate share of their total number. But the disproportionate share in land increases more in the larger size of land owning categories of households. More than 14 percent of the land is owned by those households who hardly constitute 1.5 percent of the total number of households in the medium and large size of land holding categories. The disproportionate share of land that the large land holding categories own in Jharkhand is less than that in central Bihar, but the pattern is similar with northern Bihar. How this inequality in land ownership

manifests itself in terms of the cumulative percentage of land owned by cumulative number of households arranged according to hierarchy in land ownership can be understood from the following graph:

Figure III.6: Inequality in Distribution of Land Owned, Jharkhand, 2002-03



The above diagram depicts that around 60 percent of the households in the smaller land owning categories own less than proportionate land as compared to the proportionate share to the total number of households. The Gini's co-efficient for land ownership is 0.49(see Appendix table III.6), which is a lower value than that in northern and central Bihar, but still showing significant inequality in land ownership.

From the above discussion of inequality in land ownership in 1991-92 and 2002-03, it becomes clear that inequality persists to a significant level even in 2003. Although due to change in the definition of land owned in 2003, the absolute inequality seems to have decreased in 2003. The households in the marginal and small categories of land ownership constitute almost three fourth of the total number of households in all the regions, more so in 1991-92. But the land that they own always constitute less than 45 percent of the total land owned in any region. This huge

difference between proportion share to the entire population and land owned is more starkly true in the lowest land owning categories. It is absolutely impossible for this huge number of households to subsist only on the meagre amount of land that they own. The proportion of land owned by those households who own more than 1 hectares of land is more than their share in the total number of households. Small and semi-medium land owning households own land more than their share in number of households. But the small size of their land ownership can hardly provide them the subsistence. The disproportionate manner in which the large categories of households own land is the most noticeable. If such is the case, then reproduction of labour power in the smallest categories of households and agricultural production in the disproportionately larger amount of land owned by the larger categories of land owner has to be ensured through some mechanism of labour supply by the below subsistence land owning categories. This labour supply process would at the same time ensure surplus production from the excess land that the larger land owners own. One should not forget that the present study area is the region which has historically experienced out migration to other regions. That is why how far the labour supply mechanism with in agricultural production is working to maintain the below subsistence as well as excess land ownership in the same region has to be enquired.

Before discussing other mechanisms which ensures the maintenance of such land ownership pattern through reproduction of labour supply mechanism in the three regions, the extent of inequality needs to be summarised. In 1991-92, the central Bihar region had the largest inequality. Southern plateau region of Bihar had the lowest inequality as compared to the other two regions. In 2002-03, the same regional inequality pattern is maintained. The inequality in land ownership can decide dominance over the rural society through possession over the most important means of production. Caste structure is another institution which decides the position of any individual in the hierarchy of social structure. As established from literatures, the possession over land has been associated with the castes status of any individual. How far this social institution determines the ownership over the most important means of production in agriculture even after post-independence developments needs to be analysed empirically.

### Section III.1.b: Caste and Land Ownership:

The institution of caste has maintained the social hierarchy drawing its legitimacy from the norms, customs and rituals defined by religion. But this institution does not exist only in the superstructure of norms, customs and rituals. The ensurance of its existence has to be drawn from the material relations of production. In a social formation having a mode of production or the same mode at its different phases, the various levels do not proceed at the same time. Some may be more advanced than the social formation; some may have a time lag<sup>5</sup>. So, the different socio-economic, political and legal levels might not be at the same phase as the relations of production decided by the ownership over means of production. But they have to be considered with in the structure of the social formation. In the legal arena or at policy level there might be attempts to deny the ritual legitimacy of caste structure. But how far they have altered the land ownership pattern has to be understood empirically. The following table brings out the association of caste structure with land ownership pattern in 1991-92 in Bihar:

Table III.7: Percentage Distribution of Households in Each Social Groups In Size Classes Of Ownership Holding, Bihar, 1991-92

Regions	Size Class Of Land Ownership	Scheduled tribe	Scheduled Caste	Others	All
Northern Bihar*	Marginal	85.33	98.74	83.81	87.00
	Small	11.93	0.84	9.96	8.07
	Semi-medium	1.24	0.35	4.46	3.53
	Medium	1.50	0.07	1.67	1.32
	Large	0.00	0.00	0.10	0.08
Central Bihar*	Marginal	78.36	96.84	72.79	79.60
	Small	19.60	2.15	13.99	10.70
	Semi-medium	0.00	0.91	8.82	6.53
	Medium	2.04	0.11	4.15	3.00
	Large	0.00	0.00	0.26	0.18
Southern Bihar*	Marginal	60.44	93.37	79.23	74.54
	Small	25.32	5.39	12.73	16.16
	Semi-medium	10.47	0.92	6.04	6.91
	Medium	3.37	0.31	1.41	1.95
	Large	0.40	0.00	0.58	0.44

\* Association between land ownership and social group is significant at 1% level of significance

In northern Bihar the marginal land owning households constitute 87 percent of the total number of households. But if one analyses caste wise, among the scheduled caste households around 99 percent are in the marginal land owning

<sup>5</sup> Das Arvind N.(1983), *Agrarian unrest and socio-economic change in Bihar,1900-1980*



category. Among scheduled tribe households around 85 percent are in marginal land owning category and among other castes around 84 percent are in the marginal land owning category. As almost all the scheduled caste households are in the marginal land owning category, their existence in other land owning categories are almost negligible. Around 12 percent of the households in the scheduled tribe households are in small land owning category. Around 10 percent of the households in other castes are in the small land owning category. In the semi-medium and medium size class of land ownership, the percentage of households in other castes is larger than both scheduled tribe and caste. In the large land owning category, there are no other households than the other castes, although their percentage in that class is very small. In central Bihar, almost 80 percent of all the households are in the marginal land owning category. Social group wise, almost 97 percent of the scheduled caste households are in marginal land owning category. 79 percent of the scheduled tribe and 73 percent of the other castes are in marginal land owning category. Almost all the scheduled caste households are in the marginal land owning category. That is why their percentage in other ownership size classes is very small. Caste wise, 14 percent of other castes and 20 percent of scheduled tribes are in small land owning category. Among the scheduled castes only around 2 percent are in the small land owning size class. In semi-medium and medium land owning class the percentage of other castes are more than both scheduled caste and tribe. In the large land owning category, no other social group than the other castes have their existence. In the southern plateau region of Bihar in 1991-92, the percentage of households in the marginal landowning category (around 75 %) are smaller than both central and northern Bihar. 93 percent of the scheduled caste households are in marginal land owning category. In southern Bihar the percentage of scheduled tribes in the marginal land owning class (60 percent) is less than that of even other castes (around 79%). Scheduled caste households have around 5 percent of their total number of households in the small land owning category. Around 25 percent of the scheduled tribes and 13 percent of other castes are in the small land owning size class. One important thing to be noticed about southern Bihar is that the percentage of scheduled tribes in the

marginal category is less than that of the other castes. But in small, semi-medium and medium their percentage is more than that in the other castes. This pattern is not common in the other two regions. The percentage of scheduled caste households in the marginal category is smaller than that in the other two regions and their percentage in the small category of land ownership is higher than the other two regions. This pattern can be associated with the lowest inequality in land ownership in southern Bihar plateau region as compared to the other two regions. In the large land owning category, in southern Bihar, there is no scheduled caste household. The percentage of other castes in the large landowning category is marginally higher than that of the scheduled tribes.

In all the regions in 1991-92, the association between caste and size of land ownership is significant which shows that the percentage of households within any social group has a significant pattern of owning a land.

How far the caste association with land ownership has changed over the time period of 1991-92 to 2002-03 can be understood from the percentage of each social groups in size classes of land ownership. In 2002-03, one important addition to the analysis to the caste association with land ownership has been the inclusion of other backward classes as a separate category because of the availability of data on this social group. As has been understood from literatures, land reform has made a significant impact in the land ownership pattern of the other backward classes. This could be understood more effectively if data was available for this particular social group before and after the 1970s. But still, the inclusion of this social group as a separate category in 2002-03 would help to understand the ownership pattern more effectively. The following table brings out the land ownership pattern of each social group:

Table III.8: Percentage Distribution of Households In Each Social Groups According In Size Classes Of Ownership Holding, Bihar And Jharkhand, 2002-03

Regions	Size class of ownership holding	Scheduled Tribe	Scheduled caste	Other backward caste	Others	-tal
Northern Bihar*	Marginal	88.82	96.69	85.36	74.87	84.77
	Small	1.95	2.81	9.89	16.23	10.13
	Semi-medium	9.23	0.49	3.63	6.68	3.92
	Medium	0.00	0.00	0.99	2.02	1.06
	Large	0.00	0.00	0.12	0.20	0.12
Central Bihar*	Marginal	100.00	97.13	83.16	59.89	80.24
	Small	0.00	2.55	12.68	22.31	13.18
	Semi-medium	0.00	0.32	2.96	14.17	5.03
	Medium	0.00	0.00	0.63	3.56	1.18
	Large	0.00	0.00	0.58	0.07	0.37
Jharkhand**	Marginal	73.86	89.55	81.95	68.06	78.19
	Small	18.18	9.92	13.52	21.47	15.75
	Semi-medium	5.72	0.22	3.70	7.98	4.57
	Medium	1.45	0.31	0.83	2.49	1.18
	Large	0.79	0.00	0.00	0.00	0.31

Association between land ownership and social group is significant at 1% level of significance

Association between land ownership and social group is significant at 5% level of significance

In 2002-03, in northern Bihar, around 85 percent of all the households were in marginal land owning category. Among the social groups the highest percentage of households (around 97%) in marginal land owning category were that of the scheduled caste households like in 1991-92. 89 percent of the households in the scheduled tribe, 85 percent of the households in the other backward classes and 75 percent of the households in the other caste households were in the marginal land owning category. Other backward classes were in better condition in terms of their lesser percentage in the marginal category of households than that of scheduled tribe and scheduled castes. But the lowest percentage in the marginal category was in the other castes. The percentages of the deprived social groups were so high comparatively in the marginal category of land ownership that their percentage in even from small category of land ownership has altered as compared to that in the marginal category of land ownership. Thus with increasing land owning categories, the percentage of households decrease in scheduled tribe and scheduled caste households as compared to the other backward classes with the exception that in the

semi-medium land owning category where the percentage of scheduled tribe households are the highest. The percentages of other backward classes in the higher land owning categories are smaller than that in the other caste households. In the medium and large land owning categories which constitute a very small fraction of the total number of households, there are no households from scheduled tribe and scheduled caste households. In central Bihar, the percentage of all the households in the marginal land owning category is around 80 percent. But the social group wise representation in this category brings out the caste basis of deprivation in land ownership very significantly. All the scheduled tribe households in this region are in the marginal category of land ownership. 97 percent of the scheduled caste households and 83 percent of the other backward class households are in the marginal category of land ownership. The percentage is significantly less for the other caste households (around 60 percent). Almost all the households in the scheduled castes are in the marginal category. That is why their percentage is very less in the larger than marginal category of land ownership. These factors have contributed to the fact that even in small category of land ownership the percentage of households are more in other castes as compared to the other backward classes and the scheduled castes. The same pattern is true when one compares other backward classes with scheduled castes and tribes. This pattern of ownership continues for the larger land owning classes than the small land owner category. Like in northern Bihar, there are no households from scheduled tribe and scheduled caste in the medium and large land owner category. The percentage of other castes in these two land owner category are more than other backward classes. In Jharkhand, the condition of the scheduled tribes in owning land is better than scheduled castes and other backward classes. This can be said from the fact that the percentage of scheduled tribe households in marginal land owner category is lower than the other two castes. But as in other regions, the percentage is lowest for other castes. Scheduled castes have the highest percentage of households in the marginal land owning category. The scheduled tribes have higher percentage in the larger land owning categories than the scheduled castes and other backward classes, unlike the regions in Bihar. The large land owning category is only constituted by the scheduled tribes. The hierarchy among scheduled castes, other backward classes and other castes is true for Jharkhand as well.

In all the three regions, the association between caste and land ownership is significant in 2002-03 as well. The level of significance of their association shows that they are more closely associated in Bihar. As other backward classes have been included in the analysis, one can see that the other backward classes are in a better condition of land ownership than scheduled castes and tribes in Bihar. In Jharkhand, the land ownership of the scheduled tribes is comparatively better than that in Bihar. In central Bihar, the deprived social groups like scheduled tribes and castes have more percentage of their households in the marginal category than the other regions. Even for other backward classes, the difference of their land ownership to the other castes is more in central Bihar than the other two regions. This phenomenon can be associated with the highest inequality in land ownership in central Bihar.

Ownership holding reflects the right to transfer the rights over land. Along with the pattern of distribution of ownership holding, distribution of operational holding which reflects the effective possession over land for agricultural production purpose in a particular time is another important aspect to be looked into while analysing the possession over means of production in the agricultural production system.

### **Section III.2: Aspects of Operational Holding:**

As defined by NSSO, an operational holding would be a techno-economic unit wholly or partly for agricultural production and operated (directed/managed) by one person alone or with the assistance of others, without regard to title, size or location. Leasing out and mortgaging out would be deducted from ownership while defining operational holding and leasing in and mortgaging in would be included with ownership holding. The size of operational holding reflects the amount of land from which the particular household earns the entire or part of the agricultural produce. No physical labour engagement is necessary in the way operational holding is defined. In the present study homestead land has been included in the calculation of operational holding both for 1991-91 and 2002-03. Marginal crop production in homestead is an important source of food production for the poor in many states.<sup>6</sup> In a state like Bihar and Jharkhand where there is huge proportion of households owning marginal or small size of land and average smaller land ownership is the characteristics as

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<sup>6</sup>Rawal Vikash (2008), "Ownership Holding of Land in Rural India: Putting the Record Straight"

compared to other north western states, exclusion of homestead land would not be meaningful.

### **Section III.2.a: Inequality in Distribution of Operational Holding:**

How the effective possession over land for agricultural production is distributed among various groups is an important aspect of enquiry as it would bring out more meaningful picture of the size of land that generates subsistence or surplus to the household in operational holding classes.

