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Importance of tenure structures is often ignored in agricultural development planning in India. Emphasis instead is commonly placed on agro-techniques for increasing productivity to meet the growing needs of food supply. To evaluate the affects of institutionalized tenure structure on agricultural efficiency, two pairs of contiguous districts from Madhya Pradesh, India, were chosen as case studies. The districts were selected in a manner that their similar physical environment acted as controls to the analysis while their institutionalized tenure systems differed in one being feudalistic and the other having a peasant proprietary background.

Differences, pointed out in the livelihood classes and ownership structures between the feudal and the nonfeudal districts, present evidences of residual feudalistic tenure systems persisting in spite of land reform measures instituted by the state. Areal differences observed in farm practices, production and yield patterns between the two districts suggest a higher efficiency level for the

district with peasant proprietary background. Evaluation of differences in the utilization of the modern inputs and governmental services by different farm sizes suggests a greater degree of adoption of modern inputs by the district with the peasant proprietary background. Governmental services, however, were found to be more active in the district with the feudal background.

The evidence suggests that because of little implementation of land reform, the lingering affects of feudalistic tenure systems are constraints on agricultural efficiency in district with feudal background.

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DEDICATED to my Mother

Whose aspiration, more than mine, I fulfilled.

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I. INTRODUCTION

Rural developmental strategies are still evolving in India, and as demand for food is increasing with mounting pressures of population, there is need for improvements to enable each area and sector of rural India to achieve higher productivity levels. Since independence, a number of five year plans have been executed in which the major thrust has been to achieve higher efficiency and modernization in the agricultural sector. Also, recognizing the importance of institutional reform in traditional Indian agriculture, a series of legislative measures were recommended by the Indian Planning Commission to reform centuries old and outmoded tenure structures.

Institutional reform however, is usually slow to be implemented. In addition, in India the urgent needs for increased food production had led to reduced attention towards institutional reforms and the legislative measures designed to reform conditions of agricultural land tenure commonly were ignored or evaded. A need was therefore felt to assess and evaluate the extent to which institutionalized systems of agricultural land tenure effect productivity patterns and practices.

This thesis is the result of field investigation in the state of Madhya Pradesh, India. Since independence in 1949, a variety of land

reform measures have been implemented in the state of Madhya Pradesh with a view to remove institutional constraints on agricultural operations. Also, changes in agricultural trends have occurred as a result of increased governmental services in the agricultural sector. Significant differences however, are perceived in the degree of change and benefits between areas of differential tenure backgrounds. The thesis undertakes to study the agricultural patterns under feudalistic and nonfeudalistic rural institutions with the objectives of evaluating the influence of tenure systems on agricultural efficiency.

The Problem

Since agriculture under Indian conditions, is known to operate very strongly within institutionalized systems, it was assumed that the degree of utilization of governmental services under a feudalistic environment would be dependent upon the nature and degree of institutional reform. The study therefore hypothesizes that regional agricultural efficiency and farm class performances, measured in terms of farm practices and productivity patterns, would be unequal between areas of feudal and nonfeudal backgrounds and be dependent upon the degree of implementation of land reform, specially in cases where feudalistic land tenure had been dominant.

In order to test the effect of feudal tenure structures on

productive efficiency, a district with a history of feudal ownership was selected for analysis. Further, to test the hypothesis of unequal farm practices and performances between feudal and nonfeudal areas, a contiguous nonfeudalistic district, similar in physical environment was analyzed. Comparison of the two districts (forming a pair) was undertaken on ownership patterns, farm practices, production levels and modernizing trends and differences between the two districts were evaluated. A second pair of districts was selected under similar guidelines as that of the first pair, to test if parallel results would be obtained.

II. AREA OF STUDY AND METHODOLOGY

Study Area

Madhya Pradesh was chosen as the study area for three reasons:

1. The state is predominantly agricultural, and unlike the other agricultural states of India with high population densities and saturated agricultural activities, is considered to possess significant agricultural potential.

2. Many studies exist about the Zamindari tenure system that prevailed in the thickly populated agricultural areas of India and its impact on agricultural productivity, [1/] but few studies have probed into the effects of feudal tenure structures on farm productivity and practices.

3. Madhya Pradesh being the home state of the researcher, the familiarity and understanding of the area was a help in probing deeper into the relationship between institutional and resource aspects of the rural sector.

[1/] Under the Zamindari system, zamindars or proprietors were appointed by the British for purposes of revenue collection in the populous agricultural areas of the country. The system over the years had developed into an exploitative rural structure, parallel in nature to the Jagirdari or feudalistic system.

Choice of the Pair of Districts

In the selection of the pair of districts, the guidelines observed were that (1) the districts had to be dissimilar in their pre-independence tenure structures, one being of feudal and another of nonfeudal background, (2) the districts had to be contiguous to each other, and (3) the physical environment of climate, soil and terrain had to be broadly similar.

The district of Raisen (formerly a constituent part of the feudal territory of Rhopal) and the contiguous district of Sagar (a nonfeudal British administered territory) were chosen as the first pair for analysis. The state of Bhopal was selected as the feudal territory for being the oldest feudal system of the area and was therefore considered representative of a typically feudal system.[2/] The district of Raisen (Bhopal State) and Sagar were selected for their contiguity and dissimilarity of tenure backgrounds.

The district of Khargone, formerly a part of the feudal state of Holkars and Khandwa, a nonfeudal British administered district, were chosen as the second pair. The feudal system of Holkars constituted

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2/ According to the unpublished gazetteer of the district of Raisen, the state was established in the year 1723.

the important Maratha heritage in central India. The selection of the districts was also based on their contiguity and dissimilarity of institutional backgrounds.

It was decided to conduct an intensive field survey in the first research pair, composed of the districts of Raisen and Sagar. The survey was mainly aimed at collecting data on activities, performances and production patterns of cultivators belonging to various size classes. The objective was to evaluate the differences in farm practices and farm class performances between the feudal and the nonfeudal districts.

Since the secondary pair of districts was picked to verify the results obtained from the first pair, it was felt that enough secondary and tertiary data would be available for verification as to whether or not the results of the first pair pertain to a generalization. It was however later realized that much of the detail district level data was available only through the district offices and not from state publications. Hence, in many instances parallel evidences for the secondary pair was not available. It was however, felt that evidences were available to make comparative assessments between the two pairs and reach some valid conclusions.

Time Frame

In order to analyze, evaluate and compare changes in agricul-

tural trends, a broad time frame of three census years of 1950-51, 1960-61 and 1970-71 was first considered. It was later found that consistent data were available only from 1965-66, the year of the first publication of agricultural data by the state Land Records Office. A broad time frame of 1960-61 to 1973-74 was finally decided, since some data were available for 1960-61 from the unpublished volumes of the Directorate of Economics and Statistics.

Field Research Program

Travel to India in mid-October was undertaken to conduct field research in the study area of Madhya Pradesh. The field research period lasted for four months. Bhopal, the capital of Madhya Pradesh was made the main research camp as almost all the governmental offices were located there. During the initial days, contact was established with the officers of the state agriculture and revenue department to compare ideas about research procedure that might be adopted. Also, the questionnaire for the village survey, that had been prepared in advance and reviewed at Oregon State University, was revised further and translated into local language in consultation with officers who had experience in the study area.

The first half of the research period was spent in village surveys in the districts of Raisen and Sagar. During this period the district offices were visited, the data files were searched and talks

were held with officials regarding the manner in which unpublished data could be made available.

The second half of the research period was spent mostly in Bhopal, visiting state level offices, collecting relevant information and data, conferring with the state officers of relevant departments and interviewing farmers of the town who held land in the study area.

Two types of primary data were collected. The first kind related to time series data on land use, crops, production, irrigation, communication, population, ownerships and holdings. Records of legislation implementation was acquired from the district government offices and their publications. The data on the above were used to compare the ownership patterns, trends and practices of agricultural operations in the feudal and the nonfeudal districts. The second kind of data, related to farm practices, production factors, productivity and modernizing trends of small, medium and large landholders for each of the districts in the pair, was obtained through field interviews. Such data were to be analyzed to assess the degree of variation in farm practices, productivity and degree of modernization of inputs by farm sizes between the feudal and the nonfeudal districts.

Field Survey

During the field research in the districts of Raisen and Sagar

(referred to from now on as the primary research pair) the district towns of Raisen and Sagar became the temporary research camps. The district administrator was first contacted in order to get clearance regarding (1) access to governmental records and (2) conduct village surveys. The district level data on land use and irrigated acreage was collected from the district branch of the State Directorate of Economics and Statistics. The District Land Records Office supplied data on crop acreages, production of main crops, distribution of number and area of holdings and records of reform implementation. For village level information, the subdivisional offices had to be visited.

Village Surveys

One village in each subdivision of the districts, to a total of 11 villages in the two districts were surveyed. The itinerary of survey of the villages was circulated in advance by the district administrator to different subdivisional offices in order that the subdivisional officer of the concerned villages could make arrangements for conducting the survey. In each visit to a village the subdivisional officer helped in assemblage of the cultivators for interviews and the land records keeper made the village records available.

The questionnaire (see Appendix 2) was broken down into sections relating to ownership of land, farm assets, production

factors, cropping system and productivity, services available and awareness of reform legislation. Most often a full day was spent in a village, interviewing farmers and recording their responses.

Sampling Technique

It was decided to select one village as a sample from each subdivision. The villages were selected randomly. Four alternate numbers were picked from a random number table. Corresponding to the first random number, a village was picked from the subdivision listing in the district census handbook in which each village in a subdivision is sequentially numbered. The number was however, dropped and next alternate number was used if the village corresponding to the first number was found to be scantily inhabited, or virtually uninhabited.

In each village 15 percent of the cultivating population was interviewed. The sample was stratified under small, medium and large landholders on the basis of distribution of holdings in the village. A total of approximately 50 landholders were sampled from each district. Depending on the size of the population in the village, every second or third cultivator from the village register was picked for interview. The inclusion in the sample of cases picked depended on the availability of the cultivator for interview and the total number required in each size class.

Other Primary Data

Agricultural data for each year of the study period was collected from governmental publications containing breakdown by districts. The publication by the State Land Records Office (1965-66 to 1973-74) contained substantial agricultural data. The State Directorate of Agriculture supplied its own publication of agricultural data that contained recent yearly data on crop acreages, production, yield, irrigation, fertilizer use and governmental service programs. State Directorate of Economics and Statistics made available unpublished volumes of agricultural data which provided consistent yearly records from 1960-61 to 1973-74. State Department of Revenue provided the reports on reform legislation. Data and information on the co-operative movement was obtained from the Registrar's office of the State Cooperatives. Districtwise figures on co-operative credit advancements were obtained from the main office of the Central Co-operative Bank located at Bhopal. Census handbooks on the concerned districts were obtained from the State Census Bureau.

Part of the primary evidence was also collected through personal interviews, including tape recordings of rural and urban people who were prepared to talk about their ideas on rural development, reform measures, governmental attitudes and their own perception of the rural problem.

Secondary and Tertiary Data

General information on Madhya Pradesh was obtained from publications on the state. State Gazetteer Department provided copies of published and unpublished district gazetteers on Raisen and Sagar (the primary research pair), and on Kargone and Khandwa (the secondary pair). The gazetteers of the districts contained accounts of history, geography, economy, people and administration.

Newspaper clippings from national and regional papers were collected which lent insights into current issues pertaining to agricultural development and planning. Leaflets and brochures connected with new schemes of the government were obtained and scanned. The collected data, books and publication volumes were flown back to Oregon State University for processing and analysis upon completion of the field research.

Processing and Analysis of Data

The entire volume of data was processed at the Department of Geography of Oregon State University. The districtwise yearly data were compiled and tabulated under headings of land use, acreage and production of main crops, yield, irrigation acreages and credit advancements for each year. Comparative analysis of such data for the feudal and nonfeudal districts were done by the help of graphs,

diagrams and regression analysis.

The data from the village survey were tabulated, programmed and analyzed through the Special Social Science Package (SPSS) program available on Cyber machine. For purposes of analysis by size classes, the entire sample was under small, medium and large holders. Cross tabulations were drawn of farm practices, production factors and modernizing trends for each of the size classes by percent of farmers reporting for the feudal and the nonfeudal districts. The percentage values thus obtained revealed the variations between the feudal and nonfeudal districts in each class. A chi-square value was obtained to test the hypothesis of variance for significant variables.

In order to draw average trends on items of interest, frequency tests were also drawn. Regression analysis was employed to assess the magnitude of impact of variables on variations.

Thesis Plan

A background to the concepts of Land Reform and India's Land Reform policies in particular is given in Chapter III. Also, an account of land reform legislation enacted in Madhya Pradesh is furnished followed by an analysis of the extent and degree of implementation of the reform laws in the feudal and the nonfeudal districts.

Comparative description of the two pairs of districts in physical

characteristics, agricultural land use, cropping patterns, history of feudal and nonfeudal control and resultant agricultural administration and the present agricultural developmental structure is attempted in Chapter IV.

Chapter V undertakes the comparison of the feudal and the nonfeudal districts on ownership structure, cropping trends over the time period, production and yield patterns and impact of various production factors on yield. Mostly districtwise data have been used for analysis. Wherever possible results drawn from such analysis were simultaneously tested against primary data. Changes in the trends of land use and productivity were evaluated and compared for the feudal and the nonfeudal districts. The differences found between the feudal and the nonfeudal districts were brought into focus toward support or nonsupport of the hypothesis.

The analysis in Chapter VI was based completely on village survey data and was therefore restricted to the primary research pair. The sampled rural population was broken down into farm size classes of small, medium and large. Comparison of the feudal and the nonfeudal districts by size class was undertaken to evaluate the differences in productive efficiency and degree of modernization.

Chapter VII summarizes the findings and presents conclusions about the differences between the feudal and the nonfeudal districts.

III. BACKGROUND OF LAND REFORM, TENURE AND REFORM IN INDIA AND MADHYA PRADESH

Few social arrangements have affected so many people for so long in man's history as the law and customs governing the ownership of land. The tenure systems further acquire significance on the grounds that centuries of socio-economic and political arrangements have been known to have produced undesirable conditions within the rural structure, acting as constraint to agricultural development.

Land Reform

Agricultural advance requires two distinct categories of inputs. The first relates to the provision of essential technical facilities. The other relates to the creation and maintenance of suitable institutional systems. The first measure aims at increasing agricultural productivity, whereas the other is aimed at rural organizational transformation within which economic activities could prosper under equitable socio-political conditions.

Land reform is basically directed towards the structural change, or more precisely, a change in "land tenure", a term that covers not only the rights in land, but may encompass all agricultural institutions such as land ownership and tenancy, rents, taxation of agricultural land or income and even rural credit facilities (Froelich 1962: 8).

Content of Land Reform

The content of Land Reform therefore ranges from simple redistribution of land ownership to a more complex phenomenon of a total agricultural policy. The United Nations report on the "Progress of Land Reform" points out this diversity in terms (U.N. Dept. of Economics and Social Affairs, 1954: 49)

> In the replies of the governments, Land Reform is given three different meanings. It may refer only or mainly to redistribution of land ownership. It may mean the improvement in agricultural economic institutions, or it may cover policies for increasing agricultural production and land use.

Whereas the concrete content of Land Reform in different societies will depend on the man-land ratio and the state of political and ideological evolution, the inauguration of reform measures in a region may establish the recognition of serious inequities and maladjustments in the rural structure. Also, as Warriner indicated, these are seen to be the very regions where land reform measures are met with maximum resistance (1973: 115-31).

Peter Dorner held that as no tenure systems are static in content, there is need for flexibility in the reform program (1972: 35). It has long been noted that land reform gradually acquires different dimensions as the economy moves towards market specialization and a need is felt to improve the farm peoples relationship to the market economy (Parson 1956: 17).

The following are the four stages of land reform suggested by an Indian economist, which could also be considered categories of reform measures. The stages are,

1. The liberative measure, or the step to redeem the tiller from the hierarchical exploitation,

2. The distributive measure or the step aimed at establishing an egalitarian order,

3. The organizational measure related to the institutional organization, and

4. The developmental measure related to the provision of technical services for agricultural development. (Raj Kishan 1961: 215-16)

It was also suggested by Kishan that the first three stages ought to be regarded as the agrarian reform measure as they determine the institutional framework within which rural societies operate. The last stage relates to a developmental strategy which may or may not be a necessary follow through for a country. In complex environment however, land reform has to be a part of a total agricultural strategy, integrated in approach with comprehensive measures designed to raise the productivity level of the farming population along with efforts to reconstruct the society. Once the status, freedom and dignity of the tiller is established, the peasant ought to be supported by complementary measures in the institutional fields of credit, extension, education, co-operation, marketing, which in turn must be

coordinated with resource development and industrialization (Erich 1971: 26).

In summation, is restructuring tenure institutions really vital for agricultural productivity? Does the varying tenure systems affect agricultural activities differently? Does an inhibiting tenure institution affect the farm peoples absorption level of governmental services? These are some of the questions asked and are attempted to be answered by the present work.

Tenure Patterns in India

The context of Land Reform program in India has its roots in centuries old land tenure system, inherited from its former ex-Hindu, Moghul and British rulers.

During the pre-Muslin agrarian structure, the village was considered a self-supporting autonomous unit, loosely organized into a system of government in which the sovereign powers left communal and local institutions to function independently, each in its limited sphere. Under the Moghul land revenue system, based on the dictates of the Islamic law, the state was entitled to a certain proportion of annual produce of every "Bigha"[3/] of land, except in cases in which

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3/ A Bigha is a measure of land equivalent to 2, 250 square miles.

the state made a temporary or permanent alienation of its rights to such proportions of its produce, or agreed to receive instead, a specific sum annually or for a term of years or in perpetuity. The proportions of the produce to be assigned to the state were to be decided by the ruler, reflecting the local conditions. As a result, the proportions claimed as revenue by the state varied from reign to reign; it was one-third of the average produce as the standard assessment in Emperor Akbar's rule (1556-1605), raised to one-half during Aurangzeb's rule (1657-1707), often reaching still higher demands in later years (Shrivastave 1966: 104-5).

The first survey of land ever undertaken was during the reign of the Afghan ruler Shershah (1540-45) and land revenue was settled at one-third of the average produce on a Bigha, payable in cash or kind, but preferably in the former. For the first time, rights of tenants were recognized in the deeds of agreements and in return a title deed (Patta) was given to the cultivator. The action set in motion two distinct trends:

1) The change from payment in kind to payment in cash, for the first time exposed the cultivator to the risks of price fluctuations.

2) Creation of a hierarchy of proprietors and tenants rights was brought about with reference to the same piece of land.

The decline of the Moghul rule saw the establishment of the British control over the eastern part of India through the auspices of

the East India Company in 1765. The company in its first settlement of 1793, known as the Permanent Settlement Act (Gupta 1963: 71)

> . . . . Sought to create a landed aristocracy, similar to the rights and privileges enjoyed by the landed proprietors in England, by conferring a right in private property on the soil, vested on the Zamindars.

The Zamindars were to act as agents or intermediaries to the company to collect rent from cultivators as land revenue. The state revenue on lands included in the Zamindari estates were fixed in perpetuity, whereas the demand of the Zamindars on the cultivators were left undefined, to be regulated mutually by the ordinary laws of demand and supply, operating on land and labor respectively. As production and prices rose, the land revenue remaining more or less fixed, the Zamindars could exhort greater taxes from the cultivator, creating for himself a bigger share of the total revenue from the land. As the Zamindars grew in wealth, collection of taxes were delegated to sub-agents, creating tiers of intermediaries between the state and the cultivator. In time, these intermediaries grew powerful and virtually became landlords, acquiring hereditary rights over the land they controlled.