### **Section 3.2.a.i: Inequality in Distribution of Operational Holding in 1991-92:**

The pattern of distribution of operational holding in 1991-92 can be understood from the following table:

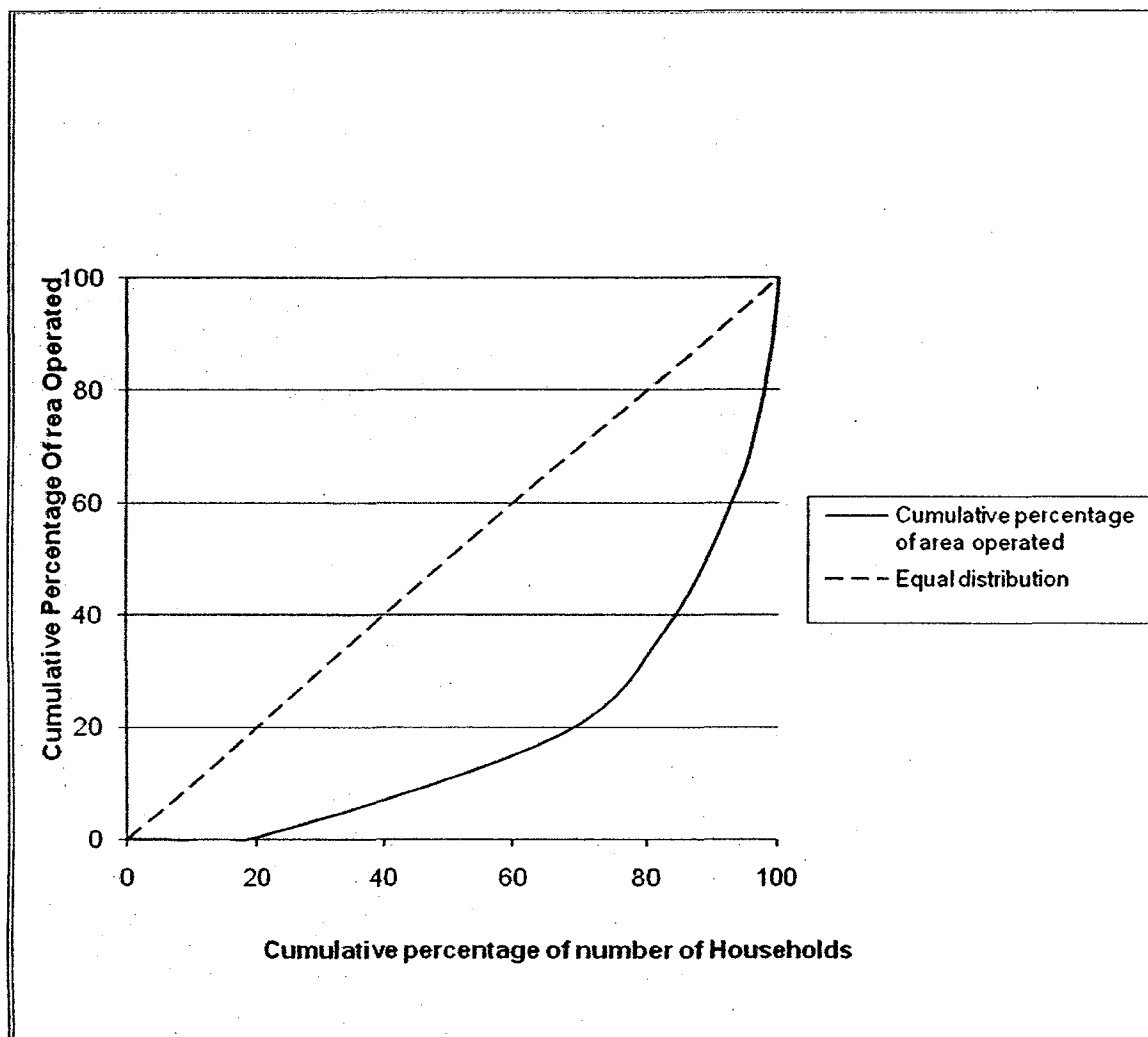
Table III.9: Proportion of land operated under each operational holding category, Northern Bihar, 1991-92

Size Class Of Operational Holding (hectares)	Proportion Of Number Of Households	Proportion Of Area Operated
< .002	2.88	0.00
.003 - .005	2.95	0.02
.006 - .040	14.15	0.39
.041 - 0.5	46.52	17.84
.501 - 1	16.29	19.32
1.001 - 2	10.35	23.91
2.001 - 3	3.66	14.13
3.001 - 4	1.39	7.89
4.001 - 5	1.13	8.18
5.001 - 7.5	0.48	4.82
7.501-10	0.14	2.00
10.001 - 20	0.05	1.03
>20	0.01	0.47

From the above table one can understand that around 67 percent of the households in the households having less than 0.5 hectares of operational holding operate around 18 percent of the total area operated in the region. The proportion of land operated is more than the proportion of households for all the size classes of operational holding above .5 hectares of operational holding size classes. The number of households is more concentrated in .006 hectares to 2 hectares of operational holding size class. The disproportionate amount of land operated as compared to the proportionate share in the number of households is more in the larger land operating households. Less than 2 percent of the households in the semi-medium and large land operating category of households operate around 16 percent of the total operational holding in northern Bihar. The Lorenz curve of distribution of area operated reflects

the cumulative percent of area operated by cumulative number of households arranged in a hierarchical order:

Figure III.7: Inequality in Distribution of Land Operated, Northern Bihar, 1991-92



The disproportionately more area, which the households operate, is more noticeable in the 40 percent of households in the higher land operating category. The Gini's co-efficient for distribution of land operated is 0.61 showing a high inequality in the distribution of land operated(see Appendix table A.III.7).

The pattern of distribution of operated land in different operational holding categories of households in central Bihar can be understood from the following table:

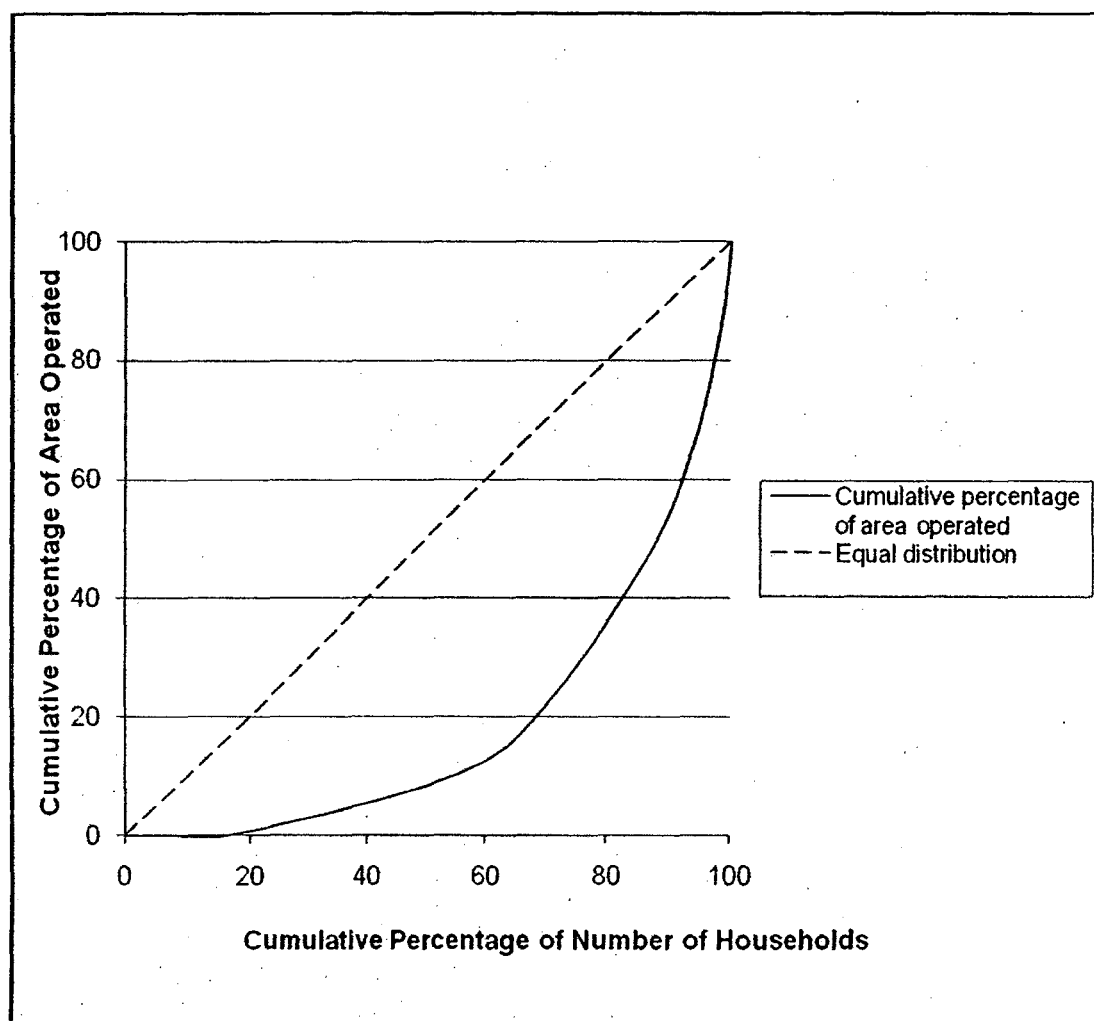
Table III.10: Proportion of Households and Area Operated Under Each Operational Holding Category, Central Bihar, 1991-92

Size class of operational holding (hectares)	Proportion of households	Proportion of area operated
< .002	2.33	0.00
.003 - .005	5.11	0.02
.006 - .040	9.63	0.15
.041 - 0.5	37.85	10.02
.501 - 1	15.74	12.56
1.001 - 2	16.71	25.71
2.001 - 3	6.23	16.26
3.001 - 4	2.32	8.61
4.001 - 5	1.73	8.32
5.001 - 7.5	1.49	9.66
7.501-10	0.68	6.21
10.001 - 20	0.18	2.48

Following the same pattern as in northern Bihar more than 55 percent of the households in the category of less than 0.5 hectares of operational holding operate less than 11 percent of the total land operated in the region. The households having more than 1 hectare of operational holding operates proportionately more land than their share in the total number of households. The household in the semi-medium and large categories of operational holding constitute around 4 percent of the total number of households in the region. But the percentage of land that they operate is around 27 percent of the total land operated in the region. The disproportionate amount of land operated by cumulative proportions of households arranged in an ascending order can be understood from the following graph:



Figure III.8: Inequality in Distribution of Land Operated, Central Bihar, 1991-92



The Gini-coefficient for inequality in land operated is 0.62 showing a high inequality in distribution of land operated by different size classes of operational holding households(see Appendix table A.III.8). The extent of inequality is marginally higher than northern Bihar.

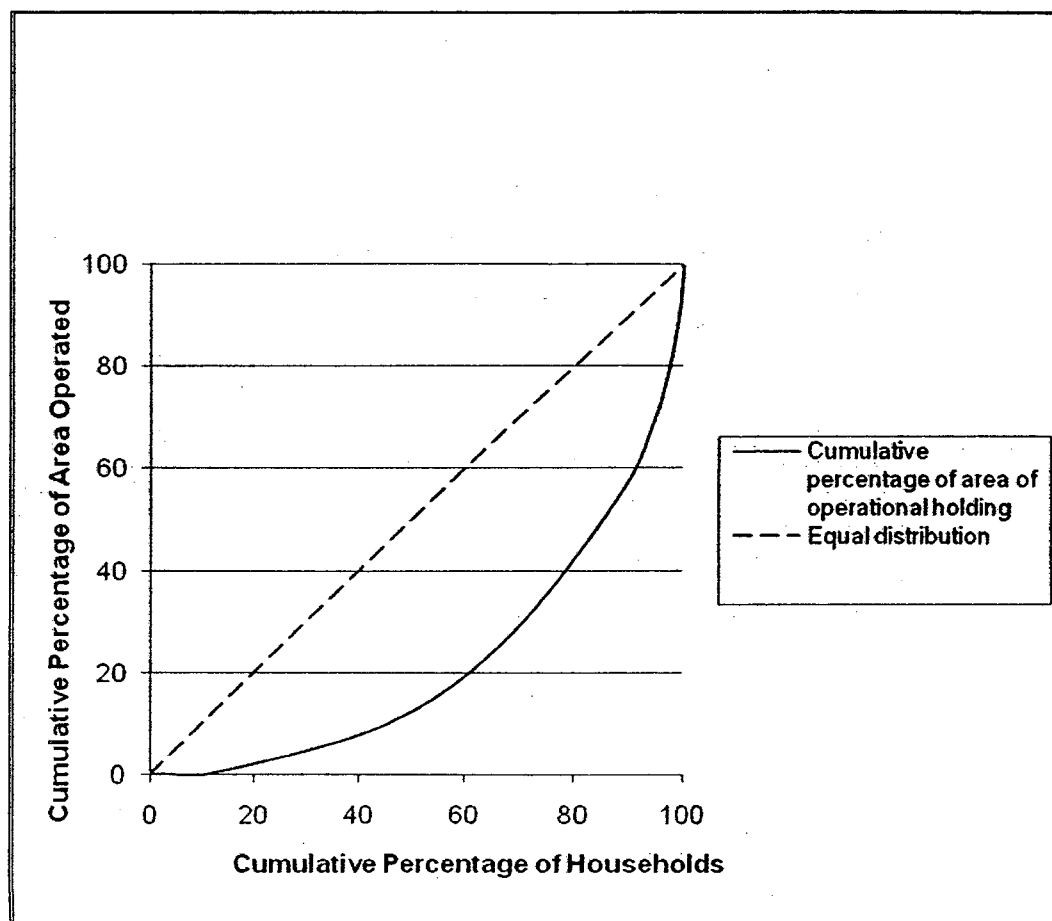
The following table brings out the distribution of area operated in Southern Bihar in 1991-92

Table III.11: Proportion of Land Operated under each Operational Holding Category, Southern Bihar, 1991-92

Size class of operational holding (hectares)	Proportion of households	Proportion of area operated
< .002	3.32	0.00
.003 - .005	0.84	0.00
.006 - .040	7.63	0.13
.041 - 0.5	33.12	9.48
.501 - 1	22.73	16.72
1.001 - 2	20.49	28.15
2.001 - 3	6.66	15.48
3.001 - 4	1.94	6.94
4.001 - 5	0.98	4.39
5.001 - 7.5	1.34	7.97
7.501-10	0.45	3.81
10.001- 20	0.45	5.40
> 20	0.06	1.53

From the above table it can be understood that almost 45 percent of the households that have less than 0.5 hectare of operational holding operates less than 10 percent of the total land operated in the southern Bihar region. The proportion of land operated is more than the proportion of households for all the households having more than 1 hectare of operational holding. The difference between proportion of area owned and land operated is more evident in the larger categories of operational holding households. Households with more than 10 hectares of operational holding constitute only around 0.5 percent of the total number of households. But the area they operate is around 7 percent of the total operated area in this region. Whereas, 68 percent of the households constituting the marginal category of operational holding households operate only 26 percent of the total area operated. The following graph would bring out the inequality in distribution of operational holding in southern Bihar:

Figure III.9: Inequality In distribution Of Land Operated, Southern Bihar,1991-92



From the Lorenz curve for distribution of operational holding it can be understood that more than 40 percent of the households in the lowest operational holding category operates less than proportionate area of land. The Gini's co-efficient for distribution of operational holding is 0.55 which shows a high inequality existing in the distribution of area operated (see Appendix tableA.III.9). But the extent of inequality is less than that of Northern and central Bihar.

What have been the changes in area operated by different operational holding categories of households in recent times has to be looked into before going for analysis of the agricultural production scenario.

**Section III.2.a.ii: Inequality in Distribution of Operational Holding in 2002-03:**

The pattern of ownership in 2002-03 among various size classes of ownership holding has almost remained unchanged from 1991-92. How the distribution of area operated has altered in the intervening time between 1991-92 and 2002-03 can be

important in understanding the direct engagement in agricultural production appropriation of the agricultural produce through effective possession over land by different categories of operational holding households.