In the nineteenth century, a second form of tenure, Ryotwari, was established under the British in which the occupier of land (not always the owner) was liable for payment of revenue direct to the state. The Ryot or the landholder had the right to transfer, sublet,

mortgage or sell the land he occupied. As long as the holder paid his revenue to the state, he could not be evicted from his land. The land revenue demand was simplified and defined, freeing the cultivator from oppressions of the intermediaries. The system provided a safeguard against insecurity of tenure, oppression and rack renting associated with the recognition of a class as the sole proprietors of land.

A third form of tenure, the Jagirdari system prevailed mostly in the princely states of India, under which much land was held directly by the ruler but with tracts, sometimes as large as two or three districts,[4/] granted to individuals (Jagirdars) as tax exempt estates with rights to collect and retain rent, in return of administrative responsibilities on behalf of the ruler.

Yet another system, the Mahalwari system or the community tenure system existed in different parts of the country, under which the entire village community was held responsible for payment of revenue to the state. Under this system exploitation occurred through the agents appointed by the state to look after the collection of revenue from the community.

4/ Area of a district on an average would be between 4, 000 to 6, 000 sq. kms.

Land Reform Policy in India

The problem of ownership structures and cultivating rights became more complex in the twentieth century as the rapid growth of population placed unprecedented pressures on land. The growth of a money economy led to extensive alienation of land from agriculturists to nonagriculturists. The semifeudal land system with prestige attached to the ownership of land, resulted in absentee landlordism, thus divorcing ownership from cultivation. By the end of the British administration, 75 percent of the cultivated area was known to be under tenant cultivation with varying degree of rights and liabilities (Nanavati and Anjaria 1965: 198). A steady reduction of the cultivating class and a disproportionate emergence of the agricultural labor class had rendered the rural sector largely indebted, underemployed and debilitated.

Though piecemeal attempts were made in pre-independence India to eliminate some of the shortcomings of the land tenure relations, the first comprehensive statement on land policy is contained in the Report of the Agrarian Reforms Committee, appointed by the President of independent India's National Congress in 1948. The broad principles, laid down by the Agrarian Reforms Committee were as follows:

1) Removal of intermediaries with a view to redeeming the

farmer from age-long exploitation and with the objective of providing an opportunity and scope for development of the tiller,

2) Maximum efficiency in production,

3) For individual economic holdings, service co-operative organizations for credit and sale,

4) For uneconomic holdings, co-operative joint farming, enforced with a degree of compulsion,

5) On reclaimed lands, collectives organized for landless laborers, and

6) State farms were to be limited to research operations.

Five Year Plans

Amongst the variety of developmental programs that were undertaken through the five year plans after the institution of the democratic system, agricultural development occupied key importance in the national planning. The first five year plan in its statement of land policy endorses the recommendations of the Agrarian Reforms Committee. Emphasizing the need for increased production, the National Planning Committee also mentions that the land policy be such that it reduces disparities in wealth and income, eliminates exploitation, provides security for tenants and workers and promises equity of status and opportunity to various sections of rural society (Planning Commission 1950: 184).

Under the first Five Year Plan (1951-1955), abolition of intermediaries was taken up in all states. Simultaneously tenancy legislations were also enacted with objectives of reduction of rent, security of tenure and the option of purchase of land by the tenant.[5/]

Along with the reform, so as to bring about a change in the rural attitude towards developmental programs, a Community Development program was initiated in 1952. The plan also made massive provisions for electric power and irrigation, keeping in view the need for water in Indian agriculture (see Table 1).

Under the second plan (1955-56 to 59-70), ceilings on agricultural holdings and land consolidations were conceived as measures of Land Reform. The key idea however, was to put restraint on future acquisition of land and to avoid further worsening of the existing order.

A significant departure from the earlier recommendations towards individual ownership by the Agrarian Reforms Committee occurred during the 64th plenary session of the Indian National Congress in 1958 (second plan period). The future agrarian pattern of India was recommended to be co-operative joint farming.

[5/] Under the constitution of India, land reform legislation as well as most other aspects of agriculture were reserved for the state legislature, keeping with the geo-socio-economic diversity of the Indian subcontinent.

Table 1. Planned Public Development Outlay, India

Percentage share devoted to:	First five-year plan, 1950/1-1955/6					Second, 1956/7-1960/1					Third, 1961/2-1965/6			Fourth 1966/7-1970/1	
	Draft out-line	Plan	Revised plan	"Adjusted" plan	Realized	Draft out-line	Plan	Plan (1st revi-sion)	Plan (2nd revi-sion)	Real-ized	Draft out-line	Plan	Likely reali-zation	Memo-randum	Draft out-line
Agriculture, community development, co-operation	12.8	17.4	15.8	14.9	14.8	11.8	11.8	11.8	11.3	11.5		14.2	12.8	15.4	15.1
Irrigation and Flood control			16.3 .7			9.5	10.1			9.1	23.1	8.7	7.6	6.4	6.0
Power	30.2	27.2	11.3	7.2	29.1	9.2	8.9	17.9	18.2	9.7	12.8	13.5	14.6	12.5	12.7

Source: Streedan, Paul and Lipton, Michael; The Crisis of Indian Planning, Oxford University Press, 1968: p. 86.

For the first time a single universal mode was recommended for the entire agricultural sector since the Agrarian Reforms Committee's pluralistic recommendations of individual peasant farming for the economic holdings and co-operative farming for the uneconomic holding (Khusro and Agrawal 1961: 36). The directives were that impositions of ceilings were to be completed in all states by 1959 and co-operative farming was to be encouraged. The surplus land vested to the state through ceilings was to be brought under co-operative farming by landless laborers and small peasants. Thus, the main objectives of Land Reform program in India can be summarized as follows:

1) Abolition of intermediaries or Zamindari and Jagirdari rights.

2) Tenancy legislation aimed at fixing the maximum rent, security of tenure and provision of purchase of land by the tenant.

3) Placing ceiling on individual holdings.

4) Encouraging co-operative farming.

The first two provisions were aimed at eliminating the institutional burdens on the tiller in order that he could be led towards optimum productive efficiency. Ceilings legislation was aimed at obtaining an equitable distribution of property in land. The last provision was aimed at improving land use practices in the low productive, subsistence sector.

Legislative Action on Land Reform in Madhya Pradesh

Consistent with the recommendations of the Agrarian Reforms Commission and the outlines of the First Five Year Plan, the four contiguous states of (1) Mahakoshal, also known as Old Madhya Pradesh, (2) Madhyabharat, (3) Vindhya Pradesh, and (4) Bhopal, later to be amalgamated into a single state of Madhya Pradesh in 1956 (Fig. 1), instituted the legislation in favor of abolition of intermediaries. The enactment dates and the titles in different states are as under:

1. Madhya Pradesh Abolition of Proprietory Rights Act 1950 (Mahakoshal region).

2. Madhya Bharat Abolition of Jagirdari Act 1950.

   Madhya Bharat Abolition of Zamindari Act 1951.

3. Abolition of Jagirdari and Land Reforms Act 1952 (Vindhya Pradesh).

It is relevant to make a note here that the boundaries of the states of Vindhya Pradesh and Bhopal coincided with the feudal territories of Rewa and Bhopal of the pre-independence era. The state of Madhya Bharat included within its territory the pre-independence feudal states of Holkar and Gwalior. Naturally, the predominant tenure pattern in these areas was the Jagirdari and the Mahalwari system. The state of Mahakoshal was a British