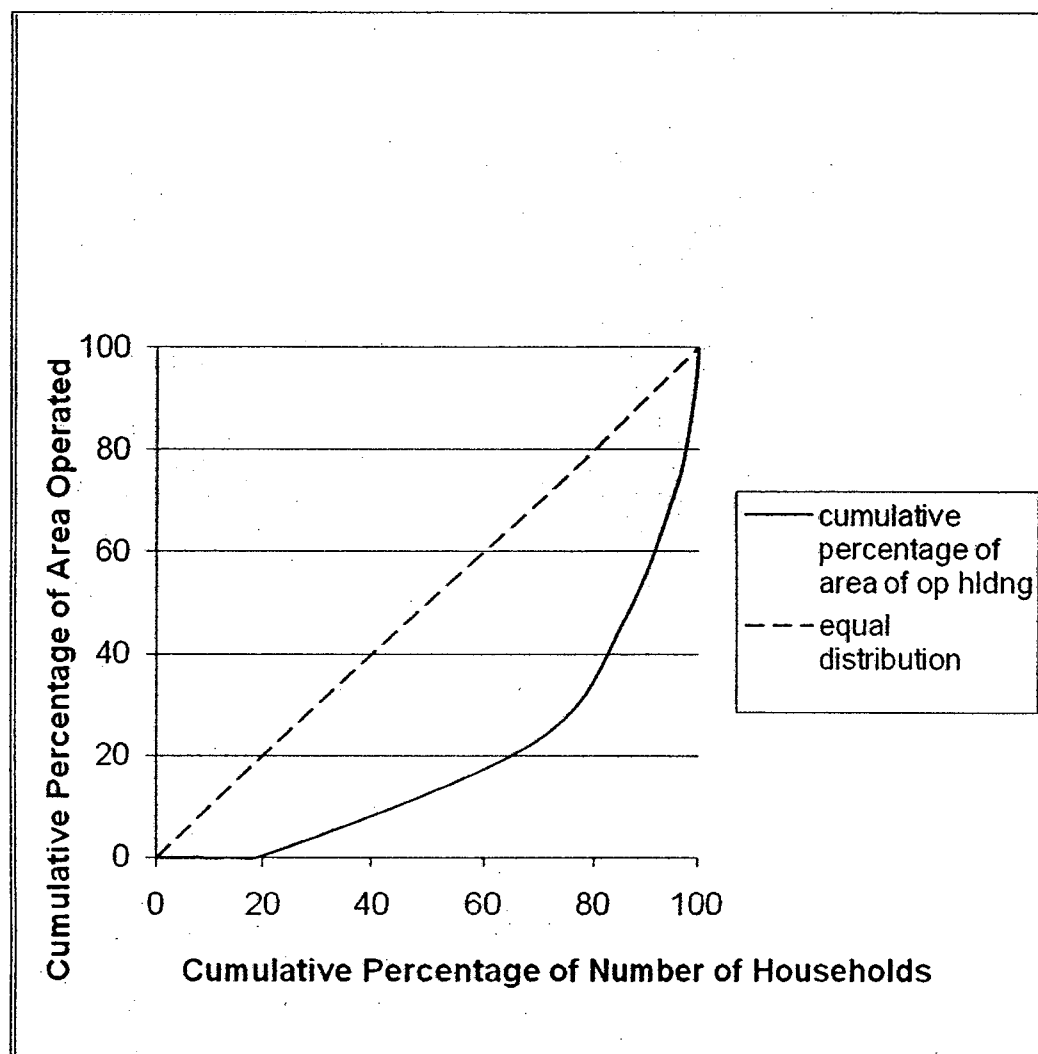
The following table brings out the distribution of area operated in northern Bihar:

Table III.12: Proportion of land operated under each operational holding category, Northern Bihar, 2002-03

Categories Of Ownership Holding	Proportion Of Number Of households	Proportion Of Area Operated
< .002 hectares	2.16	0.01
.003 - .005 hectares	5.68	0.04
.006 - .040 hectares	12.60	0.47
.041 - .500 hectares	48.54	22.10
.501 - 1.00 hectares	17.01	24.40
1.001 - 2 hectares	9.55	24.58
2.001 - 3.00 hectares	2.58	11.57
3.001 - 4.00 hectares	0.93	5.97
4.001 - 5.00 hectares	0.52	4.11
5.001 - 7.500 hectares	0.29	3.42
7.501 - 10.00 hectares	0.07	1.10
More than 10 hectares	0.08	2.23

From the above table one can see that more than 69 percent of the households who are in the category of less than 0.5 hectares of operational holding operates around 23 percent of the total area operated in northern Bihar region. The proportion of area operated is more than the proportion of number of households for all the households having more than 0.5 hectares of operational holding. From marginal to small category of operational holding households having 0.4 to 2 hectares of operational holding possess 70 percent of the total area operated. Less than 1 percent of the households that are in medium to large category of operational holding operate around 11 percent of the total operational holding in the region. The graph depicting deviation from equal distribution of operational holding would show the concentration of operational holding under cumulative number of households in an ascending order of operational holding size class:

Figure III.10: Inequality in Distribution of Land Operated, Northern Bihar, 2002-03



The Lorenz curve showing inequality in area operated shows that almost 20 percent of the households in the lowest land operating size class operate almost negligible percent of. Less than 30 percent of the household in the higher land operating category operated land proportionately more than their proportionate share in the number of households. The inequality in operational holding as reflected from the value of Gini's co-efficient is 0.58 which shows quite high level of inequality prevailing in 2002-03 (see Appendix table A.III.10). But still the value is lower than that in 1991-92, showing a decrease in inequality in area operated.

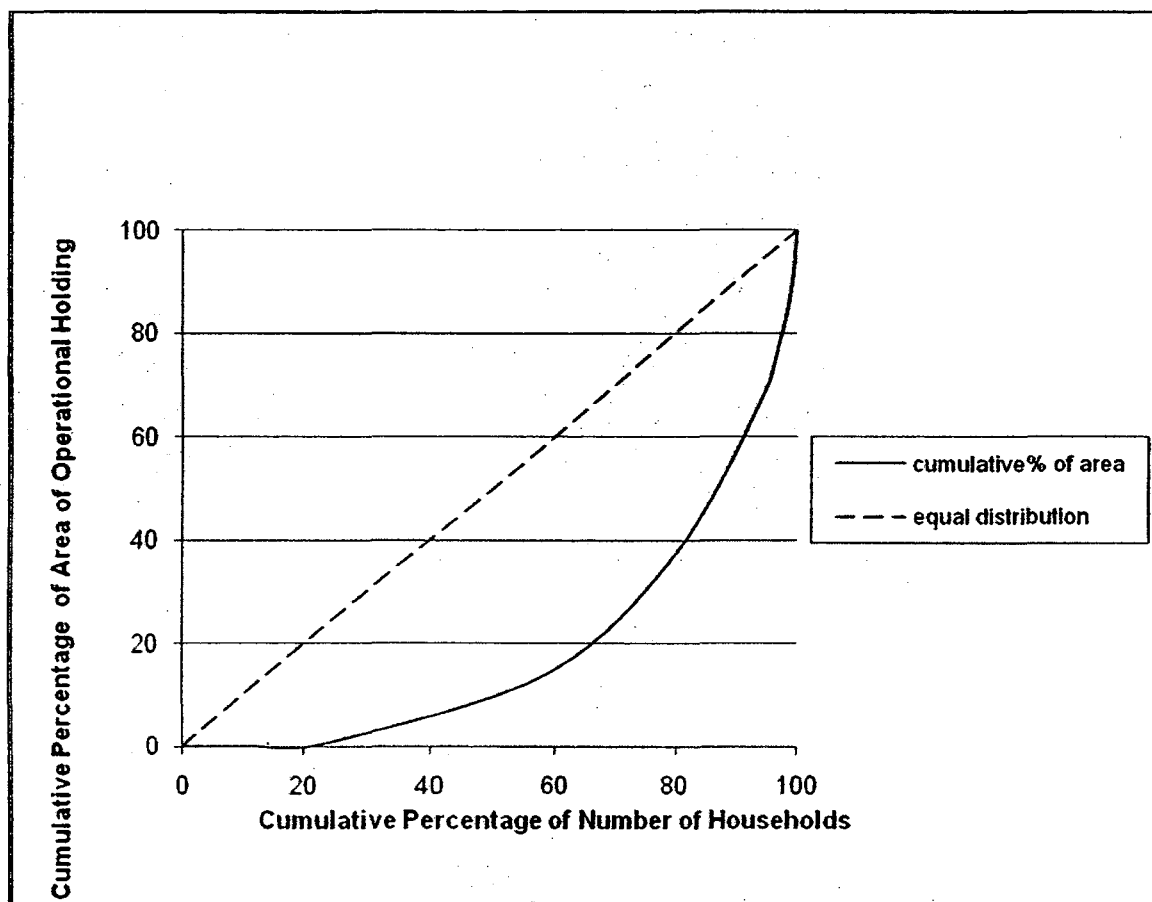
The pattern of land operated in central Bihar can be understood from the following table:

Table III.13: Proportion of land operated under each operational holding category, Central Bihar, 2002-03

Categories of Operational Holding (hectares)	Proportion Of Number Of households	Proportion Of Area Operated
< .002 hectares	2.87	0.01
.003 - .005	8.82	0.05
.006 - .040	10.94	0.26
.041 - .500	36.18	13.81
.501 - 1.00	21.41	23.41
1.001 - 2	13.85	29.24
2.001 - 3.00	3.49	12.68
3.001 - 4.00	1.10	5.74
4.001 - 5.00	0.58	4.11
5.001 - 7.500	0.20	1.88
7.501 - 10.00	0.25	3.04
10.001 - 20.00	0.30	5.76

From the above table it can be understood that 58 percent of the households have less than 0.5 hectares of operational holding. These 58 percent of households operate 14 percent of the total land operated in the region. The pattern is same with 1991-92, with a 2 percent increase in the percent of households in these size classes of operational holding. Following the same pattern, in the marginal to small categories most of the households are concentrated. The households in the medium to large category of operational holding constitute around 1 percent of the total number of households in central Bihar. But the proportion of land that they operate is around 15 percent of the total area operated in the region. The percentage of households as well as the proportion of land operated by these categories is less than that in 1991-92. The graph below would bring out the concentration of operational holding in size classes of operational holding households:

Figure III.11: Inequality in distribution of Land Operated, Central Bihar, 2002-03



From the Lorenz curve depicting inequality in the distribution of operational holding shows that more than 20 percent of the households in the lowest land operating category operate negligible proportion of land. Almost 50 percent in the higher land operating category operate disproportionately more land as compared to their proportionate share in the number of households. The Gini's co-efficient for inequality in area operated is 0.6 showing a high inequality (see Appendix table A.III.11). This value is marginally smaller than that in 1991-92, showing a persisting inequality in 2002-03. The extent of inequality is higher to very little extent than northern Bihar in 2002-03.

The pattern of land operated in Jharkhand can be understood from the following table:

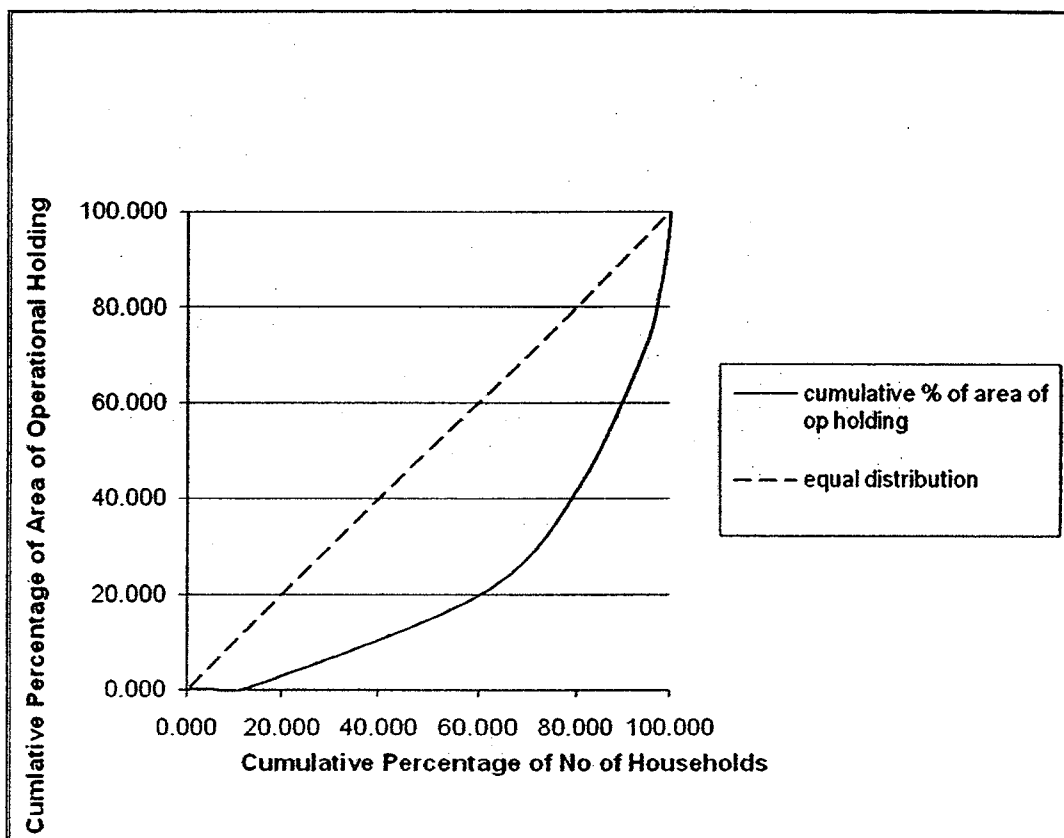
Table III.14: Proportion of Land Operated under each Operational Holding Category, Jharkhand, 2002-03

Categories Of Operational Holding (hectares)	Proportion Of Number Of households	Proportion Of Area Operated
< .002	0.65	0.00
.003 - .005	4.86	0.03
.006 - .040	7.18	0.17
.041 - .500	47.57	19.59
.501 - 1.00	20.39	22.90
1.001 - 2	14.03	28.85
2.001 - 3.00	3.04	11.66
3.001 - 4.00	0.95	5.07
4.001 - 5.00	0.63	4.40
5.001 - 7.500	0.58	5.37
7.501 - 10.00	0.00	0.00
10.001 - 20.00	0.10	1.96

Almost 60 percent of the households that are in the operational holding category of less than 0.5 hectares operate less than 20 percent of the total operational holding. The number of households has increased by more than 10 percent in this category from 1991-92. The number of households in the small and semi-medium categories of operational holding has decreased significantly from 1991-92. This indicates a shift of the number of households from small and semi-medium categories of land operational holding category. Such a shift may indicate various changes in the agricultural production scenario, where the small and semi-medium categories of households have to withdraw from self-subsistence providing operation of land. There has been a significant decrease in the number of households and land operated in the medium and large size of operational holding.



Figure III.12: Inequality in Distribution of Land Operated, Jharkhand, 2002-03



From the above diagram it becomes clear that around 17 percent of the households in the lowest land operating category operate almost negligible percent of land. The Gini's co-efficient showing inequality in distribution of operational holding is 0.53 (see Appendix table A.III.12). This value is lower than both northern and central Bihar region. The extent of inequality has only marginally decreased from 1991-92.

The pattern of distribution of area operated is almost the same as ownership holding signifying a huge proportion of households having negligible effective possession over land for agricultural production purpose which can hardly provide them with subsistence. In northern Bihar the percentage of households operating less than .04 hectares of land is less than the percentage of households owning less than .04 hectares of land. The percentage of households in this category of operational holding in 2002-03 in northern Bihar is less than that category of operational holding

in 1991-92 as well. This might signify the non-feasibility of ensuring even subsistence from continuing agricultural production with such a size of ownership or operational holding. In central Bihar, the percentage of households in the operational holding category of less than 0.04 hectare has decreased from 1991-92. The pattern has not changed much for the southern plateau region. Extent of inequality in area operated is the highest in central Bihar for both the points of time. The extent of inequality has decreased to a small extent in 2002-03, still showing a high extent of inequality.

After explaining the extent of inequality in area operated it is important to see how this is associated with caste hierarchy.

### Section III.2.b: Caste and Area Operated:

It has been established earlier that land ownership of the households is associated with caste hierarchy. Like pattern of distribution of ownership holding, majority of the households are in the marginal to small category of operational holding. But the status of the social groups in this pattern of huge number population deriving subsistence from effective possession over small amount of land has to be analysed.

The following table brings out the association between caste hierarchy and size of area operated

Table III.15: Percentage Distribution of Households in Each Social Group According To Size Classes of Operational Holding, Bihar, 1991-92

Regions	Size Class Of Operational holding	Scheduled Tribe	Scheduled Caste	Others	All
Northern Bihar*	Marginal	80.63	97.24	80.24	83.30
	Small	16.42	2.20	11.64	10.04
	Semi-medium	1.34	0.46	5.97	4.89
	Medium	1.61	0.09	2.07	1.70
	Large	0.00	0.00	0.07	0.06
Central Bihar*	Marginal	70.16	93.46	65.42	71.04
	Small	27.03	4.57	19.40	16.49
	Semi-medium	0.00	1.67	10.22	8.44
	Medium	2.81	0.31	4.75	3.85
	Large	0.00	0.00	0.22	0.18
Southern Bihar**	Marginal	57.57	82.16	73.86	68.12
	Small	27.07	12.82	16.14	20.19
	Semi-medium	10.93	3.98	7.33	8.47
	Medium	4.13	1.04	1.93	2.73
	Large	0.30	0.00	0.73	0.50

\* Association between social group and size of operational holding significant at 1% level of significance

\*\* Association between social group and size of operational holding significant at 10% level of significance

In 1991-92, around 83 percent of all the households operated marginal size of land in northern Bihar. Social group wise more than 97 percent of the scheduled caste households had marginal size of operational holding. Both scheduled tribes and other castes had around 80 percent of the households in marginal category of operational holding households. Because almost all the households of scheduled castes are in marginal category of operational holding, their representation in all the higher size of operational holding is less than the other two social groups. In small category of operational holding size class, around 16 percent of the scheduled tribe households and 12 percent of other castes are there. In the higher categories of operational holding size class, the percentage of other castes is the highest. In large category of operational holding, which constitute only .06 percent of all the households, only the other castes are present. The same pattern as in northern Bihar is found in Central Bihar. 93 percent of the scheduled caste, 70 percent of the scheduled tribes and 65 percent of other castes are in marginal category of land operational holding households. For higher size classes of operational holding, the same pattern as in northern Bihar can be found. Southern Bihar has the lowest percentage of households in the marginal category of operational holding for all the social groups considered together and for the scheduled castes and tribes as compared to northern and central Bihar. Scheduled caste household has the highest percentage in marginal category of operational holding as compared to the other two social groups. In southern Bihar the percentage of scheduled tribe household in the marginal category of operational holding is less than the other caste households, unlike the other two regions. Difference with the other two regions can also be found in the higher percentage of scheduled tribe households in larger size of operational holding than other caste households. The percentage of scheduled caste households in the small and semi-medium categories is also higher than the other two regions. Thus, caste association with size of operational holding is weaker in the southern Bihar region. In northern and central Bihar the association of caste with size of operational holding significant at 1% level of significance.

The association of caste with the size of operational holding in 2002-03 can be understood from the following table:

Table III.16: Percentage Distribution of Households in Each Social Groups According in Size Classes of Operational Holding, Bihar and Jharkhand, 2002-03

Regions	Size Class Of Operational holding	Scheduled Tribe	Scheduled Caste	Other Backward Classes	Others	All
Northern Bihar*	marginal	88.88	96.60	85.94	76.94	86.01
	small	1.94	3.05	9.88	14.49	9.54
	semi-medium	9.18	0.35	3.25	6.68	3.51
	medium	0.00	0.00	0.86	1.70	0.87
	large	0.00	0.00	0.07	0.19	0.08
Central Bihar*	marginal	100.00	94.81	81.04	63.58	80.23
	small	0.00	4.30	14.70	20.80	13.84
	semi-medium	0.00	0.89	3.14	12.39	4.59
	medium	0.00	0.00	0.62	3.23	1.03
	large	0.00	0.00	0.51	0.00	0.30
Jharkhand*	marginal	75.56	92.18	83.40	74.49	80.66
	small	17.22	7.56	12.43	16.65	14.03
	semi-medium	5.07	0.03	3.44	6.87	3.99
	medium	1.87	0.23	0.74	1.98	1.22
	large	0.29	0.00	0.00	0.00	0.10

\* Association between social group and size of operational holding significant at 1% level of significance

In 2002-03, in northern Bihar 86 percent of the households had marginal size of operational holding. Among all the social groups scheduled castes had the highest percentage of households in marginal category of operational holding (around 97%). Other backward classes are in better condition than scheduled tribes and scheduled castes household in terms of representation in marginal category of operational holding. Other castes have the lowest percentage in marginal category of operational holding. In the larger land operational categories the hierarchy between scheduled caste and tribes, other backward classes and other classes are maintained. In the large size class of operational holding only other backward classes and other castes are represented. In central Bihar all the Scheduled tribe households are in marginal category of operational holding. After that scheduled castes (almost 95%) have the highest percentage in marginal category of operational holding. For the larger size classes of operational holding the pattern as in northern Bihar can be found. In Jharkhand the percentage of scheduled tribe households in the marginal category of operational; holding is less than both scheduled caste and other backward classes and almost the same as other castes. In all the other larger size classes the position of the scheduled castes can be said to be the same as in 1991-92. The condition of the other backward classes is marginally better than that of the scheduled tribe households. The

association of caste with size class of operational holding in 2002-03 is significant at 1% level of significance for all the three regions.

The level of inequality in the distribution of land among the different size classes of land holding necessitates some mechanism of labour supply to be operating. The pattern of labour supply needs to be maintained to ensure survival of the huge proportion of population owning no land or an insignificant amount of land. It also ensures agricultural production in the land of those households who constitute a very small proportion of the total population, but own disproportionately more amount of land. This disproportionate amount of land can not be cultivated by the labour of these households. Leasing of land is one of the mechanisms of labour supply. The following section deals with the leasing in pattern of land by different groups in terms of land holding and caste groups.

### **Section III.3: Patterns of Leasing In Of Land:**

There are several theoretical views regarding the existence of tenancy as an institution in agriculture and the development of forces of production. How to analyse the tenorial relations would depend upon the understanding of differentiation within peasantry based on their possession of means of production. The above analysis of distribution of ownership and operational holding rules out the possibility of existence of a peasant-households economy where the entire peasantry is self-dependent in agricultural production and subsistence by employing family labour only. Although, consideration of other factors influencing the productivity of land is necessary before concluding on the extent of petty-production and scale of economies, the extent of inequality talks much about the existing differentiation. Similar to the tendency of considering the peasant as a unified category of analysis, most of the existing literatures consider 'owner' or 'tenant' as separate categories of analysis. Such discussions neglect the differentiation existing within those who lease in land for expansion of agricultural production.<sup>7</sup> That is why, the discussions regarding tenorial pattern becomes important in analysing how this institution of land transaction interact with the existing unequal pattern of land distribution, only if the discussions regarding which section of the peasantry has the tendency of leasing in land for increasing their scale of production and on which terms, are taken into consideration. The following section would bring out the leasing in pattern among various size classes of operational holding households.

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<sup>7</sup> Patnaik, Utsa (2000), "Tenancy and accumulation"

### Section III.3.a: Leasing Of Land by Households in Different Size Classes of Operational Holding:

Leasing of land by any household engaged in agriculture implies an attempt to increase the scale of direct operation by the lessee, and to reduce the scale of operation by lessor. The motivation for expansion or reduction of the scale of direct operation can be very different depending on the economic status of the household. The category of farmer household attempts to increase the scale of direct operation can be understood from the following discussion:

The pattern of distribution of operational holding has shown a high extent of inequality for all the three regions in Bihar in 1991-92. How the leasing pattern of households interacts with the pattern of distribution area operated in Bihar can be understood from the following table:

Table III.17: Percentage Area Leased In To Area Operated In Different Size Classes of Operational Holding, Bihar, 1991-92

Region	Size class of operational holding	Percentage Area Leased In
Northern Bihar*	Marginal	12.69
	Small	11.53
	Semi-medium	3.80
	Medium	1.01
	Large	0.00
	Total	8.52
Central Bihar	Marginal	16.36
	Small	17.92
	Semi-medium	7.87
	Medium	0.28
	Large	0.00
	Total	10.66
Southern Bihar**	Marginal	1.64
	Small	2.53
	Semi-medium	2.43
	Medium	0.00
	Large	0.00
	Total	1.69

\* Correlation between percentage area leased in and area operated in significant at 1% level significance

\*\* Correlation between percentage area leased in and area operated in significant at 5% level significance

From the above table one can understand that the percentage that constitutes leased in land is more for the smaller size classes of operational holding in all the

three regions in Bihar in 1991-92. In none of the regions the large category of operational holding households have leased in land to increase the scale of production. In northern and central Bihar the percentage of land leased in by the marginal and small category of operational holding households are considerably higher than the larger category of operational holding households. Total percentage area leased in by all the households in northern Bihar is around 9 percent in and around 11 percent in central Bihar. The correlation between percentage area leased in and area operated is negative and is significant at 1% level of significance. In southern Bihar the percentage area leased in by marginal category of operational holding households are quite low than the other two regions. No medium or large category of operational holding households have leased in land. The total percentage of area leased in to area operated is the lowest in southern Bihar region. The correlation between percentage area leased in and area operated is negative but weaker in southern Bihar than the other two regions. The pattern of leasing in in the three regions can be associated with the extent of inequality in distribution of operated area in 1991-92. The inequality in distribution of area operated was the lowest in the southern Bihar region.

What is the pattern of leasing land to expand the scale of direct operation in 2002-03 as compared to 1991-92 in the different size classes of operational holding households could be important to understand the change in relations of production. The following table brings out the pattern of leasing in of land in 2002-03:

Table III.18: Percentage Area Leased In To Area Operated In Different Size Classes of Operational Holding, Bihar and Jharkhand, 2002-03

Regions	Size Class Of Operational Holding	Percentage Area Leased In
Northern Bihar*	Marginal	14.21
	Small	8.41
	Semi-medium	3.81
	Medium	0.18
	Large	0.00
	Total	9.05
Central Bihar**	Marginal	19.64
	Small	14.89
	Semi-medium	14.24
	Medium	1.31
	Large	0.00
	Total	14.47
Jharkhand	Marginal	3.28
	Small	2.75
	Semi-medium	1.16
	Medium	0.00
	Large	0.00
	Total	2.39

\* Correlation between percentage area leased in and area operated in significant at 5% level significance

\*\* Correlation between percentage area leased in and area operated in significant at 1% level significance

Following the same pattern as in 1991-92, the percentage of area that is leased in is more for the smaller categories of operational holding households. None of the large category of operational holding households in any of the regions lease in land. In northern Bihar the percentage area leased in by marginal category of operational holding household is around 14 percent. This is the highest percentage among all the size classes of operational holding households. In central Bihar the total percent of leased in land (14.47%) is the highest as compared to the other two regions. The percentage of leased in land in marginal category of operational holding (19.64%) in central Bihar is the highest among all the regions. In Jharkhand the percent of leased in land is the lowest in all the three regions. No households in the medium and large category of operational holding households lease in land in Jharkhand. The negative correlation between percentage area leased in and area of operational holding is most significant in central Bihar.



Percentage area leased in and area operated are negative but most weakly correlated in Jharkhand. This can be associated with the pattern of inequality in ownership holding in the three regions as discussed earlier. The inequality is highest in central Bihar and lowest in Jharkhand.

From the above analysis it comes out that the smaller category of operational holding households lease in higher percentage of area operated. The households in the marginal category of operational holding lease in land the most. No households in the large size class of operational holding lease in land. This phenomenon of leasing in by the households possessing very small amount of land is referred to as 'hunger leasing' in Marxist literatures. Whereas, when the household possessing large amount of land leases in significantly, that is referred to as 'commercial leasing'<sup>8</sup>. Empirical studies have proved that significant amount of leasing in is a phenomenon found in two types of regions. One is the highly irrigated and agriculturally developed north western region of India. The second one is the densely populated backward agricultural economy in certain parts of eastern India. In the former case, the large farmers lease in land more significantly<sup>9</sup>. But no such phenomenon of commercial leasing by the large size class of operational holding farmers seems to be happening significantly in the region of Bihar and Jharkhand. Rather the institution of tenancy exists as a compulsion for the marginal and small categories of farmers to increase the scale of direct operation in order to ensure minimum subsistence. This phenomenon becomes stronger when one finds that the region with higher inequality in ownership holding has higher negative correlation between area operated and percentage area leased in.

If leasing exists as a compulsion for the small and marginal category of farmers, then the pattern of leasing in different caste groups would help to understand whether the institution represents compulsion for the deprived caste households or not.

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<sup>8</sup> *ibid*

<sup>9</sup> Swain, Mamata(1999), "Tenancy Structure in Orissa: Implications for Agricultural Growth".

### Section III.3.b: Leasing of Land by Households among the Different Social Groups:

The earlier discussion has brought out that the social status of the household in terms of caste and the size of ownership or operational holding of that household is associated. The percentage of deprived caste households in the smaller size class of operational or ownership holding is more than the higher castes. In such a scenario of significant inequality in possession over land among the different castes, how the institution of tenancy is associated with caste would be important in analysing the factors that influence the differential possession over agricultural resources.

The following table brings out the dependence of social groups over leased in land in 1991-92:

Table III.19: Dependence of Different Social Groups on Leasing In Of Land, Bihar, 1991-92

Region	Social Groups	Percentage Area Leased In to Total Operational Holding				
		less than 20 percent	20 - 40 percent	40 - 60 percent	60 - 80 percent	more than 80 percent
Northern Bihar*	Scheduled Tribes	8.877	0.000	0.000	56.586	34.537
	Scheduled Caste	0.817	0.722	0.444	18.123	79.894
	Others	8.302	9.484	20.502	15.501	46.211
Central Bihar**	Scheduled Caste	3.444	12.441	15.681	2.345	66.089
	Others	5.766	4.289	12.566	15.975	61.403
Southern Bihar	Scheduled Tribes	17.893	47.781	21.350	0.000	13.010
	Scheduled Caste	4.480	0.000	52.207	2.000	41.330
	Others	19.435	0.000	0.000	34.344	46.222

\* Association between caste and percentage area leased in is significant at 1% level of significance

From the above table one can see that among those households that lease in land the scheduled caste households leasing in land depend mostly on leasing for direct operation of agricultural production than the Scheduled tribes or the other castes. In northern Bihar, around 80 percent of the scheduled caste leasing household lease in more than 80 percent of the operational holding. The dependence of the scheduled tribe households and other caste household is not much different, although

the percentage of households leasing in land more than 60 percent among scheduled tribes is more than the percentage in other castes. In central Bihar, none of the scheduled tribe households appear to have leased in land. The percentage of scheduled caste households leasing in less than 20 percent of operational holding is less than the percentage in other caste households. The percentage for scheduled caste households in almost all the higher categories of percentage leased in is more than the other caste households. In southern Bihar as well, among all the household leasing in land, the dependence of scheduled caste households on leasing in is more than the other social groups. In this region, rather the percentage of other caste households in the higher categories of percentage leased land is more than the scheduled tribe households, depicting a larger dependence of the other caste households on leased in land. The association between caste and percentage area leased in for all those households who have leased in any amount of land is most strongly significant in northern Bihar. The weakest association exists in southern Bihar plateau region.

The dependence of the social groups on leased in land in the later period can be understood from the following table:

Table III.20: Dependence Of Different Social Groups On Leasing In Of Land, Bihar And Jharkhand,2002-03

Regions	Social group	Percentage leased in to Total operational holding				
		less than 20%	20 - 39%	40 - 59%	60 - 79%	more than 80%
Northern Bihar*	Scheduled tribe	41.583	0.000	58.417	0.000	0.000
	Scheduled caste	0.000	2.588	5.807	11.181	80.424
	Other Backward Classes	2.406	8.852	16.245	24.612	47.884
	Others	19.667	29.784	33.153	10.862	6.533
Central Bihar**	Scheduled caste	0.116	0.890	13.736	15.635	69.623
	Other Backward Classes	1.879	2.889	19.188	21.848	54.195
	Others	0.000	38.344	5.414	8.603	47.638
Jharkhand	Scheduled tribe	24.498	24.225	4.400	19.256	27.621
	Scheduled caste	0.000	0.000	0.000	0.000	100.000
	Other Backward Classes	12.650	12.935	24.171	7.605	42.640
	Others	21.015	24.776	2.563	15.286	36.360

\*Association between caste and percentage area leased in is significant at 1% level of significance

\*\*Association between caste and percentage area leased in significant at 5% level of significance

From the above table one can find out that the same pattern of scheduled caste households depending more on leased in land is true for 2002-03 as well. In northern Bihar among those households that lease in any land the percentage of scheduled caste households leasing in more than 80 percent of operational holding is the highest among all the social groups. Other backward classes have higher percentage in this category as compared to scheduled tribes and other castes. The percentage of households in the higher category of percentage leased in land increases for both the other backward classes and the scheduled castes. The scheduled tribes have no households in the category of more than 60 percent leased in land. In central Bihar, as in 1991-92, no scheduled tribe household appear to have leased in land. Like in northern Bihar the scheduled caste and other backward classes household have higher percentage of households in the category of more than 40 percent operational holding being leased than the other caste households. The dependence of scheduled caste households appears to be more than the other backward classes. In Jharkhand all the scheduled caste households leasing in land lease in more than 80 percent of their operational holding. The percentage of other backward classes households increase in the higher percentage of leased land category as compared to scheduled tribe and other castes. There is not much difference in the dependence on leased in land between the scheduled tribe households and other caste households in Jharkhand. Like in 1991-92, the association between social groups and percentage area leased in is the strongest in northern Bihar. They are most weakly associated in Jharkhand. This may be due to the similar dependence pattern of the scheduled tribes and the other castes in this region.