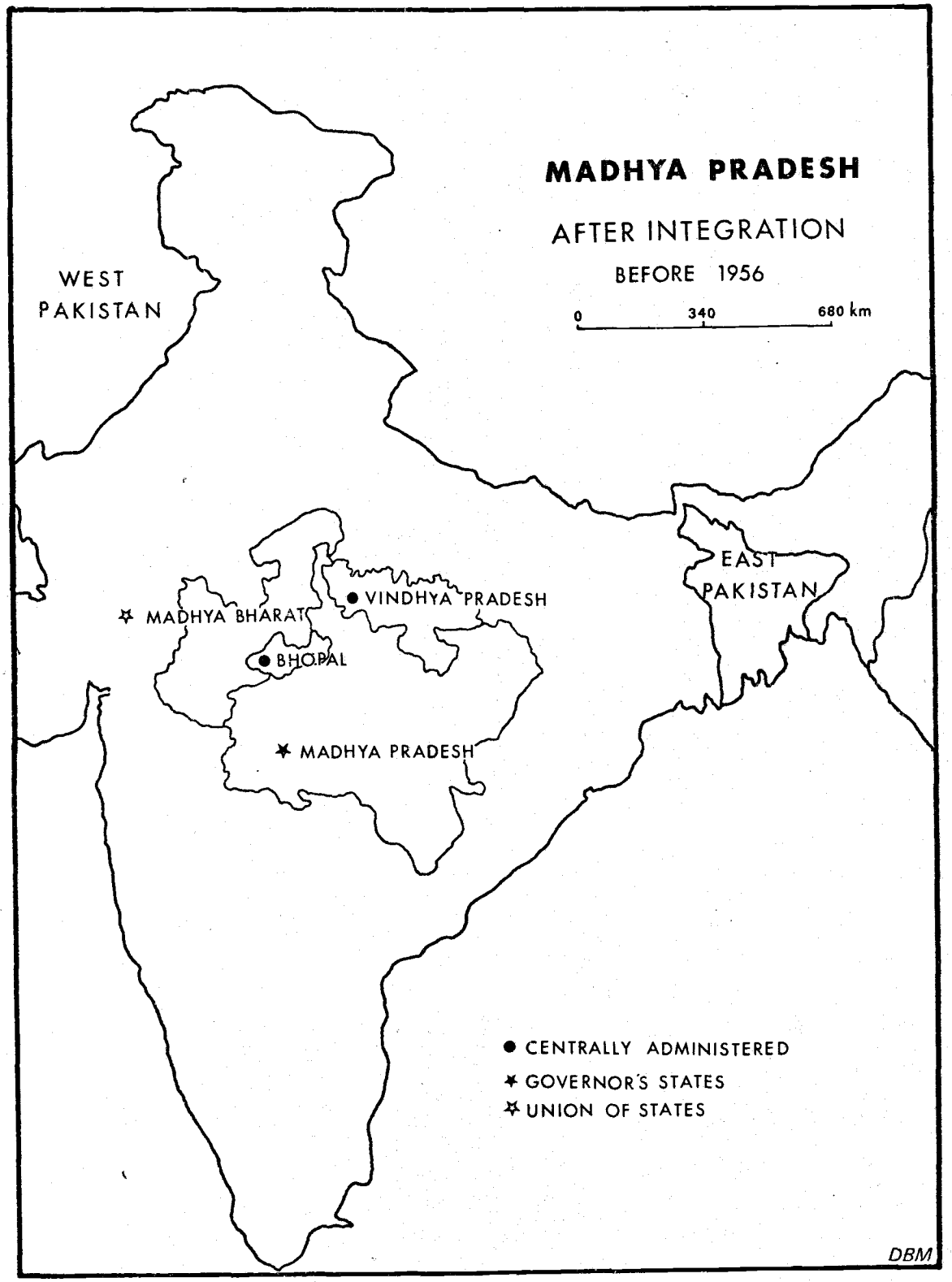

Figure 1. States integrated to form the State of Madhya Pradesh in 1956

administered territory with Ryotwari or peasant proprietorship type of tenure. However, even in this system, sporadic cases of Jamindari tenure patterns could be encountered by way of subletting the land and becoming absentee landlords. Such cases and their dimensions of effect were much less, compared to a typically Zamindari or Jagirdari area.

Subsequent to the enactment of the Abolition of Zamindari Act in 1950 in Mahakoshal, Madhya Pradesh Land Revenue Code was enacted in 1954 with a view to establish a uniform law to suit the Ryotwari (peasant proprietory) areas. The act recognized only two types of tenure; the Bhumiswamis or the land owner and the Bhumidhari or the landholder. The law enabled a Bhumidhari to acquire rights of ownership by depositing three times the land revenue he paid to the owner.

Madhya Pradesh Land Revenue Code, 1959

The new state of Madhya Pradesh came into existence on November 1, 1956 (Fig. 2). At this time, although the Abolition of Zamindari and Jagirdari Act had been enacted separately in all the four states that now constituted the state of Madhya Pradesh, variations in terms and conditions of tenure, revenue and taxation existed in different parts of the state. Realizing the need for a common code for the entire state, Madhya Pradesh Land Revenue Code

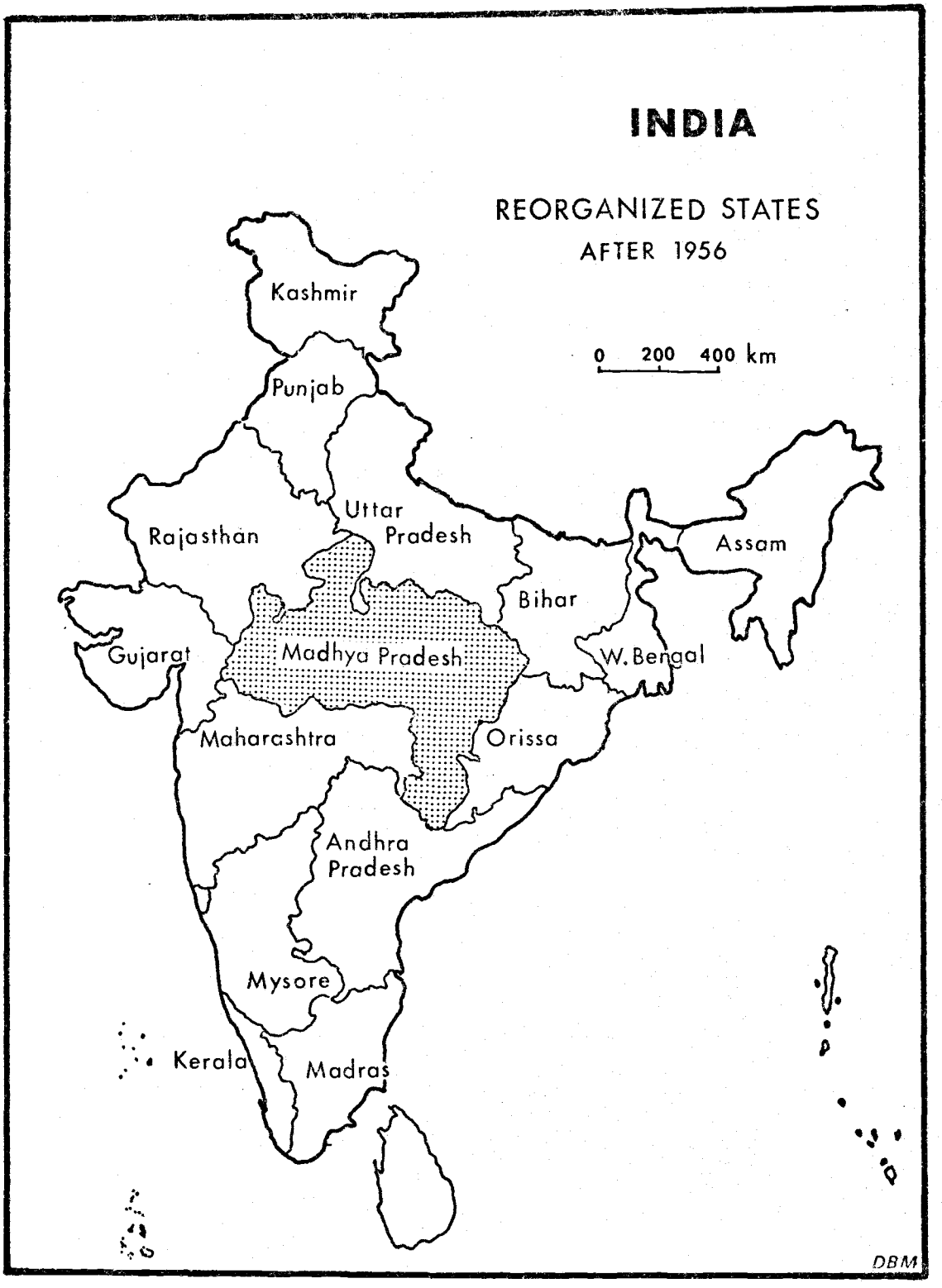

Figure 2. The State of Madhya Pradesh after the reorganization of states in 1956

was enacted by the state legislature by October 1959.

The intent of the Code was to eliminate exploitative institutionalized structures and establish an atmosphere of justice and freedom under which the peasant proprietors could conduct their economic activity toward economic betterment.

The law recognizes only one class of tenure holders, the "Bhumiswamis" who is a full peasant proprietor (sections 156 and 157 of the Code). The Code contains provisions forbidding leasing out land held by a Bhumiswami (section 168) for more than one year, in contravention of which the rights of occupancy tenant (section 169) and finally a peasant proprietor shall accrue to such lessee. Further, the law prohibits the transfer or sale of land if the acquired land together with the already held land by the beneficiary would exceed limits as may be prescribed by the Ceilings legislation. The law also provides provision for reinstatements of the occupancy tenants wrongfully ejected or dispossessed of land held during three years immediately preceding the enactment of the Code (sections 202 and 250). However, a Bhumiswami, whose land was held by an occupancy tenant and whose area under personal cultivation happened to be below 25 acres of unirrigated land, could request for resumption of land held by his occupancy tenant for personal

cultivation section 188.[6/] Maximum rent was fixed at four times the land revenue on irrigated lands and two times the land revenue in other cases.

Section 205 of the Code contains provision for consolidation of holdings, meaning a redistribution of all or any of the land in a village, so as to allot to the Bhumiswamis contiguous plots of land. Proceedings for consolidation could be initiated in a village under conditions, a few of which are:

1) Two or more land owners, holding together a land, specified as minimum under section 221 of the Code, apply in writing.

2) Administrator may direct a consolidation scheme for his area.

3) Two-thirds of the land owners apply for consolidation (Ghatia and Pilodiya 1974: 214-17).

M.P. Ceilings of Agricultural Holdings Act 1960/1974

The reform aiming at equitable distribution of land was introduced through the M.P. Ceilings on Agricultural Holdings Act initiated in 1960 and later amended radically in 1974. The law aims at fixing limits to the size of holdings and also on future acquisitions of agricultural land. The surplus land thus vested in the government

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6/ Two acres of unirrigated land was deemed equal to one acre of irrigated land.

is to be allotted on payment of occupancy price to needy persons and co-operative farming societies.

Provisions of ceilings under the act, amended in 1974, are shown in Table 2. In the 1960 amendment, the unit for the land was each member of the family and the ceiling limits were substantially higher. The amendment broadened the unit to a family, consisting of husband, wife and minor children and the ceiling limit has also been scaled down to 10 standard acres per holder. 7/

Disposal of Surplus Land

Surplus land, thus vested in the government was to be allotted to,

1. Agricultural laborers in the priority order of (1) scheduled castes and tribes, and (2) others;

2. Joint farming societies, consisting of mainly agricultural laborers and landless persons whose main occupation is cultivation;

3. Better farming societies whose membership consists of agricultural laborers and landless persons whose main occupation is cultivation;

4. Freedom fighters or persons who by reason of their taking

7/ See Appendix 1.1 for scale of compensation payable.

Table 2. Provisions of the Ceilings Act 1974, Madhya Pradesh

1	2	3	4
Holder	Land capable of yielding two crops with assured irrigation (acres)	Land capable of yielding one crop with assured irrigation (acres)	Dryland (acres)
1. Holder not a member of a family	10	15	30
2. Holder a member of a family of five or less	18	27	54
3. Holder a member of a family of more than five	18	27	54
4. For each member in excess of five	3	4.5	9
5. Subject to a maximum of	36	54	54

Source: Monograph of Ceiling on Agricultural Holdings Act, 1960, Government of Madhya Pradesh.

part in the National Movement prior to 1947 (1) has been sentenced to capital punishment or imprisonment exceeding six months, (2) had been permanently incapacitated on account of injuries received during the movement, and (3) had to suffer loss of property, etc.

5. Displaced tenants subject to the provisions of the Code 1959, section 202, and

6. Any other co-operative farming society.

Taxation Reforms

1. Agricultural lands under commercial crops were for the first time brought under taxation by the Madhya Pradesh Commercial Cropland Taxation Act, 1966. Exemptions were however, allowed for uneconomic holdings under commercial crop cultivation.

2. Exemptions from payment of land revenue was allowed by the Madhya Pradesh Land Revenue Code Amendment ordinance, 1968 on all uneconomic holdings up to 7.5 acres and those on which land revenue payable did not exceed Rupees five.

3. Madhya Pradesh Rural Development Tax was introduced in 1972, providing for a levy of surcharge on land revenue with a view to raise resources for schemes of rural development. The surcharge was to be at the rate specified in the first schedule, which is to be

in addition to the land revenue payable to the state government (Table 3). The proceeds of the surcharge was to be constituted in a separate fund called "Rural Development Fund" which shall be applied for purposes of all around development of the rural areas.

Table 3. First Schedule, Rural Development Tax, 1972

Holding held by a land owner or a government lessee	Rate
1. Holding more than 10 acres but does not exceed 20 acres	50% of the land revenue
2. Holding more than 20 acres but does not exceed 30 acres	75% of the land revenue
3. Holding 30 acres or more	100% of the land revenue
4. Irrigated land (Govt. source)	Rs. 5.00 per irrigated acreage of holding in excess of half an acre

Source: Ghatiya and Pilodiya, Manual of Revenue Laws is Madhya Pradesh, 1974; Lawyer's Home Indore: p. 445-47.

Implementation Record for the Study Area

The records of executive action, following reform legislation, were drawn from the feudal district of Raisen of the primary research pair (Table 4).

The record, while establishing a good implementation record of the Abolition of Intermediaries Act denotes a weak implementation of Tenancy legislation as only 12.6 percent of known tenants have been awarded rights of ownership.

Table 5 contains implementation records of the Ceilings legislation drawn from the administrator's records of the primary research pair of districts. Comparison between the two districts reveals some differences in the degree of implementation. Per case area declared as surplus on account of enforcement of ceilings is high in the feudal district of Raisen, 62.5 acres as against 9.4 acres in the nonfeudal district of Sagar, depicting the capitalistic nature of the feudal district. The taking in possession of vested land has been weak in the feudal district, 58.4 percent as compared to 91 percent in the nonfeudal district. Land redistribution has been more active in the feudal district.

Some adverse consequences of the Land Reform program have

Table 4. Implementation Record of Reform Legislation District Raisen, Primary Pair

Abolition of Jagirdars (as of Sept. 1973)	
Estimated area of vested land	456,446 hectares
Estimated land taken in possession	456,446 "
Amount of compensation paid	
Total sanctioned	Rs. 516,242.25
Paid by 1973	199,202.56
Total claimants	52
Estimated average compensation established per claimant	Rs. 9,924.75
Tenancy legislation	
Total number of occupancy tenants declared on the basis of land records	5,907
Rights given to tenants	744 (12.59%)
Rights to be given	5,163 (87.40%)
Resumption of rights by landowners	30 cases in progress

Source: Land Records Office, District of Raisen, Madhya Pradesh.

Table 5. Implementation of Ceilings Act, Primary Pair, 1975

	District Raisen (feudal)	Distrist Sagar (nonfeudal)
1. Total agricultural land (acres)	983, 000	1, 300, 000
2. Area proposed to be declared as surplus (acres)	4, 498	17, 796
3. Total cases registered	72	1, 893
4. Area declared as surplus per case (acres)	62.5	9.4
5. Number of cases on which final statements were published	65	29
6. Area declared as surplus in row 4 and vested in state government (acres)	3, 229	1, 321
7. Percent of vested land taken in possession	58.37	91
8. Land redistributed (acres)	1, 283.52	453
9. Number of beneficiaries	136	68
10. Estimation of land awarded per capita (acres)	9.43	6.66
11. Landless laboring population	73, 473	91, 335
12. Percent agricultural labor population benefitted	.18	.07
13. Male rural population	49, 995	58, 324
14. Percent male rural population benefitted	.27	.11

Source: Administrator's Office, Districts of Raisen and Sagar, Madhya Pradesh, 1975.

been that (1) the tenancy legislation has led to dispossessing the cultivator of his rights by all kinds of dubious methods including tenancy arrangements on verbal terms and the practice of share-cropping, (2) little implementation of legislations on rent reduction owing to shortage of land in relation to the demand for it, (3) sub-division of land by large landholders into small parcels within the family groups to evade ceilings imposition and confiscation by the state, and (4) under the system of priority for allotment of vested land, scheduled castes, freedom fighters and their descendants, farming societies hold priorities over displaced tenants for ownership of land.

Summary

Although, the basic content of land reform lies in the structural reorganization of the rural sector, it is idealized that economic pressures of population and food supply have lent it a compulsive significance of economic efficiency through institutional reform. India's land reform program, theoretically followed these very objectives in outlining its goals of (1) removal of institutional constraints on the farmer in order to (2) assist him to operate with efficiency. Following the guidelines of the Agrarian Reforms Committee and National Planning Council, Madhya Pradesh had enforced the reform legislations regarding abolition of intermediaries,

security to tenants, effecting a ceiling on holding and consolidation of holdings. In spite of the enactment of the pieces of legislation and their validity in terms of the socio-economic needs of the state, the records of implementation drawn from the feudal and nonfeudal districts of the primary research pair exhibit a weak implementation will as obstacle to reform measures.

A detail description of the study area and comparative analysis of the changes in the rural structure and production practices between the feudal and the nonfeudal districts is undertaken in the next chapter.

IV. COMPARATIVE DESCRIPTION OF THE PAIRS OF DISTRICTS WITH FEUDAL AND NONFEUDAL BACKGROUND

The present chapter is devoted to a descriptive comparison of the pairs of districts with feudal and nonfeudal background, their physical characteristics, history pertaining to the feudal and the nonfeudal background, land tenure and ownership structures, agricultural patterns of land use, crops and governmental development administration. The description under each heading is undertaken separately for each of the two pairs of feudal and nonfeudal districts.

Study Area

The macro study area is the state of Madhya Pradesh, centrally located in India, extending from 18 to 26 degrees and 30 minutes north latitude and from 74 to 84 degrees and 30 minutes east meridian (Fig. 3). It is the largest state of India, having an area of 442, 841 sq. kms (170, 980 sq. miles). The population according to the 1971 census was 41.6 million. The rural population was 34.8 million. Rural density is low compared to other agricultural states of India.

The study area in Madhya Pradesh consists of two pairs of districts. The primary research pair lies in the middle east of the state and consists of the feudal district of Raisen and the non-

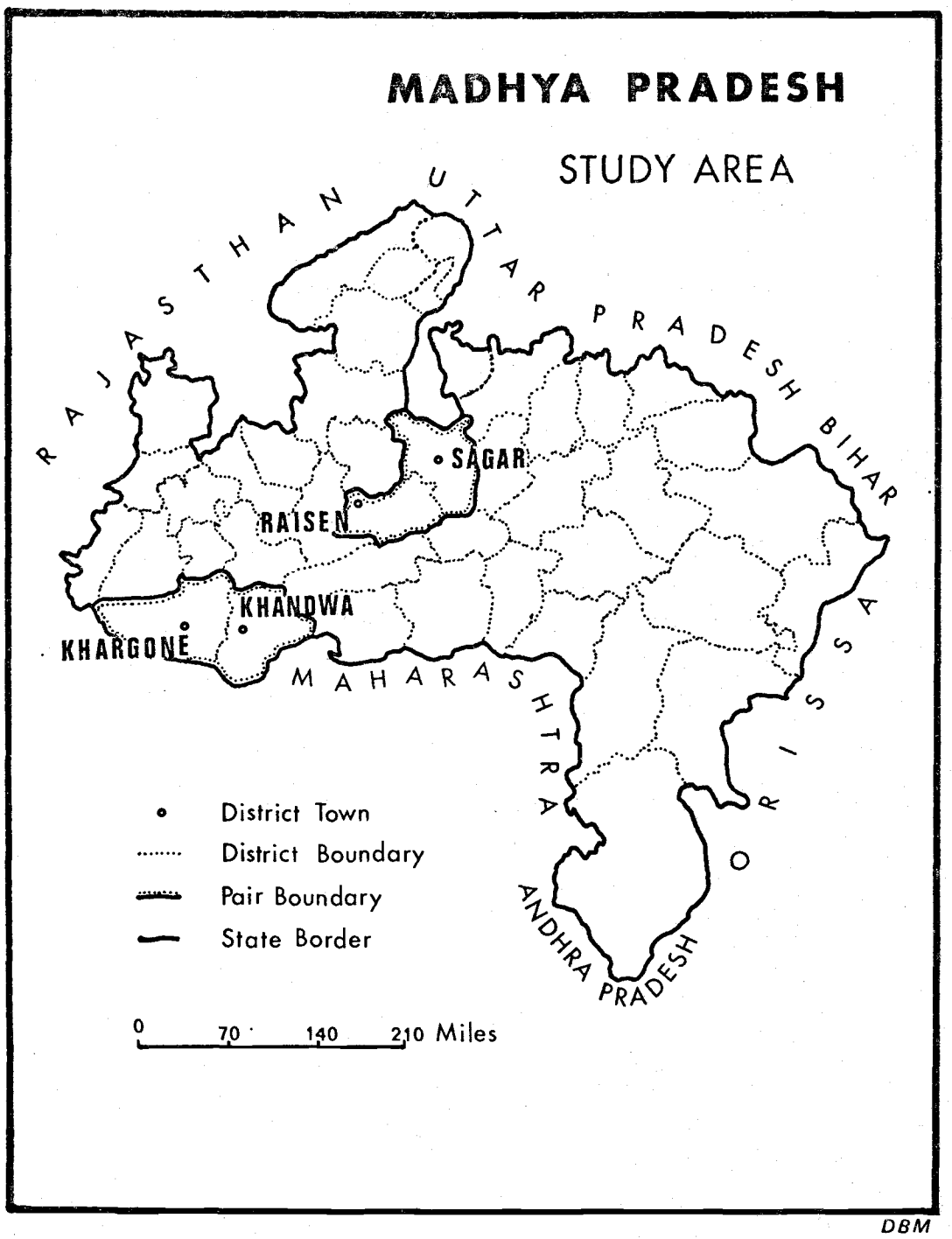

Figure 3. Study area in Madhya Pradesh

Primary pair: District Raisen (feudal) and Sagar (nonfeudal).
Secondary pair: District Khargone (feudal) and Khandwa (nonfeudal).