From the above analysis of dependence of those households who lease in any land on leased in land, it comes out that in both the points of time the dependence of the scheduled caste households is the highest. From the analysis of 2002-03 data, one can see that after scheduled castes the other backward classes are more dependent on leased in land than scheduled tribes and other castes. The difference between scheduled tribe households and other caste is not much. After this association of caste with the dependence on leased in land is established, it is important to understand that leasing pattern not only acts as an institution to increase the scale of direct operation. As has been established earlier that in this region of study, leasing dominantly exists as a compulsion for those who possesses very insignificant amount of land. When this

compulsion factor is associated with caste, it also founds the basis of one more way of caste dominance. Thus, the material basis of relations of production acting as the foundation of dominance through social institutions of norms and customs can be established.

The basis of the finding that leasing pattern dominantly acts as an institution for the weaker section both in terms of land holding and caste groups, also necessitates the analysis of the terms on which land is leased in by different section of land holding households. The following section discusses the terms on which land is leased in by households in different size classes' operational holding:

### **Section III.3.c: Terms of Leasing in by Households in Different Size Classes of Operational Holding:**

There have been many theoretical positions on the existence of different forms of tenancy. The main terms of tenancy as can be found are mainly on fixed cash or produce and share of produce. Other forms of tenancy also exist. But the main debate in literatures have been regarding fixed and share tenancy. A major focus of the debates has been on the efficiency characteristics of the different terms. The above analysis has established that tenancy exists as a dominant form as an attempt by the marginal section of the peasantry to increase the land of direct operation in order to ensure minimum subsistence. When such small land possessing households have to subsist on the small piece of operational holding as well as pay rent, they have to produce a surplus to be payable as rent<sup>10</sup>. So the debate over efficiency of a particular term of tenancy becomes irrelevant when the farmers lease in land mainly to ensure subsistence. Other than the debate over efficiency, the theoretical positions have also concerned the question as to why a particular term exists. The classical economists including Marx consider share cropping as an adjustment to the absence of market or market failure, in particular the market for credit and capital<sup>11</sup>. The other reasons of existence of share tenancy that have been discussed in literatures are risk sharing in the case of fluctuation in production. Cost sharing arrangements along with the term of share of produce has also been identified as one of the important reasons of prevalence of share tenancy. Empirical studies have found out cost sharing

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<sup>10</sup> Patnaik Utsa(2000), "Tenancy and Accumulation".

<sup>11</sup> Binswanger Hans P. and Rosenzweig Mark R. (1984), "Contractual Arrangements, Employment, and Wages in Rural Labor Market: a Critical Review".

arrangements to be associated with the share of produce<sup>12</sup>. The cost sharing arrangements have modified according to the changes in the cost of production, like the introduction of canal irrigation or high yielding variety of seeds.

Depending on the above explanations, the different terms on which households in the different size classes of operational holding lease in land can be analysed in the three regions of Bihar. The following table brings out the terms of leasing in in 1992:

Table III.21: Percentage Distribution of Leased in Area According to Different Terms of Lease, Bihar, 1991-92

Regions	Size Class Of Operational Holding	Fixed Money	Fixed Produce	Share Of Produce	Service Contract	Share Of Produce With Other Terms	Usufructuary Mortgage	From Relatives Under No Specific Term	Other Terms
Northern Bihar	Marginal	6.73	12.73	71.38	0.89	5.06	3.16	0.00	0.04
	Small	9.83	27.92	57.70	0.00	2.61	0.00	1.01	0.93
	Semi-medium	0.00	8.29	83.81	0.00	0.00	0.00	7.91	0.00
	Medium	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	All	7.00	17.41	68.32	0.47	3.58	1.66	1.22	0.35
Central Bihar	Marginal	18.61	10.91	61.55	0.00	3.23	2.42	3.28	0.00
	Small	43.40	30.80	11.37	0.00	0.00	0.00	0.00	14.43
	Semi-medium	0.00	76.68	2.53	0.00	0.00	0.00	0.00	20.79
	Medium	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	All	31.36	29.88	25.65	0.00	1.02	0.77	1.04	10.29
Southern Bihar	Marginal	41.14	58.86	0.00	0.00	0.00	0.00	0.00	0.00
	Small	19.70	15.32	26.51	0.00	0.00	38.46	0.00	0.00
	Semi-medium	0.00	0.00	44.12	55.88	0.00	0.00	0.00	0.00
	Medium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	All	16.58	17.67	28.00	19.68	0.00	18.08	0.00	0.00

From the above table, one can see that in northern Bihar in 1991-92, the percentage area leased in for share of produce (68.32%) was more than any other terms when all the households in every size class of operational holding are taken

<sup>12</sup> Srivastava Ravi (1989), "Tenancy Contracts During Transition: a Study Based on Field Work in Uttar Pradesh(India)".

together. After share of produce the percentage area leased in for fixed produce (17.41%) is the highest. Leasing in for fixed money constitutes 7 percent of the total land leased in all the households considered together. Other terms of lease constitute a small proportion of the total land leased in. Share of produce constitutes the major terms of lease for almost all the size classes of operational holding households leasing in land. In medium category of operational holding household, 100 percent of the land had been leased in for share of produce terms in northern Bihar. None of the large category of operational holding households lease in any amount of land. In central Bihar, percentage area leased in for fixed money (31.36%) is the highest among all the terms of leasing in. Among the marginal category of operational holding households, the highest percentage area leased in was for share of produce terms in central Bihar (around 62%). Percentage area leased in for fixed money and fixed produce was lower than that of share of produce, but significantly more than any other terms in the marginal category of operational holding households. For the larger category of operational holding households the percentage area leased in for fixed produce was more than that of share of produce. The medium category of operational holding households leased in 100 percent of the land for fixed money terms. In southern Bihar, share of produce constituted the largest proportion of leased in land when all the households are considered together. But in the marginal category, none of the households had leased in land for share of produce. In this category percentage of leased in land was highest for fixed produce terms. In small and semi-medium category of operational holding households the percentage of area leased in for share of produce was the highest. One important feature to be noticed for southern Bihar in 1992, was that percentage area leased in for service contract in the semi-medium category of operational holding was the highest (around 60%).

The pattern of terms of lease adopted in the contractual arrangement in 1991-92 in Bihar that comes out from the above empirical analysis is that share of produce constitutes the most important terms for the marginal farmers in the regions other than southern Bihar region. In southern Bihar small and semi-medium category of operational holding households lease in more land for share of produce than any other terms. Fixed produce also constitutes a significant term of lease among the small and marginal category of farmers in northern and central Bihar. The implications of share

of produce term as discussed earlier may be true for the marginal and small category of farmers.

Whether there has been any change in the pattern of leasing in land in later period of time can be understood from the following table:

Table III.22: Percentage Distribution of Leased In Area According to Different Terms of Lease, Bihar, 2002-03

Region	Size class of operational holding	Fixed money	Fixed produce	Share of produce	Service contract	Share of produce with other terms	Usufructuary mortgage	From relative	Other terms
Northern Bihar	Marginal	5.59	20.03	67.36	0.44	1.92	0.07	0.04	4.55
	Small	0.26	21.58	78.05	0.00	0.00	0.11	0.00	0.00
	Medium	1.37	39.14	59.49	0.00	0.00	0.00	0.00	0.00
	Semi-medium	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-tal	4.31	21.64	68.99	0.32	1.38	0.07	0.03	3.26
Central Bihar	Marginal	27.27	18.72	47.70	3.13	1.29	0.18	1.70	0.02
	Small	13.69	9.08	76.05	0.00	1.10	0.06	0.01	0.00
	Medium	4.39	11.54	81.62	0.00	1.37	0.00	0.00	1.07
	Semi-medium	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-tal	19.95	14.60	63.00	1.62	1.26	0.11	0.88	0.21
Jharkhand	Marginal	5.98	5.22	83.02	0.11	0.00	0.00	0.01	5.66
	Small	0.00	15.73	84.27	0.00	0.00	0.00	0.00	0.00
	Medium	12.07	0.00	87.93	0.00	0.00	0.00	0.00	0.00
	Semi-medium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Large	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-tal	4.47	8.31	83.84	0.06	0.00	0.00	0.00	3.30

From the above table one can understand that share of produce constitutes the most important terms of lease in all the regions. In northern Bihar, land leased in for share of produce was almost 70 percent when all the households are considered together. Fixed produce constituted the second most important term of leasing in. Fixed money was of much lesser significance than these two terms. The percentage of area leased in for fixed money has decreased from 1991-92 as well. Other than the semi-medium category of operational holding households that lease in 100 percent of the land under fixed money terms, in all the lower category of operational holding



share produce is the most dominant form. In central Bihar as well fixed produce constitutes the most important terms of lease among all the terms. Fixed money is of comparatively greater importance in this region as compared to northern Bihar. In Jharkhand, share of appears to be of larger significance than the other two regions. It constitutes almost 84 percent of all the land leased in in this region. Only the marginal, small and medium categories of households lease in land in Jharkhand in 2002-03. In all these categories share of produce is of much larger significance than any other term.

The pattern of terms on which land is leased in seems to have changed in the three regions in 2002-03, as compared to that in 1991-92. Share of produce has emerged as a much important term in 2003. Even in Jharkhand (southern Bihar region in 1991-92) the importance of share of produce has increased a lot, especially for the marginal category of households. As have been explained earlier, share of produce also associates share of cost of input and with change in input cost with the adoption of newer technologies cost sharing pattern has also evolved. Whether the renewed importance of share cropping has been influenced by this factor or not can be understood after looking into the pattern of adoption of certain productivity raising inputs by different size classes of farmers' households. As the percentage of share of land leased in for share of produce has increased for the smaller size classes of farmers households as well, the explanation of cost sharing would be valid if the smaller size classes have adopted the productivity raising inputs significantly. This explanation can be verified in the subsequent chapter.

The institution of leasing necessitates payment of rent by those households that lease in land to the owner of land. The cause of the existence of rent has been analysed by the classical economists in the form of differential and absolute rent<sup>13</sup>. But the differential rent does not solve the problem of existence of rent even when two homogeneous pieces of land are rented out. The absolute ground rent can be a mechanism to appropriate the surplus that is produced from the leased out land. How this surplus is appropriated is dependent on the class position of the farmer who lease in land. In the present empirical analysis, it comes out that the marginal and small size classes of farmer households are mostly dependent of leasing in to increase the scale

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<sup>13</sup> Economists like Adam Smith and Marx analysed the existence of absolute ground rent which arises from the monopoly ownership over landed property. Ricardo only considers the existence of differential rent which is the effect of differential productivity of two pieces of land.

of direct operation to ensure subsistence. The inequality in ownership and operational holding can explain the existence of leasing in of land as a compulsion for the smaller size classes of farmer household. In central Bihar region, the inequality is the highest. Leasing in is most important in this region for the smaller category of farmers. There is also association of caste with the dependence on leasing in of land. The scheduled caste is mostly dependent on leased in land than the other castes. Other backward classes, who have been included in the analysis for 2002-03, also depend more on leasing in land than the scheduled tribe or other castes. This pattern can explain the appropriation of surplus produce from the weaker section among the farmers who have to depend on leasing to ensure their subsistence and reproduction of labour power. The existence of absolute ground rent can act as a barrier to the development of capitalist tendencies in agriculture<sup>14</sup>. For the owner of the land the increased investment in the productivity raising technologies must ensure more profit than the amount of rent received. For the tenant who lease in land in order to ensure subsistence even by underpaying the family labour and paying the surplus produce to the owner of the land, the increased cost of production would not be affordable. The changing pattern of terms of tenancy may have association with this barrier for productive investments. Among the terms of lease, share of produce appear to be the most important terms of lease. Among the smaller category of farmers share of produce is more important. In southern Bihar, in 1991-92, share of produce was not that important as in other regions. But in 2002-03, the importance of share of produce has increased to a significant level. As share tenancy has been found to be associated with cost sharing, in earlier empirical studies by different authors, the increased importance of share tenancy may be associated with the increased cost of production even by the smaller size classes of farmer households. This has to be validated from the pattern of adoption of productivity raising inputs by this section of the peasantry.

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<sup>14</sup> Patnaik Utsa (1999), "Classical Theory of Rent and its Application to India: Some Preliminary Propositions, with Some Thoughts on Share Cropping", in *The Long Transition*.

#### **Chapter IV: Expenditure on Agricultural Production and Land Ownership: An Empirical Analysis**

It was discussed in the previous chapter that the agrarian structure in erstwhile Bihar (including the present Jharkhand region) has shown significant inequality in the distribution of ownership as well as operational holdings. This pattern of inequality has persisted even in 2002-03. This unequal pattern has on the one hand manifested itself in the form of a huge number of households owning or operating a very small piece of land. On the other hand, there is a very small proportion of households owning and operating large pieces of land. At the same time, the concentration of households in the small and semi-medium category of land possession is also very high. In such a scenario of acute inequality in land owned and operated, the institution of tenancy exists mainly as a mechanism to increase the size of direct operation among the farmer households operating marginal and smaller categories of land. The same parameters of defining agrarian structure have adopted new forms in the changing production patterns in other parts of the country. The adoption of productivity-raising technologies has generated a tendency among the farmers owning larger pieces of land to increase the scale of agricultural production in regions such as north western India. Although it can be accepted that the size of land holdings cannot decide the scale of production, the tendency to include more land in direct cultivation can be seen as an attempt to generate profits from production from land. That is why these regions show a tendency wherein large land operating households lease land.<sup>1</sup> No such tendency has been identified in Bihar. At the same time, the land distribution patterns and dependence on leased in land has a significant association with caste status, although there are regional variations within Bihar and Jharkhand. Literature has also established this strong association with caste as a mechanism to maintain the traditional hierarchy in rural society. Among the deprived social groups i.e. scheduled castes, scheduled tribes and other backward classes, the OBCs have asserted themselves quite significantly in the political sphere. Land reforms, as literature suggests, has provided the middle peasantry and the backward castes with improved ownership rights. This section within the peasantry was more interested in gaining from agricultural production rather than maintaining the traditional hierarchy in rural society. That is why it is important to understand the engagement of different sections

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<sup>1</sup>Srivastava Ravi (2000), "Changes in Contractual Relations in Land and Labour in India".

of the peasantry both in terms of their land holdings and caste status in cultivation of the land that they hold. The following sections would analyse the empirical findings on the following aspects:

1. Use of farming resources by the farmer households
2. Current expenditure in cultivation by the farmer households

#### **Section IV.1: Use of Farming Resources by Farmer Households:**

The pattern of adoption of productivity raising inputs by different sections of the peasantry can be one of the ways to analyse the interest shown by these sections in agricultural production on land that they possess. The backwardness of agriculture in a situation of acute inequality and existence of strong tenural relations has been explained in terms of non-adoption of the productivity raising inputs in the available literature. Although, merely the use of farming resources by different sections of the peasantry can hardly tell anything about the intensity of cultivation, the adoption of these inputs can be interpreted as an indicator of the attempt to increase production. The intensity of cultivation may be dependent on the access to capital market and various other factors. The intention of the present study is not to analyse the intensity of cultivation and the dependent change in output, but to look at the dependence of sections of the peasantry defined by their access to land and social hierarchy. This section analyses the adoption of farming resources like fertilisers, improved seeds, organic manure, pesticide and veterinary services by different land owning sections of the peasantry and social groups.

#### **Section IV.1.a: Use of Farming Resources by Households in Different Size Classes of Ownership Holding:**

It has been established that land ownership is highly unequally distributed in different regions of Bihar and Jharkhand. Land ownership also decides the access to other means of production in this region where tenural patterns are associated with land possession. Share tenancy is one of the important terms of lease in this region. Cost sharing arrangements are commonly associated with share tenancy. In such a case it is important to look into the adoption of different farming resources by the households owning different sizes of land.