feudal district of Sagar, having an area of 6, 483 and 6, 374 sq. kms, respectively. The secondary pair is located in the southwestern part of the state and consists of the feudal district of Khargone and the nonfeudal district of Khandwa, having an area of 13, 483 and 10, 702 sq. kms, respectively (Fig. 3). The districts in the pairs were selected to possess similar physical environment in order that this factor could act as a control in the analysis. Nevertheless, a brief description of land forms, climate and soils was included.

Landform and Soils

The primary pair is located in what is known as the Malwa Plateau having an average elevation of 400-600 meters (Fig. 4). The Malwa Plateau, surrounded in the northwest by the Cambrian ranges of the Arravalis, in the north-northeast by the gneissic block of Bundelkhand and in the south by the Vindhyan Hills, is divisible into two physical units (Fig. 5):

1. The Vindhyan sandstone in the north forming a harsh rugged territory with only a few inches of soil, and

2. The Deccan lava to the south, rising gently, forms plains with deep lava soils providing a good agricultural base (Spate 1967: 611-622).

The soils can be roughly grouped under three heads:

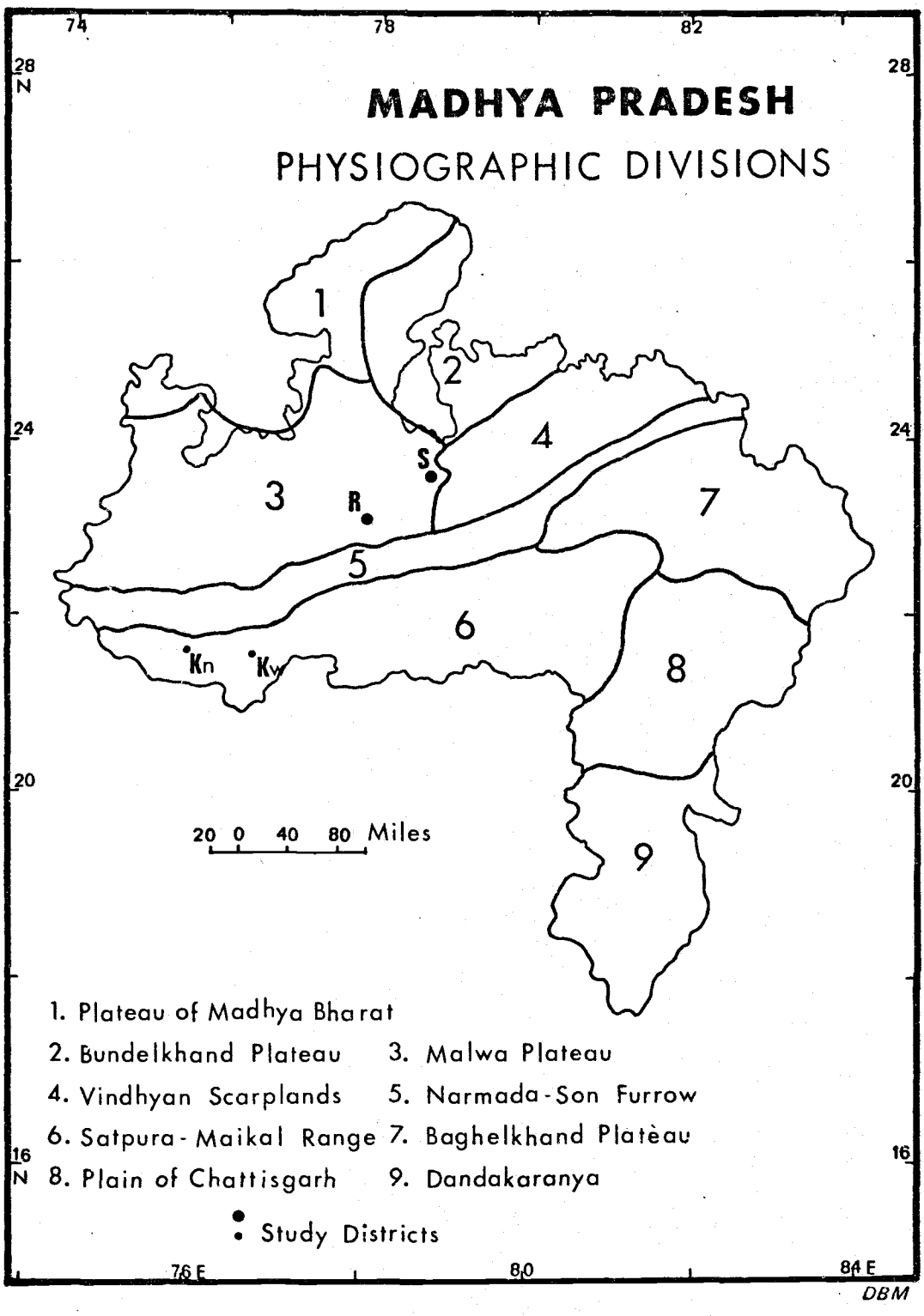

Figure 4. Physiographic divisions of Madhya Pradesh.

Adopted from P. Kumar. Madhya Pradesh: Ek Bhogolik Adhyayan, Madhya Pradesh Granth Akademy 1972.

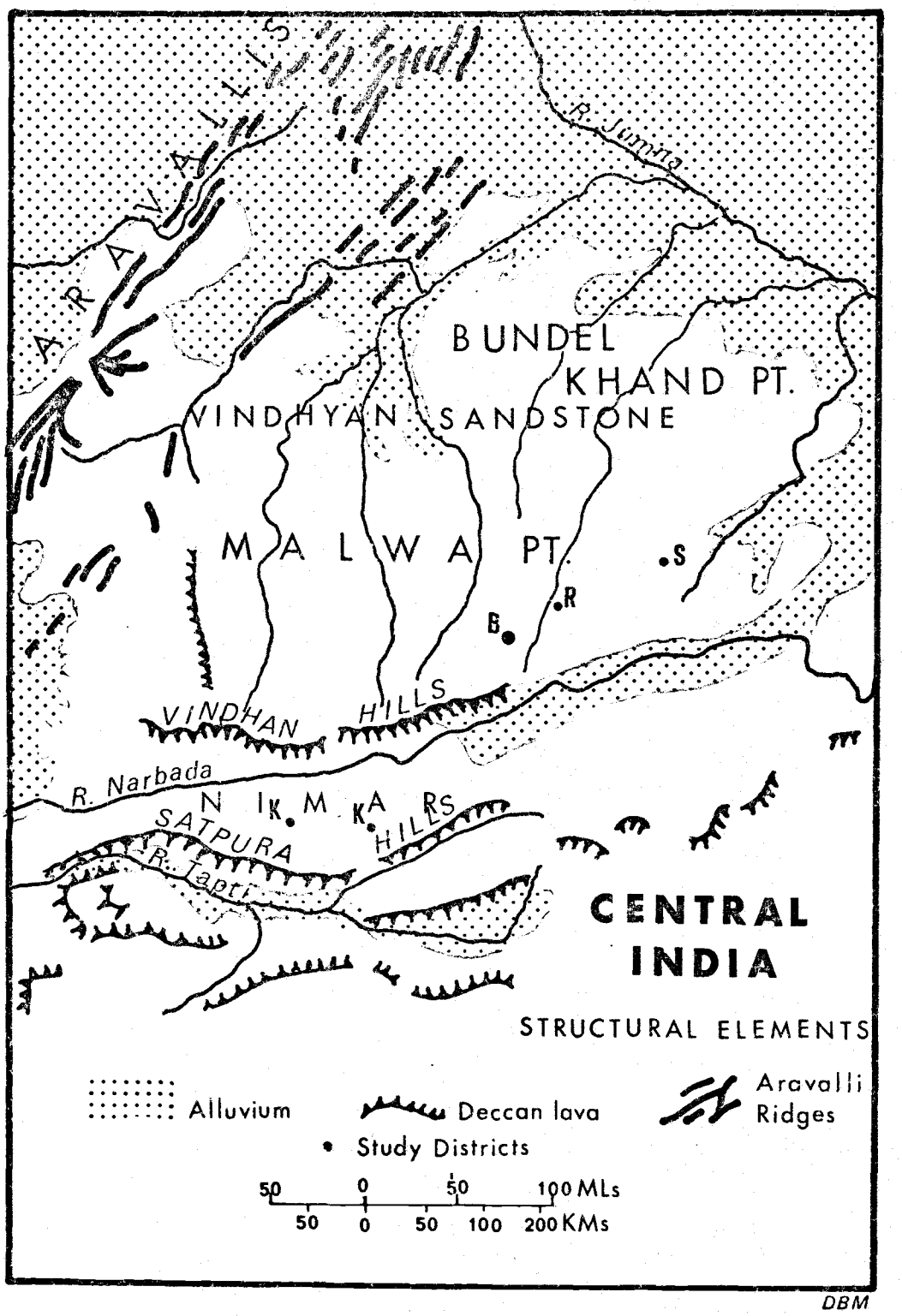

Figure 5. Structural elements: Central India.

Adopted from O. H. K. Spate, Regional Geography of India, Methuen and Co. London, 1967.

1. Soils developed from weathered sandstone, locally known as Siari or Sehra, reddish brown in color and sandy and loose in texture, but shallow.

2. Soils developed from weathered lava or Rayan soils, almost coal black in color.

3. Soils of alluvial deposits, greyish brown in color which are subdivided into (a) clayey soils of great depth, locally known as Kabar and (b) lighter and more friable loam locally known as Mund or Bhanwar. Both soils grow good crops except the clay soil that is hard to work in monsoon months, becoming sticky when wet and hard when dry, thus restricting the monsoon crop acreages.

The secondary pair, consisting of the feudal district of Khargone and the nonfeudal district of Khandwa falls in the physiographic division of the Narmada-Son forrow (Fig. 4), a fault trough formed during the Himalayan folding, now floored with alluvium to an approximate depth of 500 feet (Spate 1967: 20-22). The pair is located in the Nimar Plain (Fig. 5) that has an average elevation of 300 meters. The two districts in the pair are located so that the river's southern valley floor forms the northern and central sectors of the district Khargone, whereas it covers most of the northern part of the district of Khandwa.

The weathered basalt forms the parent material of the black soils of the area which vary in depth from a few inches on the top

of the ridges to three to four feet and sometimes 10 feet in the valleys and valley bottoms. The soils are grouped under the following categories:

1. The deep low lying clay soil, locally known as Gata, having high moisture retention capacities, capable of being double cropped without irrigation in normal rainfall years,

2. The deep flat land soil known as Thawar and commonly cropped with cotton.

3. Light soils on uneven surface with pervious subsoil, good drainage and capable of growing winter crop, given sufficient rainfall.

4. Poor soils of shallow depths, intermixed with limestone and trap pebbles, capable of growing only monsoon crops and left fallow occasionally.

Climate

The tropical monsoon climate prevails in the entire area. The winter month averages of minimum temperatures for the district of Sagar is between 10 to 15 degrees C, whereas the summer month averages of maximum temperature are between 32 to 36 degrees C, varying slightly with elevation (Table 6), [8/] which is considered representative of the primary pair.

The rainfall associated with the summer monsoon occurs over

8/ Parallel data for other districts was not available.

Table 6. Normals of Temperature and Relative Humidity (1901-58), District Sagar, Primary Research Pair. Average Elevation 453-533 Meters.

Month	Mean daily max. temp. C.	Mean daily min. temp. C.	Relative humidity	
			8:30 a.m.	5:50 p.m.
January	24.7	11.3	53	40
February	26.9	13.2	44	29
March	32.6	18.3	30	18
April	37.6	23.2	24	14
May	40.4	26.5	28	15
June	36.9	25.7	57	47
July	29.8	23.3	84	79
August	28.6	22.6	86	80
September	30.1	21.9	80	69
October	31.1	19.1	54	40
November	27.8	14.7	46	34
December	24.9	11.8	51	35
Annual	30.9	19.3	53	42

Source: Gazetteer of India Series, District Sagar, Covernment of Madhya Pradesh Department of District Gazetteer 1967.

the area from July through September. In addition, summer storms are caused by the inter-tropical convergence systems. The average rainfall for the primary pair is slightly higher, averaging between 1, 000 to 1, 200 mms annually, as compared to the secondary pair which averages between 800 to 900 mms. Yearly variations are however, less marked for the secondary pair in comparison to the primary research pair (Table 7).

During the winter season, occasional cyclonic disturbances

Table 7. Frequency of Annual Rainfall, 1900-1950. Primary and Secondary Pair

Range in mm.		Number of years	
		Raisen	Sagar
1.	600-700		2
2.	701-800	1	2
3.	801-900	2	2
4.	901-1000	3	4
5.	1001-1100	4	8
6.	1101-1200	11	9
7.	1201-1300	4	7
8.	1301-1400	5	7
9.	1401-1500	4	3
10.	1501-1600	7	4
11.	1601-1700	1	0
12.	1701-1800	1	2
		Khargone	Khandwa
1.	301-400	4	-
2.	401-500	5	3
3.	501-600	7	5
4.	601-700	10	4
5.	701-800	9	9
6.	801-900	9	5
7.	901-1000	1	10
8.	1001-1100	4	5
9.	1101-1200	0	6
10.	1201-1300	1	2
11.	1301-1400	-	0
12.	1401-1400	-	1
13.	1501-1600	-	0

Source: District Gazetteer Department, Government of Madhya Pradesh, Gazetteer of India, Districts of Raisen, Sagar, West Nimar (Khargone) and East Nimar (Khandwa), Government Printing Press, Bhopal, 1967.

move across the area, causing showers, ideal for the winter crop. Winter fluctuations of rain affect agricultural operations more strongly in the primary research pair (Table 8).

Table 8. Average Winter Rainfall in District Raisen (Primary Pair) During 1961-68 (in mm)

Years	Nov	Dec	Jan
1961	nil	nil	-
1962	nil	14.8	21
1963	9.9	-	8.4
1964	-	-	nil
1965	-	29.7	2.3
1966	28.7	2.2	8.4
1967	-	24.2	-
1968	NA	NA	7.5

Source: Unpublished Gazetteer of District Raisen, District Gazetteer Department, Madhya Pradesh.

History of Contrasting Feudal and Nonfeudal Background

The pairs of districts, as stated in Chapter I, were selected in a manner that one district in the pair has a background of long standing feudal control, whereas the other district is of nonfeudalistic background. A short historical account of the feudal and the nonfeudal backgrounds of the study area is given in order to provide an understanding of the differential administrative controls and the resultant agricultural administration.

The muslim state of Bhopal which includes the feudal district of Raisen of the primary research pair was founded more than 250

years ago by an Afghan general who received the state as a gift from Moghul emperor Aurangzeb for his distinctive service. At his time most of the Raisen district became a part of the principality of Bhopal and remained so until the reorganization of the new state of Madhya Pradesh in 1956, when it became a district within Bhopal division.

The continguous district of Sagar in the primary research pair had been under British administration since the British took it over from the Marathas in 1818. Sagar district formed part of a division in the central provinces until after independence when the district became a part of the state of Mahakoshal and later was reorganized and added to the larger state of Madhya Pradesh.

The feudal state of Holkar of which the district of Khargone in the secondary pair was a part, was established in 1868, when the Holkar dynasty of the Marathas acquired full control of the Nimar plain. The Holkars retained control of the area until 1948 when the Holkar state was merged with the Indian Union and formed into a constituent part of Madhya Bharat. 9/

9/ See Figure 2 for location of Madhya Bharat. Also for detail history of the area refer to:

1. Sardesai, G. S. A New History of the Marathas, 1946-48, Bombay.
2. Cambridge History of India, Vol. 3, 1928, Cambridge.

Earlier to the formation of the state of Holkar, British acquired control of East Nimar, following the war between the Marathas and the British and retained it under the organization of Nimar Agency, administered by the British agent for central India (Gazetteer Khandwa 1969: 75).

Tenure Structures and Revenue Administration Under Feudal and Nonfeudal Control

The study areas within Madhya Pradesh thus inherited different kinds of land tenure structures and revenue administration, resulting from a history of different administrative controls. The different kinds of tenure that prevailed in the pre-independence period in the study area are discussed below:

Ryotwari System

The British administration areas had developed the "Ryotwari" system of peasant proprietorship. The system was developed out of the "Khalsa" system practiced by the preceding Maratha rulers. The way the two systems differed was that in the Ryotwari system the cultivator was recognized as practically the proprietor of the holding with unrestricted rights of transfer and responsibilities of revenue payment direct to the state. In the Khalsa system, on the other hand, the ruler was the sovereign and owner of the state. The cultivator

only possessed the cultivating rights and payments on land were made as rent and not as revenue (Gazetteer West Nimar 1969: 240).

Jagirdari System

This system prevailed only under feudal administration. Under the system, a village or a number of villages was awarded as reward to individuals. Such areas were exempt from revenue charges by the state and hence known as alienated lands and the Jagirdar or the owner of such land was the recipient of the tax collections. Being independent of any tax controls by the ruler, such villages were left untouched by successive land settlement operations.

Malguzari System

The system existed in some areas, mostly under feudal control, in which the responsibility of collection and payment of land revenue for the entire village rested with the person, the Malguzar.[10/] Sometimes aided by agents, these Malguzars were held under contract by the state and received commission for their service. The status of village Patel or chief was negligible in such areas.

10/ The system is known by different names in different areas. It is called Mustajiri in the state of Bhopal, Ijaradari in the state of Holkar and Mahalwari elsewhere.

Tenure Systems in the Research Pairs

In the primary research pair, the feudalistic district of Raisen had two systems of land tenure (1) Khalsa or Kham and (2) Alienated. Khalsa or Kham lands were administered directly by the ruler through his own officials whereas Alienated lands were held by the Jagirdars. After the settlement of 1909-10, the officials or Mustajirs under the Khalsa system were awarded rights of hereditary occupancy and control over transfer of land and rights to eject the cultivator under specific conditions. Further, a certain amount of land was assigned to a Mustajir for him to cultivate or sublet.

In the course of a decade or two, the system started showing signs of degeneration. As an effort towards reform, the system was substituted for Ryotwari or peasant proprietory, placing the state in direct charge of the cultivators. Feudal concessions were however, granted to ex-Mustajirs which continued to be avenues of exploitation in the rural area.

The rest of the feudal area in the district, not covered by the Khalsa system, was under the Jagirdari system, mainly held by the members and relatives of the royal family.