Table IV.1: Use of Farming Resources by Different Size Classes of Ownership Holding Households, Bihar and Jharkhand, 2002-03

Region	Size class of ownership	Percentage of Households Using Farming Resources				
		Fertilizer	Improved seeds	Manure	Pesticide	Veterinary Services
Northern Bihar	Marginal	3.98	3.04	8.13	3.22	4.93
	Small	7.24	5.88	7.77	4.52	0.79
	Semi-medium	3.48	4.99	1.07	0.21	8.20
	Medium	00.00	3.60	0.61	9.99	9.28
	Large	0.74	7.84	6.86	00.00	6.86
	All	0.13	4.48	9.96	5.53	6.20
Central Bihar	Marginal	1.57	8.30	0.69	9.07	25.84
	Small	7.45	9.97	7.53	6.23	4.37
	Semi-medium	5.97	5.63	6.58	6.47	7.12
	Medium	5.20	4.24	6.60	3.87	6.92
	Large	00.00	0.59	1.89	1.89	2.92
	All	2.27	6.48	3.57	3.02	7.19
Jharkhand	Marginal	8.22	0.60	9.92	5.46	.04
	Small	8.09	3.08	5.17	2.67	1.02
	Semi-medium	00.00	2.15	3.61	4.68	4.09
	Medium	7.90	0.12	6.52	1.51	0.69
	Large	00.00	6.64	00.00	00.00	.00
	All	0.87	2.55	1.14	7.29	.52

The percentage of households using fertilisers was the highest among all other productivity raising farming resources. No clear pattern of differential adoption of fertilisers by the different categories of ownership holding households can be established. In northern and central Bihar even among the marginal land owners, more than 90 percent have used fertilisers. In Jharkhand, the households in the higher size classes of ownership holding have a higher tendency to use fertilisers. The percentage of households using improved seeds is less than those using fertiliser. In northern

Bihar, the percentage of households using improved seeds is more in the higher land ownership categories. But in central Bihar and Jharkhand, no such tendency can be noticed. Rather, the percentage of households adopting improved seeds in the marginal and small land owning categories is more than the percentage in larger land owning categories. Among the three regions, the percentage of households using improved seeds was the lowest in Jharkhand for all the size classes of ownership holding households. Organic manure which is a traditional input in farming, are used by more number of households in the larger land owning categories in all the regions. The use of pesticides does not show any clear pattern of adoption according to size class of ownership holding, although 100 percent of the households in the large land owning category both in northern Bihar and Jharkhand use improved seeds. Livestock raising on land is also considered as an agricultural activity. Cattle are also used in direct crop production, more importantly in regions where mechanisation has not been significantly adopted. The use of veterinary services shows almost no association with the size of land owned by the households.

The overall scenario of adoption of farming inputs does not show any clear pattern in terms of their use by households owning different sizes of land. The farming resources include traditional inputs like organic manure to new productivity raising inputs like improved seeds and pesticides. The use of organic manure has an increasing pattern of being adopted by larger land owning households. As land ownership has been seen to be associated with caste status of the households, it is also important to look at the pattern of the adoption of farming resources by households in different social groups.

#### **Section IV.1.b: Use of Farming Resources by Households in Different Social Groups:**

The hierarchy within the peasantry in terms of ownership over land has also been strengthened by their association with caste. Not only ownership, but leasing patterns also have been established to be associated with caste. The intention of the analysis of use of farming resources by different land owning households is to look into the dependence on agricultural production from land possessed by sections of the peasantry. This is also valid for the same analysis for social groups. The reason is that the caste status of the households are associated with the traditional agrarian power structure not defined

through value of crop produced, but through access over means of production and mechanisms of labour supply.

Table IV.2: Use of Farming Resources by Different Social Groups, Bihar and Jharkhand, 2002-03

		Percentage Of Households Using Farming Resources				
Region	Social Group	Fertilizer	Manure	Improved Seeds	Pesticides	Veterinary Services
Northern Bihar	S T	7.17	6.24	6.59	5.42	.44
	S C	9.69	9.26	5.92	8.40	0.08
	OBC	5.00	2.34	7.90	9.70	8.77
	Others	2.85	7.43	6.73	6.31	4.17
	All	0.11	0.03	4.41	5.46	6.24
Central Bihar	S T	1.61	.00	.07	.18	5.06
	S C	0.73	6.25	5.65	7.02	0.73
	OBC	3.78	1.95	8.67	5.42	2.73
	Others	4.97	3.72	0.33	0.04	7.81
	All	2.24	3.66	6.61	3.14	6.99
Jharkhand	S T	1.43	7.41	8.65	5.79	.88
	S C	7.74	7.55	4.15	3.19	3.33
	OBC	1.59	1.99	6.21	0.99	0.02
	Others	8.33	7.23	5.72	0.56	0.40
	All	87	1.14	2.55	7.29	.52

From the above table one can understand that there is not much difference among the social groups in using fertilisers, although the percentage of scheduled caste households using fertilisers is the least among all the social groups. The difference in percentage of scheduled caste households using fertilisers from other social groups is not significant. This pattern holds true for all the three regions. The same pattern can be identified for the use of organic manure as well, other than the fact that in central Bihar, none of the scheduled tribe households have used organic manure. The use of improved seeds, which is one of the important inputs in the productivity raising package of new technologies, a difference can be identified

among social groups in terms of the percentage of households using this input. Among all the social groups, the percentage of other backward class households using improved seeds was the highest. Almost the same pattern can be seen in the use of pesticides, where the percentage of other backward class households using this input was the highest among all other social groups. In using veterinary services as well, the percentage of other backward class households was the highest in northern Bihar among all the three regions.

The overall pattern of percentage of households using farming resources by different social groups shows that the percentage of other backward class households using these inputs was more than the other social groups. Especially for such inputs as improved seeds and pesticides, the percentage of other backward class households was higher. Other than this, no significant difference exists among the social groups in terms of use of the farming resources. As has been already established, no significant association can be established in terms of higher land owning households having a higher tendency of using productivity raising new technologies like improved seeds and pesticides. The almost equal tendency of small land owning households to adopt new productivity raising technologies, on the one hand shows their dependence on cultivation and attempts of increasing income, and on the other hand can be associated with the increased importance of share tenancy as a term of lease. As share tenancy is also associated with cost sharing, the increased cost of production may have necessitated increasing the size of direct operation by the small land owners through share of produce and cost sharing arrangements. The use of these inputs in farming can tell very little about the intensity with which different sections of the peasantry cultivate their land. The following section will discuss the current expenditure in cultivation by the farmer households:

#### **Section IV.2: Current Expenditure in Farming:**

The intensity with which farming is carried out can be measured through various parameters. Current expenditure in farming reflects the gross cost of various inputs used in farming for a particular agricultural season. The present analysis is based on the data provided by Situational Assessment Survey of Farmers carried in the 59<sup>th</sup> round by NSSO. The current expenditure includes expenses on seeds, pesticides/insecticides, fertiliser/manure, minor repairs and maintenance of machinery and equipments, interest, lease rent for land, wage paid to regular and casual labour



and other expenses. Current expenditure in farming is important in terms of reflecting the attempts by households to earn from agricultural production in a particular agricultural season. Because there is a dominant tendency of leasing in land by the smaller land operating households on a temporary basis and given the insecurity of the contractual length, current expenditure would reflect attempts by the households to increase agricultural production. Capital expenditure would bring out the expenditure of the households in farming assets like power tillers, tractors, threshers, pumps etc which may not be used in the direct operation of land by that household. Purchasing of farming assets can increase the access of the households over means of production. But the present research is concerned with looking into the patterns by which households having different access over an important means of production in agriculture, i.e. land, depend on agricultural production for their source of income and subsistence.

#### **Section IV.2.a: Current expenditure in Farming and Size of Land Owned:**

There has been an important debate in the studies on Indian agriculture regarding the yield and input use per unit of land according to the size class of operational land holding. This debate has started ever since the Studies in the Economics of Farm Management began to be published. The most important findings that these studies had brought out, is that in most of the districts covered by this study, an inverse relation between farm size and yield and input used per hectare exists. Depending on this result there have been attempts to conclude that the smaller size farms are more efficient. But, to comment on efficiency of farming depending on the size of the farm would mean that size of the farm represents scale of operation if everything else is the same. Utsa Patnaik in her analysis on economics of farm size has shown that everything else not being equal, the size of farm cannot be substituted as the scale of farming.<sup>2</sup> Depending on the empirical data collected, it has been argued that there is no systematic clear relation between size of farm and input used per unit of land from a scatter diagram between the two variables. The fact that the small size farms show a high range in input used per unit of land may have effected the per unit input use values, whereas the large size farms do not show any extreme values in input use per unit of land. That is why, to estimate the input use per unit of land

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<sup>2</sup> Patnaik Utsa(1999), "Economics of Farm Size and Farm Scale: Some Assumptions Re-examined" in *The Long Transition*, pp. 133.

according to the scale of farming, value of gross output per farm has been considered as the substitute of scale of farming in her study. When value of gross output is considered to represent the scale of farming, the efficiency of the farms depending on input used per unit of land and yield increases with increasing scale of farming. As has been mentioned earlier, the intention of the present study is not to conclude on the efficiency of small or large size farming. Rather, we intend to analyse the dependence of households on agricultural production depending on the size of land that they own. But, whether the range of input used in the smaller size of holdings are influencing the pattern of input use according to size class of land holding or not has to be empirically analysed as well, before reaching any conclusion on the dependence of the small land holding households on agricultural production. That is why current expenditure per unit of land has also to be seen in relation to the gross value of receipts per farm (gross value of output has been considered to represent the scale of farming in the study by Utsa Patnaik). The data on total value of receipts collected in the Situation Assessment survey of Farmers in the 59<sup>th</sup> round of NSSO is the value of output produced. The scatter between current expenditure on inputs per unit of land according to both size and scale of the farm and the correlation between scale and size would help in analysing the pattern of current expenditure according to ownership holding of land.

Table IV.3: Proportion of Land Owned and Proportion of Current Expenditure in Farming, Northern Bihar, 2002-03

Category of ownership holding	Proportion of Land Owned	Proportion of Total Expenditure
<.002 hectares	0.00	0.19
.002 to .003 hectares	0.01	0.24
.003 to .040 hectares	0.41	3.53
.041 to .500 hectares	20.01	28.19
.501 to 1 hectares	22.32	22.34
1.001 to 2.00 hectares	24.45	21.84
2.001 to 3 hectares	12.80	10.57
3.001 to 4 hectares	7.12	5.65
4.001 to 5 hectares	3.84	2.43
5.001 to 7.5 hectares	3.03	1.91
7.5 to 10 hectares	3.23	2.07
10.001 to 20 hectares	2.00	0.29
>20 hectares	0.79	0.74

The proportion of current expenditure to total expenditure in farming in northern Bihar region is more in the smaller ownership categories of land as compared to the total land owned in the respective categories. The proportion of expenditure as compared to the proportion of land owned is higher for all the land owner categories below 1 hectare. Above this size of land ownership, the proportion of current expenditure in farming is less than the proportion of land owned. In the larger size class of land ownership the difference between total current expenditure and land owned is more acute. Moreover, the per hectare total expenditure also shows decreasing values with increasing size of land ownership (see appendix tableA.IV.1). The relation between size of land ownership and scale of farming becomes clear from the positively significant relation between the two variables<sup>3</sup>. The scatter of total expenditure per hectare of land and scale of production i.e. total value of receipts shows almost an L shaped distribution (see appendix Figure A.IV.1). There is a wide range of current expenditure per hectare of land owned among those households having lower value of output. But as the value of output increases, the per hectare expenditure remains at a low level.

In central Bihar also, the pattern of proportion of total expenditure in farming is almost the same as northern Bihar.

Table IV.4: Proportion of Land Owned and Proportion of Current Expenditure in Farming, Northern Bihar, 2002-03

Category of ownership holding	Proportion of Land Owned	Proportion of total expenditure
Less than .002 hectares	0.00	0.37
.002 to .003 hectares	0.01	1.17
.003 to .040 hectares	0.18	6.77
.041 to .500 hectares	12.79	22.47
.501 to 1 hectares	21.38	19.90
1.001 to 2.00 hectares	23.28	20.07
2.001 to 3 hectares	8.84	7.10
3.001 to 4 hectares	10.13	8.60
4.001 to 5 hectares	2.09	0.77
5.001 to 7.5 hectares	9.66	4.00
7.5 to 10 hectares	3.23	1.60
10.001 to 20 hectares	8.42	7.16

<sup>3</sup> The correlation between size of ownership and total value of receipts from agricultural production has a positive relation significant at 1% level in northern Bihar.

In central Bihar the proportion of total current expenditure is more than the proportion of total land owned in the lower land owning households. For the households owning less than 0.5 hectares of land the proportion of current expenditure is more than the proportion of land owned. Above this size class of ownership holding, the proportion of current expenditure is less than the proportion of land owned. In the largest size of land ownership, although the proportion of total expenditure is less than the proportion of total land owned, the difference between land owned and expenditure is low. Current expenditure per hectare of owned land shows a decreasing trend with increasing land ownership in central Bihar as well (see appendix table A.IV.1). Although, the per hectare expenditure decreases with increasing land size of land owned, in the large size class (more than 10 hectares of owned land) the per hectare current expenditure is more than semi-medium and medium land ownership. In central Bihar as well, the size of land ownership and gross value of output of agricultural production is positively related.<sup>4</sup> The scatter between total value of output per farm and expenditure per hectare of owned land has an almost L shaped distribution in central Bihar as well (see appendix Figure A.IV.2). The L shaped distribution is not as strong as in northern Bihar. There are higher ranges of expenditure per hectare of land owned among the households in the households having relatively higher value of output than northern Bihar. This can be associated with the fact that in central Bihar the large size of land owning households have higher expenditure per hectare and the difference between land owned and expenditure is lesser than northern Bihar. But the highest range of expenditure per hectare of land owned can be found among the households having the lower value of output.

In Jharkhand also the households in the lower land owning categories have higher values of proportion of total expenditure than proportion of land owned.

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<sup>4</sup> The correlation between size of ownership and total value of receipts from agricultural production has a positive relation significant at 1% level in central Bihar.

Table IV.5: Proportion of Land Owned and Proportion of Current Expenditure in Farming, Jharkhand, 2002-03

Category of ownership holding	Proportion of Land Owned	Proportion of total expenditure
<.002 hectares	0.00	0.08
.002 to .003 hectares	0.00	0.04
.003 to .040 hectares	0.11	0.71
.041 to .500 hectares	17.61	24.51
.501 to 1 hectares	25.74	29.70
1.001 to 2.00 hectares	28.64	24.22
2.001 to 3 hectares	10.21	10.01
3.001 to 4 hectares	1.37	1.28
4.001 to 5 hectares	4.22	2.28
5.001 to 7.5 hectares	4.41	2.70
7.5 to 10 hectares	1.91	3.41
10.001 to 20 hectares	5.78	1.06

The households in the land ownership category of less than 1 hectare have higher values of proportion of total expenditure than proportion of land owned. In the households in the land owning category of more than 1 hectare the proportion expenditure is less than proportion of land owned except for the land owning category of 7.5 hectares to 10 hectares. In Jharkhand also expenditure per hectare of land owned are more for the lower land owning households (see appendix Table A.IV.1). Except for the semi-medium category (2 to 4 hectare of land ownership) per hectare expenditure decreases with increasing land ownership. Size of land ownership and gross value of output per farm are positively related in Jharkhand<sup>5</sup>. The scatter between value of gross output and expenditure per hectare of land owned shows that there is no tendency by the households having higher value of gross output to expend more per hectare of land ownership (see appendix Figure A.IV.3).

<sup>5</sup> The correlation between size of ownership and total value of receipts from agricultural production has a positive relation significant at 1% level in Jharkhand.

The pattern of current expenditure on farming according to size class of land owned shows that the proportion of current expenditure is more for the lower land owning households in all the regions. Size of land owned is not meant to represent the scale of farming. Land owned and not gross area sown has been used as the basis of analysis in the present study to analyse the dependence of the households owning small size of land on agricultural production. If gross value of output is to be considered as the scale of farming, then there is a significantly positive relation between scale of production and the size of land owned in all the regions. Having said this, it is also to be noted that the households having higher value of gross output do not show any tendency of higher expenditure per hectare of land owned. Rather, the households having lower value of gross output show a greater range of expenditure. The higher values of current expenditure per hectare of ownership can be found among the households having lower value of gross output. This brings out the acute dependence of those households owning small size of land on agricultural production from whatever amount of land that they own. This can be associated with the fact that there is a higher tendency of leasing in land among the households having smaller operational holding. The acute inequality in land distribution in the region of Bihar and Jharkhand, where a huge proportion of population has to depend on a very small proportion of total land, can explain such a pattern of proportionately lower expenditure of higher land owning households and also by the households having higher value of gross output.

The tendency of smaller land owning households of having proportionately higher expenditure in farming also necessitates the analysis of the pattern of current expenditure by different social groups. It has been established earlier that the pattern of land distribution is associated with the caste status of the households. The following section brings out the pattern of current expenditure by the households belonging to different social groups.

#### **Section IV.2.b: Current Expenditure in Farming and Caste:**

In terms of distribution of land ownership, the scheduled castes are the most deprived among all the social groups. Other backward classes are in a better position than the scheduled castes and scheduled tribes. The political dominance of the other backward classes has been associated with their land ownership after land reforms and the increased productivity in agriculture associated with the adoption of new

technologies. The development in agricultural production is more prominent in the north western part of the country. How far the increased interest in cultivation has taken place among this social group needs to be analysed for such economies where no empirical evidence of breakthrough change has been established.

Table IV.6: Proportion of Land Owned and Proportion of Current Expenditure in Farming among Different Social groups, Bihar and Jharkhand, 2002-03

Region	Social Groups	Proportion of Land Owned	Proportion of expenditure
Northern Bihar	S T	3.82	4.38
	S C	5.91	6.75
	OBC	59.77	64.04
	Other	30.51	24.83
Central Bihar	S T	0.52	0.52
	S C	3.80	7.69
	OBC	57.43	56.89
	Other	38.25	34.91
Jharkhand	S T	45.59	42.45
	S C	5.66	6.14
	OBC	36.43	41.20
	Other	12.32	10.21

In northern Bihar the proportion of expenditure was more than the proportion of land owned for the scheduled tribes, scheduled castes and other backward classes. The proportion of land owned by the scheduled caste and tribe households was very low. But the other backward class households owned around 60 percent of the total land. The other caste households have lower value of proportionate expenditure than the proportion of land that they owned. In central Bihar, scheduled caste households have higher value of proportionate expenditure than the proportion of land that they own. Scheduled tribe and other backward class households have almost equal value of proportionate expenditure as compared to the proportion of land that they own. In central Bihar as well the proportion of land owned and the proportion of expenditure was the highest for other backward class households. Other caste households had lower value of proportional expenditure as compared to the proportion of land that

they own. In Jharkhand, the scheduled caste and other backward classes have higher values of proportion of expenditure as compared to the proportion of land that they own. The highest proportion of land owned was among the scheduled tribe. Proportionate expenditure was less than proportionate land owned by the scheduled tribe and other caste households.

The proportionate expenditure as compared to the proportion of land owned among the social groups depends on the status of land ownership by these households. Scheduled caste households mostly fall in the category of marginal land ownership. The proportion of expenditure by these households was more than the proportion of land owned by them. Other backward class households were in better position in terms of the land that they possessed. The land owning status of the households belonging to other castes was better than the scheduled castes, scheduled tribes and other backward classes. But the other caste households have lower value of proportionate expenditure on farming as compared to the proportion of land that they owned. The other backward class households have higher or almost equal value of proportionate current expenditure as compared to the proportion of land that they owned. This pattern shows similarity with the current expenditure pattern according to size class of ownership holding. Those households who owned very small size of land have a tendency of higher expenditure on farming as a manifestation of their dependence on agricultural production from the land that they own. But, other backward class households, not differing much from the other caste households in land owning, do have higher value of proportionate expenditure than the land owned. The interest of the other backward class households in production from the land that they own is more than the higher castes who have enjoyed traditional dominance in the rural society historically.

The analysis on the use of farming resources brings out that that there is not much difference in the use of different farming resources among the size classes of ownership holdings. The almost equal pattern of use of the farming resources like fertilisers and pesticides by households belonging to different ownership holding categories can be associated with the increased importance of share cropping, which is generally associated with cost sharing arrangements. The inputs like improved seeds and pesticides which are among the new technology package for raising productivity are used by more number of other backward class households than any



other social group. Merely the use of farming resources can hardly indicate the intensity with which agricultural production takes place. The pattern of current expenditure in farming can indicate the attempt of increasing productivity from agricultural operation. The proportion of current expenditure is more than the proportion of land owned in the smaller size class of land ownership. Per hectare expenditure is also more in the smaller size classes. Higher per hectare or proportionate expenditure in the smaller size classes of land ownership does not necessarily mean the higher efficiency of the small scale of farming. It indicates the higher dependence on land and production from agricultural operation by the households owning small size of land. The pattern of expenditure according to social groups brings out that the scheduled tribes, scheduled castes and other backward class households have higher value of proportionate expenditure than the proportion of land that they own. Other caste households have lower value of proportionate expenditure than the proportion of land that they own. The low proportion of land owned by the scheduled caste households can be associated with their proportionately higher expenditure in farming which brings out their dependence on agricultural production for ensuring subsistence. The scheduled tribe households also show the same pattern, other than in Jharkhand where they are in better position in terms of ownership over land than in other regions. In Jharkhand the proportion of expenditure by the scheduled tribe households is less than the proportion of land that they own, following the same pattern as other caste households in all the regions. The other backward class households that are in better status than the scheduled tribe and scheduled caste households but worse than the other caste households in terms of land ownership according to the proportion of total number of households that they constitute, have higher value of proportionate expenditure. The interest in increasing agricultural production among this social group is more than the higher caste households.

## Conclusion

### Approach to the Study:

The persisting backwardness in terms of economic and social parameters in certain regions of the country has generated various theoretical debates and policy recommendations. But the way these theoretical models and policy recommendations engage with the problem of low performance of certain states in India in socio-economic and demographic parameters leaves various questions unanswered. The policies of the independent Indian state have experienced evolution in terms of preferences and paradigm of development. From the period of the newly independent Indian nation to the post liberalisation era, the planned economy in this country has shown several changes. But the regional pattern of change experienced by different states necessitates an explanation to the stagnation and lack of dynamism in the socio-economic and demographic parameters in states like Bihar. The persisting backwardness of this region demands analysis not only at the policy level, but also at the level of production relations in the agrarian sector on which the majority of the population is dependent.

Historically, Bihar has been a region where acute inequality has existed in the ownership of land. The colonial land policy such as the permanent settlement had strengthened the hierarchy in the traditional agrarian structure by giving proprietary rights to a class of *zamindars* who were vested with the responsibility of collecting revenue. This colonial land policy had given rise to a structure where the actual cultivators of land were distanced from the ownership rights over land and a class of intermediaries between the actual cultivators and the state added to the exploitative structure that appropriated the entire surplus generated from cultivation, leaving the huge mass of under tenants and cultivators impoverished. The independent state adopted the policy of land reform promised to give land to the tiller. But the lacunae in the policy itself, and the lack of political will to implement land reforms has resulted in a situation where the actual tiller of the land was hardly given ownership rights. The *ryots* and middle peasantry gained in terms of land ownership after land reform.

### **Dynamics of Agrarian Structure of Bihar:**

The empirical analysis of distribution of land ownership in 1991-92 and 2002-2003 bring out the persistence of inequality in ownership over land. Among the three regions of erstwhile Bihar including the southern plateau region which presently exists as a separate state Jharkhand, central Bihar region has the highest inequality in land ownership during both periods. The distribution of operational holdings also shows a high level of inequality existing in the three regions, especially in central Bihar. The level of inequality was the lowest in Jharkhand or in southern plateau region of the erstwhile Bihar. On the one hand, there exists a huge proportion of households owning and operating a very small proportion of the total land, and on the other hand a very small proportion of households owning or operating larger size of land has possession over disproportionately larger land size. The concentration of households was the highest in small and semi-medium categories of ownership and operational holdings.

The inequality in distribution of ownership and operational land holdings also shows association with caste. The association was weakest in the Jharkhand region or the southern Bihar plateau region of erstwhile Bihar. Almost all the scheduled caste households belong to the marginal land owning and operating category. In terms of concentration in the lower size category of land ownership or operational holdings, the scheduled tribe and other backward class households followed the scheduled caste households who were lowest in the hierarchy. The status of the other backward class households in terms of land ownership or possession as direct operation was significantly better than the scheduled caste and scheduled tribe households, but was worse than the other caste households. The position of the scheduled tribe households was better in Jharkhand or southern plateau region of erstwhile Bihar. The acute inequality in distribution of land ownership has resulted in a dominant tendency of leasing in land to increase the size of direct operation of land by the lower size category of ownership holding households. To ensure subsistence, this huge proportion of the population belonging to marginal and small category of operational holdings has to lease in land. Given the association of caste with land ownership, the leasing in pattern has association with caste as well. The most deprived section in terms of land ownership among all the social groups i.e. the scheduled caste households have the highest dependence on leased in land. Scheduled tribe and other

backward class households come after scheduled caste households in terms of dependence on leased in land. Other caste households have lowest dependence on leased in land. The relation between leased in land and size of operational holding on the one hand, and with caste on the other hand, can be associated with the level of inequality in land distribution in the three regions. The relation is weakest in Jharkhand or southern plateau region in erstwhile Bihar where the extent of inequality is also the lowest. The distinction of the plateau region or Jharkhand in showing lesser inequality in land distribution and weaker association with caste in land distribution and leasing in of land can be associated with the fact that this region is characterised by higher concentration of tribal population. Tribal society is a non-caste society having lesser hierarchy within it; their traditional dependence on agriculture is also less.

In spite of the spatio-temporal variation it can be concluded that leasing of land exists in this region dominantly as an institution for the smaller land possessing households to ensure subsistence through increasing the size of direct operation of land.

#### **Investment in Agricultural Production:**

The agrarian structure persisting in this region characterised by acute inequality in land distribution, tenancy as an institution mainly existing as an attempt by the small land possessing households to ensure subsistence, and association of caste with land distribution and tenancy pattern has resulted in higher expenditure on farming by the small land possessing section of the peasantry.

Size of ownership is not meant to represent the scale of farming in this study, rather as a basis of dependence on land by different sections of the peasantry defined in terms of possession over land. The smaller land owning households have higher per hectare as well as proportionate current expenditure in farming when compared with larger land owning category of households. This pattern is true for the social groups also. The most deprived section in terms of land ownership i.e. the scheduled caste households have the highest value of proportionate expenditure on farming as compared to the proportion of land owned by them. The scheduled tribe households are after the scheduled castes in terms of their proportionately higher expenditure in farming as compared to proportionate land owned by them. In Jharkhand where the

position of the scheduled tribe households are better than all other social groups in terms of land ownership, the proportionate expenditure is less than the proportion of land owned by them. The other backward class households who are in better position than the scheduled tribe and scheduled caste households in terms of ownership over land also have higher value of proportionate expenditure than the proportion of land owned by them. The fact that the gross value of total output is strongly and positively related with the size of land ownership and current expenditure per hectare of land owned has a higher range in the smaller values of gross value of output and a consistent low value of per hectare current expenditure in the higher values of gross value of output, strengthens the finding that the desperate dependence on land by the small land owning households have resulted in their proportionate more expenditure in farming.

Without concluding precisely on the efficiency of farming, it can be said that the acute inequality in distribution of land associated with the institution of tenancy as a mechanism to appropriate surplus labour, has resulted in the higher tendency of the small land owning households to spend more on agricultural production, showing their desperate dependence on the small size of land that they own without being able to increase the value of output received. At the same time, the households owning disproportionately more land are less interested in agricultural production from land. The answer to the persisting backwardness in the region of Bihar and Jharkhand needs to be looked into from this angle. Therefore, policy initiatives aimed at promoting modern agricultural technology might not *per se* have a major impact on the social and economic condition of those who are dependent on agriculture. Factors such as inequitable land distribution (which can be seen in Bihar and parts of Jharkhand) and caste – which are related to production relations in agrarian society – hold the key to socio-economic change in these regions.

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## Appendix-I

Table A.III.1: Table for Calculation of Gini's Coefficient for Land Ownership,  
Northern Bihar, 1991-92

Size class of ownership holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	34.82	0.00	0.04	0.00
.003 to .005 hectares	34.95	0.00	6.68	0.04
.006 to .040 hectares	38.54	0.19	701.62	14.43
.041 to 0.5 hectares	75.51	18.20	2709.89	1581.57
.501 to 1.000 hectares	86.88	35.89	5300.05	3410.34
1.001 to 2.000 hectares	95.02	61.00	6954.68	5939.63
2.001 to 3.000 hectares	97.37	73.19	7986.98	7215.23
3.001 to 4.000 hectares	98.58	82.03	8691.62	8140.98
4.001 to 5.000 hectares	99.25	88.16	9387.53	8794.72
5.001 to 7.500 hectares	99.75	94.59	9728.88	9451.23
7.501 to 10.000 hectares	99.92	97.53	9939.98	9751.96
10.001 to 20.000 hectares	99.99	99.48	9999.03	9947.88
more than 20 hectares	100.00	100.00	0.00	0.00
sum			71406.98	64248.01
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)				0.72

Table A.III.2: Table for Calculation of Gini's Coefficient for Land Ownership, Central Bihar Bihar, 1991-92

Size class of ownership holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	38.39	0.00	2.66	0.00
.006 to .040 hectares	40.33	0.07	376.02	4.65
.041 to 0.5 hectares	67.04	9.32	1533.52	741.08
.501 to 1.000 hectares	79.49	22.87	3610.60	2064.14
1.001 to 2.000 hectares	90.24	45.42	5632.41	4317.34
2.001 to 3.000 hectares	95.05	62.41	6758.13	6041.95
3.001 to 4.000 hectares	96.80	71.10	7632.53	6968.70
4.001 to 5.000 hectares	98.01	78.84	8679.32	7816.45
5.001 to 7.500 hectares	99.14	88.55	9594.88	8838.91
7.501 to 10.000 hectares	99.82	96.78	9981.54	9678.41
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			53801.60	46471.63
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)				0.73

Table A.II.3: Table for Calculation of Gini's Coefficient for Land Ownership, Southern Bihar, 1991-92

Size class of ownership holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	24.54	0.00	1.03	0.00
.006 to .040 hectares	25.91	0.04	276.31	2.36
.041 to 0.5 hectares	56.36	10.67	1538.35	794.31
.501 to 1.000 hectares	74.48	27.30	4099.60	2475.25
1.001 to 2.000 hectares	90.68	55.05	6351.95	5270.11
2.001 to 3.000 hectares	95.74	70.05	7479.53	6837.13
3.001 to 4.000 hectares	97.61	78.12	7912.63	7666.18
4.001 to 5.000 hectares	98.13	81.07	8708.41	8040.06
5.001 to 7.500 hectares	99.18	88.74	9186.93	8835.34
7.501 to 10.000 hectares	99.56	92.63	9797.93	9258.25
10.001 to 20.000 hectares	99.95	98.41	9994.90	9841.23
More than 20 hectres	100.00	100.00	0.00	0.00
sum			65347.57	59020.22
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1}/10000$ (Gini's Co-efficient)			0.63	

Table A.III.4: Table for Calculation of Gini's Coefficient for Land Ownership, Northern Bihar, 2002-03

Size class of ownership holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	0.21	0.00	0.00	0.00
.003 to .005 hectares	2.44	0.02	1.07	0.23
.006 to .040 hectares	13.63	0.44	291.91	29.39
.041 to 0.5 hectares	66.81	21.42	2988.54	1814.53
.501 to 1.000 hectares	84.72	44.73	5828.24	4244.25
1.001 to 2.000 hectares	94.88	68.80	7651.29	6723.63
2.001 to 3.000 hectares	97.73	80.64	8507.37	7968.80
3.001 to 4.000 hectares	98.82	87.05	9044.39	8654.97
4.001 to 5.000 hectares	99.43	91.53	9455.16	9130.56
5.001 to 7.500 hectares	99.76	95.10	9663.98	9497.96
7.501 to 10.000 hectares	99.88	96.88	9987.76	9687.52
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			63419.72	57751.83
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)				0.57



Table A.III.5: Table for Calculation of Gini's Coefficient for Land Ownership, Central Bihar, 2002-03

Size class of ownership holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	1.49	0.00	0.05	0.02
.003 to .005 hectares	6.39	0.03	2.16	0.60
.006 to .040 hectares	18.15	0.34	278.59	20.23
.041 to 0.5 hectares	59.94	15.35	2190.51	1231.74
.501 to 1.000 hectares	80.23	36.54	5116.39	3413.79
1.001 to 2.000 hectares	93.42	63.77	7149.68	6192.85
2.001 to 3.000 hectares	97.11	76.54	8087.32	7534.87
3.001 to 4.000 hectares	98.45	83.28	8663.56	8256.10
4.001 to 5.000 hectares	99.14	88.00	8925.27	8745.48
5.001 to 7.500 hectares	99.38	90.03	9235.99	8969.43
7.501 to 10.000 hectares	99.63	92.94	9962.79	9293.68
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			59612.31	53658.80
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)				0.60

Table A.III.6: Table for Calculation of Gini's Coefficient for Land Ownership, Jharkhand, 2002-03

Size class of ownership holding	Cumulative percentage of Households( $X_j$ )	Cumulative percentage of area operated( $Y_j$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	0.22	0.00	0.00	0.00
.003 to .005 hectares	0.78	0.00	0.07	0.01
.006 to .040 hectares	3.56	0.09	68.86	4.81
.041 to 0.5 hectares	56.11	19.34	2317.42	1512.54
.501 to 1.000 hectares	78.19	41.30	5475.94	3879.80
1.001 to 2.000 hectares	93.95	70.03	7685.83	6823.46
2.001 to 3.000 hectares	97.44	81.81	8465.45	8059.33
3.001 to 4.000 hectares	98.51	86.88	8992.85	8620.79
4.001 to 5.000 hectares	99.22	91.29	9447.55	9100.66
5.001 to 7.500 hectares	99.69	95.21	9969.18	9521.49
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			52423.15	47522.91
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient))				0.49

Table A.III.7: Table for Calculation of Gini's Coefficient for Operational Holding, Northern Bihar, 1991-92

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	2.88	0.00	0.06	0.00
.003 to .005 hectares	5.83	0.02	2.42	0.40
.006 to .040 hectares	19.98	0.41	364.64	27.55
.041 to 0.5 hectares	66.50	18.25	2498.25	1511.08
.501 to 1.000 hectares	82.79	37.57	5089.68	3499.11
1.001 to 2.000 hectares	93.14	61.48	7041.80	5950.84
2.001 to 3.000 hectares	96.80	75.61	8081.82	7423.24
3.001 to 4.000 hectares	98.18	83.49	9000.81	8291.89
4.001 to 5.000 hectares	99.31	91.68	9583.35	9148.66
5.001 to 7.500 hectares	99.79	96.50	9829.83	9643.83
7.501 to 10.000 hectares	99.94	98.50	9946.82	9848.98
10.001 to 20.000 hectares	99.99	99.53	9998.88	9952.94
More than 20 hectares	100.00	100.00	0.00	0.00
Sum			71438.34	65298.53
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient))				0.61

Table A.III.8: Table for Calculation of Gini's Coefficient for Operational Holding, Central Bihar, 1991-92

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	2.33	0.00	0.05	0.00
.003 to .005 hectares	7.44	0.02	1.29	0.39
.006 to .040 hectares	17.07	0.17	174.08	9.49
.041 to 0.5 hectares	54.92	10.20	1249.85	720.54
.501 to 1.000 hectares	70.66	22.76	3424.75	1988.51
1.001 to 2.000 hectares	87.37	48.47	5655.09	4536.83
2.001 to 3.000 hectares	93.60	64.72	6863.97	6208.55
3.001 to 4.000 hectares	95.92	73.33	7831.66	7160.59
4.001 to 5.000 hectares	97.65	81.65	8916.32	8094.53
5.001 to 7.500 hectares	99.14	91.31	9668.49	9114.69
7.501 to 10.000 hectares	99.82	97.52	9982.04	9752.19
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			53767.59	47586.31
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)				0.62

Table A.III.9: Table for Calculation of Gini's Coefficient for Operational Holding, Southern Bihar, 1991-92

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	3.32	0.00	0.01	0.00
.003 to .005 hectares	4.16	0.00	0.54	0.04
.006 to .040 hectares	11.79	0.13	113.38	5.80
.041 to 0.5 hectares	44.91	9.61	1182.66	650.25
.501 to 1.000 hectares	67.65	26.33	3685.72	2320.73
1.001 to 2.000 hectares	88.13	54.49	6166.10	5164.75
2.001 to 3.000 hectares	94.79	69.96	7289.97	6767.28
3.001 to 4.000 hectares	96.73	76.91	7863.84	7514.16
4.001 to 5.000 hectares	97.71	81.30	8722.26	8052.15
5.001 to 7.500 hectares	99.04	89.27	9218.63	8881.82
7.501 to 10.000 hectares	99.49	93.08	9797.28	9302.03
10.001 to 20.000 hectares	99.94	98.47	9993.98	9847.14
More than 20 hectares	100.00	100.00	0.00	0.00
Sum			64034.35	58506.15
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)			0.55	

Table A.III.10: Table for Calculation of Gini's Coefficient for Operational Holding, Northern Bihar, 2002-03

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	2.16	0.01	0.11	0.05
.003 to .005 hectares	7.84	0.05	4.04	0.99
.006 to .040 hectares	20.44	0.52	462.40	35.54
.041 to 0.5 hectares	68.98	22.62	3243.22	1944.73
.501 to 1.000 hectares	85.99	47.02	6156.23	4491.87
1.001 to 2.000 hectares	95.54	71.60	7945.17	7025.15
2.001 to 3.000 hectares	98.12	83.16	8746.19	8237.28
3.001 to 4.000 hectares	99.05	89.14	9236.37	8874.86
4.001 to 5.000 hectares	99.57	93.25	9625.22	9311.24
5.001 to 7.500 hectares	99.85	96.67	9762.56	9659.39
7.501 to 10.000 hectares	99.92	97.77	9991.86	9776.94
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			65173.37	59358.04
			$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient)	
			0.58	

Table A.III.11: Table for Calculation of Gini's Coefficient for Operational Holding, Central Bihar, 2002-03

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	2.87	0.01	0.18	0.08
.003 to .005 hectares	11.69	0.06	3.82	1.41
.006 to .040 hectares	22.63	0.33	319.92	19.23
.041 to 0.5 hectares	58.81	14.13	2208.00	1133.85
.501 to 1.000 hectares	80.22	37.54	5357.76	3531.89
1.001 to 2.000 hectares	94.07	66.79	7475.99	6515.89
2.001 to 3.000 hectares	97.56	79.47	8313.30	7840.83
3.001 to 4.000 hectares	98.67	85.21	8812.38	8456.57
4.001 to 5.000 hectares	99.25	89.32	9050.97	8882.33
5.001 to 7.500 hectares	99.45	91.20	9372.14	9092.39
7.501 to 10.000 hectares	99.70	94.24	9969.95	9424.08
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			60884.42	54898.56
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient))				0.60

Table A.III.12: Table for Calculation of Gini's Coefficient for Operational Holding, Jharkhand, 2002-03

Size class of operational holding	Cumulative percentage of Households( $X_i$ )	Cumulative percentage of area operated( $Y_i$ )	$X_i Y_{i+1}$	$Y_i X_{i+1}$
0.000 to .002 hectares	0.65	0.00	0.02	0.01
.003 to .005 hectares	5.52	0.03	1.11	0.41
.006 to .040 hectares	12.70	0.20	251.30	12.15
.041 to 0.5 hectares	60.27	19.79	2573.00	1596.27
.501 to 1.000 hectares	80.66	42.69	5770.42	4042.29
1.001 to 2.000 hectares	94.69	71.54	7878.04	6991.23
2.001 to 3.000 hectares	97.73	83.20	8625.87	8209.85
3.001 to 4.000 hectares	98.68	88.26	9144.42	8765.67
4.001 to 5.000 hectares	99.31	92.67	9736.45	9257.08
5.001 to 7.500 hectares	99.90	98.04	9793.76	9793.76
7.501 to 10.000 hectares	99.90	98.04	9989.67	9803.90
10.001 to 20.000 hectares	100.00	100.00	0.00	0.00
sum			63764.08	58472.62
$\sum X_i Y_{i+1} - \sum Y_i X_{i+1} / 10000$ (Gini's Co-efficient))				0.53



## Appendix-II

Table A.IV.1: Current Expenditure per Hectare of Land Owned , Bihar and Jharkhand, 2002-03

	Categories of land ownership	Per hectare current expenditure
Northern Bihar	Less than 1 hectare	6281.79
	1 to 2 hectares	4400.71
	2 to 4 hectares	4011.04
	4 to 10 hectares	3129.75
	More than 10 hectares	1827.69
	All	4927.14
Central Bihar	Less than 1 hectare	8676.08
	1 to 2 hectares	5070.57
	2 to 4 hectares	4866.20
	4 to 10 hectares	2501.59
	More than 10 hectares	4997.61
	All	5879.47
Jharkhand	Less than 1 hectare	3094.30
	1 to 2 hectares	2066.38
	2 to 4 hectares	2382.48
	4 to 10 hectares	1409.32
	More than 10 hectares	1420.62
	All	2443.41

Figure A.IV.1: Scatter Between Total Receipt and Current Expenditure per Hectare of Land Owned, Northern Bihar, 2002-03

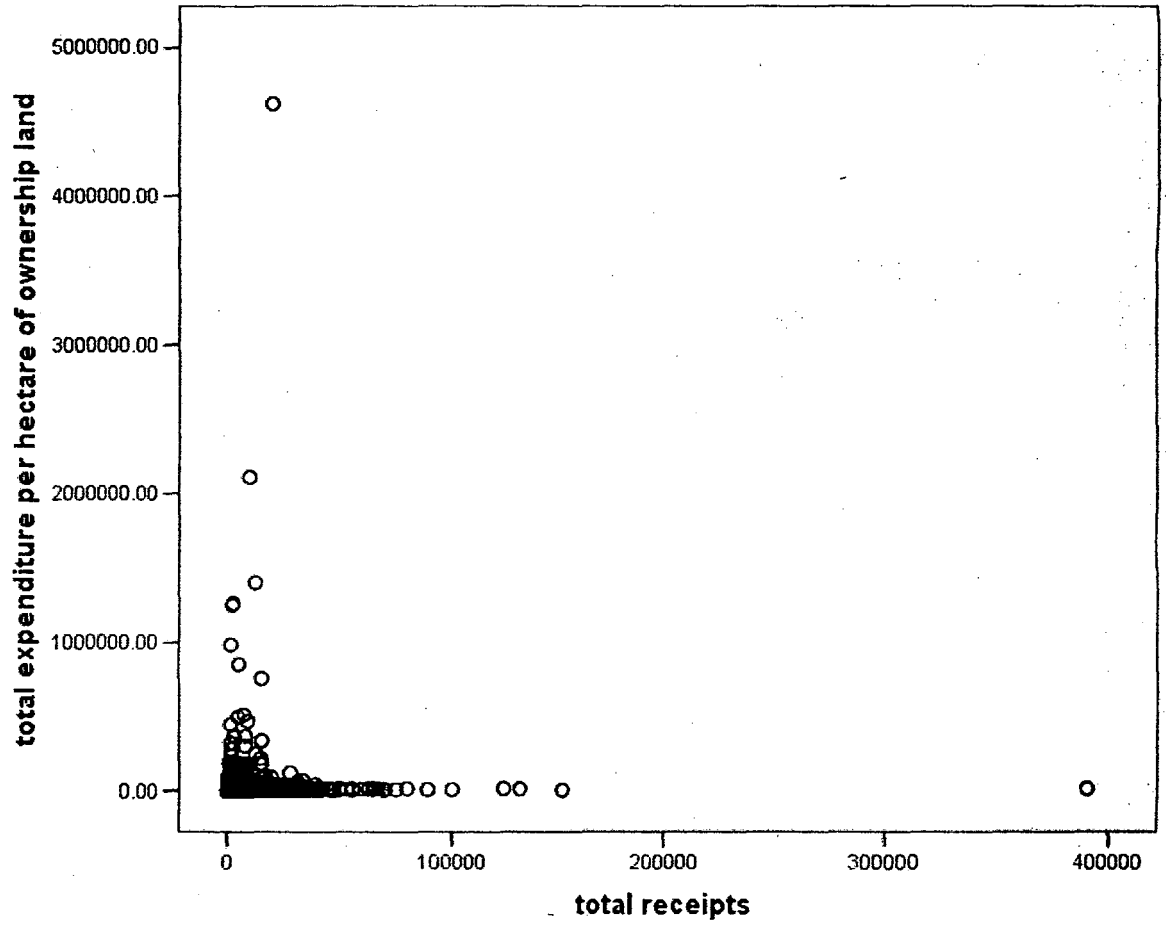


Figure A.IV.2: Scatter Between Total Receipt and Current Expenditure per Hectare of Land Owned, Central Bihar, 2002-03

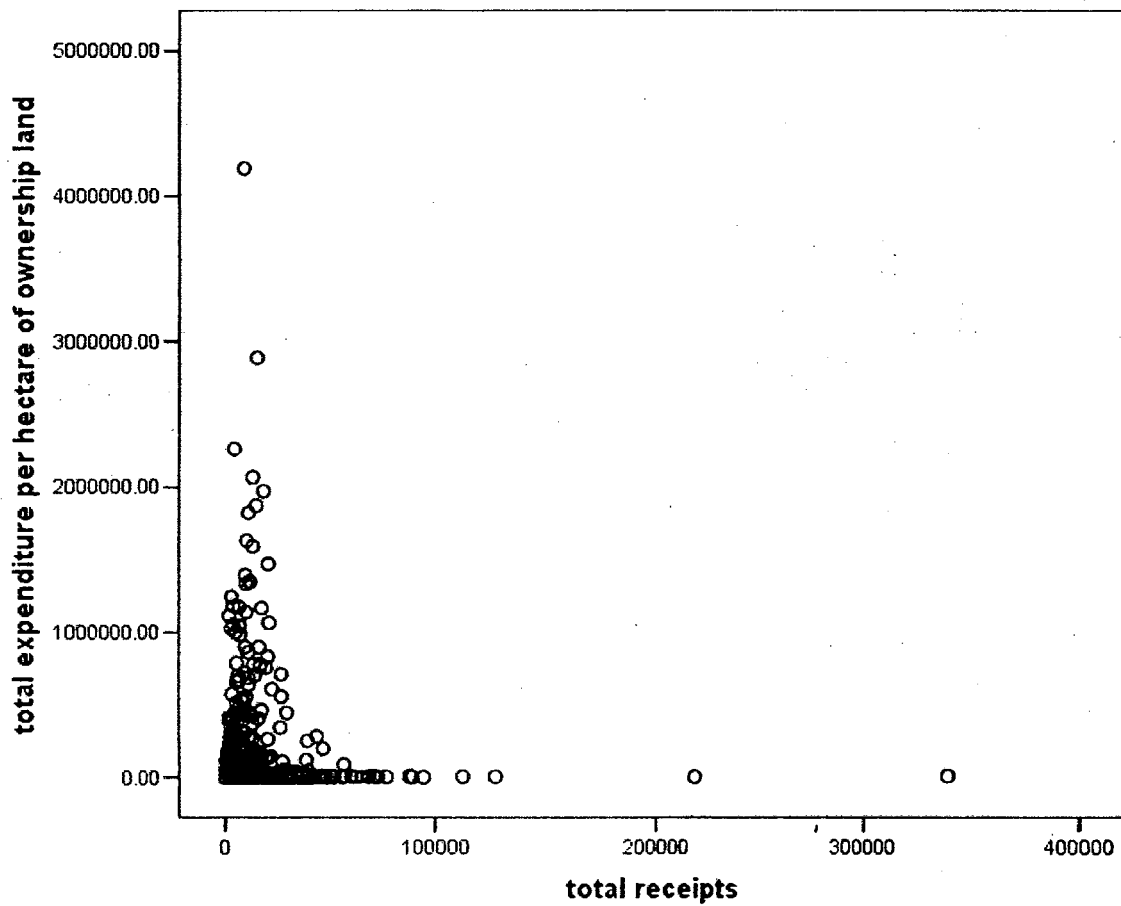


Figure A.IV.3: Scatter Between Total Receipt and Current Expenditure per Hectare of Land Owned, Jharkhand, 2002-03