In the secondary pair, parallel tenure patterns of Jagirdari and Ijaradari had existed, Ryotwari system was however

introduced in all areas except those held under Jagirdars as early as 1908-9. During 1929 settlement provisions, increasing evils of subletting were consciously revised and restrictions were levied. Tenants were classified under (1) unprotected tenants whose number was systematically reduced, and (2) Pattedar tenants in whose favor government issued titles and who were entitled to get their rents assessed under orders of the government. In the Jagir villages also, government was authorized to confer on a tenant cultivator the status of a Pattedar tenant after defining the home farm, if any of the Jagirdar (Gazetteer West Nimar 1970: 257-59).

Alongside these feudal tenure patterns of the districts of Raisen (primary pair) and the district of Khargone (secondary pair), peasant proprietory tenure system existed in the British administered districts of Sagar (primary pair) and Khandwa (secondary pair). Exploitation of the peasant sector was much less in such areas compared to the Ryotwari established in the feudal areas. As a feudal system, the Holkar's State of the secondary pair presented evidences of progressiveness compared to the State of Bhopal of the primary pair in reorganization of the rural tenure.

Agricultural Administration Since Formation of Madhya Pradesh

After the formation of the state in 1958, Land Revenue Code of

Madhya Pradesh was enacted in 1959. The code brought the whole state under uniform administrative and tenure pattern. The code recognizes only one class of cultivators, the "Bhumiswamis" or the landowners. Tenancy was found to be almost eliminated in the study area, barring some stray cases of tenancy and share cropping practiced under verbal terms. Sharecroppers commonly were found to be owners of some land. In addition, the sharecroppers were found to be renting land from a big landholder who did not care to cultivate part of his land or from a marginal farmer who lacked capital to farm his land.

The Department of Land Revenue deals with the collection of revenue. The State Land Records Office handles all the record keeping of resources related to agriculture. The Department of Agriculture handles the developmental programs and plans.

The land revenue, last reviewed in 1901-11, underwent change in 1967 since the enactment of the Code in 1959. Accordingly, all agricultural holdings not exceeding three hectares and not exceeding a revenue charge of Rupees five were declared exempt from tax levy. Simultaneously, Agricultural Development tax was levied on all holdings exceeding three hectares and a revenue charge of Rupees five (Ghatiya and Pilodiya 1974: 445-47).

Population Structure

The study area is predominantly rural with more than 75 percent of the population in the primary and secondary research pairs being rural. The rural densities are low compared to other agricultural states of India. Percent rural literacy is between 15 to 20 in both the pairs (Tables 9 and 10).

Table 9. Population Structure (Primary Pair), 1971

	Raisen (F)	Sagar (NF)
Area (sq. miles)	2, 503	1, 461
Total population	533, 026	1, 062, 291
Rural population	522, 259	802, 033
Percent of total rural	98	75.5
Urban population	30, 767	260, 258
Scheduled castes*	91, 353	175, 110
Scheduled tribes	74, 383	-
Cultivators (rural)	75, 527	139, 738
Cultivators (urban)	1, 013	5, 197
Rural literate	88, 416	163, 665
Percent rural literate	17	15.4
Agr. laborers (rural)	73, 473	91, 335
Agr. laborers (urban)	683	2, 375
Cultivator-laborer ratio	1:1	1.5:1

*Members of the low caste and tribes are scheduled under the constitution of India as deserving special privileges.

Source: District Census Handbook, Districts of Raisen and Sagar, Madhya Pradesh Printing Press, Bhopal, 1972.

Table 10. Population Structure (Secondary Pair), 1971

	Khargone (F)	Khandwa (NF)
Area (sq. miles)	3, 751	4, 132
Total population	897, 331	1, 284, 812
Rural population	672, 850	1, 284, 812
Percent to total rural	75	86
Urban population	206, 481	182, 795
Scheduled castes	80, 185	132, 491
Scheduled tribes	66, 250	508, 247
Cultivators (rural)	129, 843	237, 785
Cultivators (urban)	1, 013	5, 197
Rural literate	142, 017	155, 525
Percent rural literate	21	14
Agr. laborers (rural)	104, 590	125, 764
Agr. laborers (urban)	2, 799	8, 288
Cultivators-laborers ratio	1:1.2	1:1.8

Source: District Census Handbook, Districts of Khargone and Khandwa, Madhya Pradesh Printing Press, Bhopal, 1971.

Occupational Structure

Comparison of the rural work force (Fig. 6) for the decade 1961 to 1971 revealed an increase in the agricultural labor class and a decrease in the cultivator class in the primary research pair. The increase in the agricultural labor class during the decade of 1961-71 was found to be greater for the feudal district (approximately 20%) compared to the nonfeudal district (12%). The cultivator class had decreased in almost the same proportions in both the districts. The results are felt to be contrary to the goals of land reform and are analyzed in detail in the next chapter.

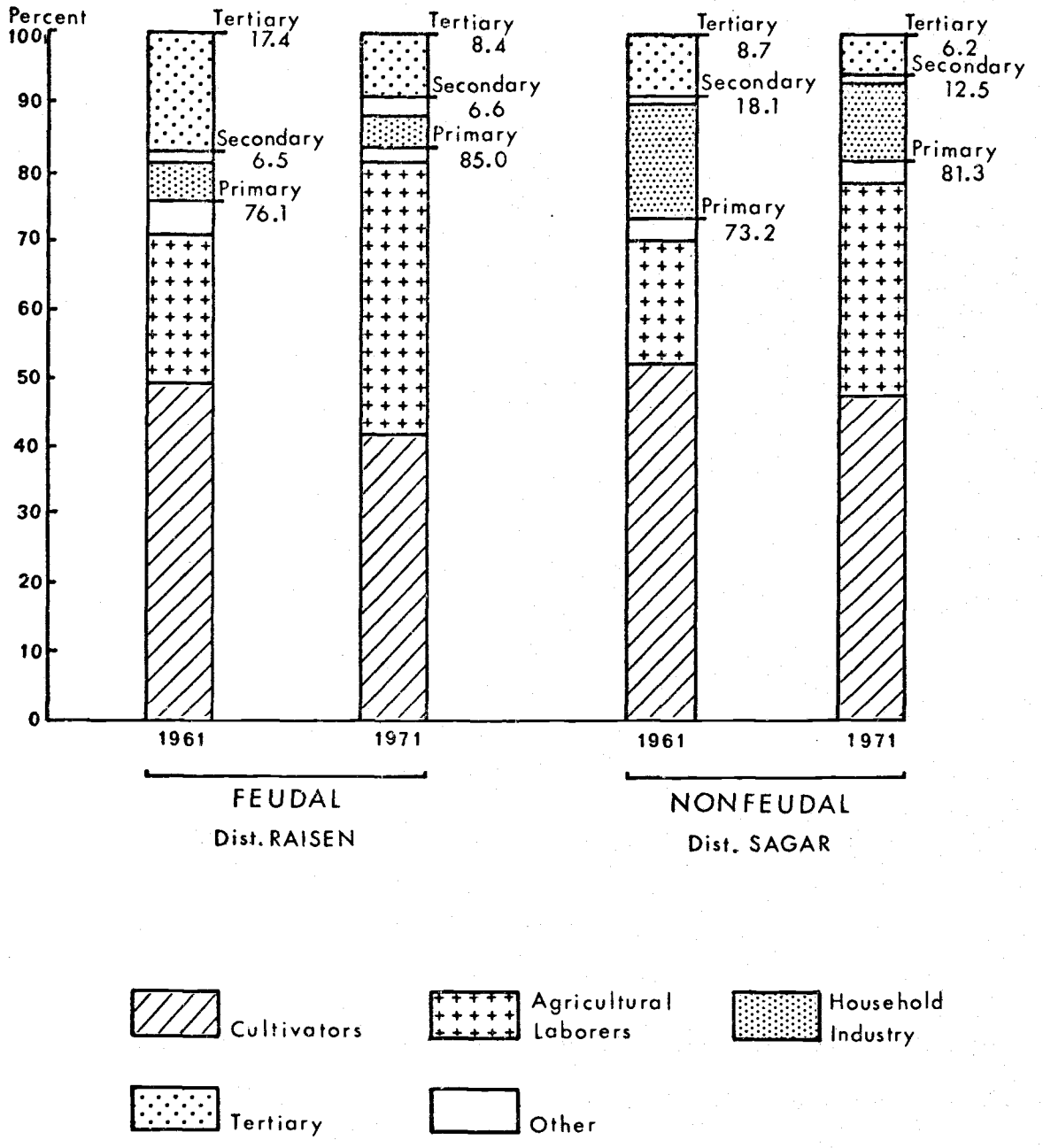

Figure 6. Rural occupational structure 1961 and 1971; District Raisen (feudal) and Sagar (nonfeudal), primary pair.

Source of Data: District Census Handbooks, 1961 and 1971, Government of Madhya Pradesh, Bhopal.

The area is characterized by a large primary sector. Majority of workers in the primary sector are in agriculture revealing the agricultural oriented economy of the area. Comparison of the primary sector during the decade of 1961-71 revealed a five to seven percent increase in the primary and the agricultural sector. The secondary and tertiary sector is small. The tertiary sector had shrunk over the decade in both the districts, suggestive of an economy becoming increasingly rural. The shrinkage of the population in the tertiary sector seemed to be greater for the feudal district.

Present Agricultural Land Use and Cropping Pattern

In both the pairs of districts, approximately 40 to 50 percent of the total land area is under cropland (Tables 11 and 12). Area double cropped is low. Pasture and grazing land forms a classification of cultivable area that is left under pasture for cattle grazing. The table revealed a greater area under permanent pasture in the non-feudal districts. Culturable waste land meant uncultivated land that could be put to cultivation immediately or in the course of years through reclamation and improvement schemes. The acreage under this category had shown a decline in the last ten years (Figs. 7 and 8). Since a sharp decline was perceived since 1966-67, a relationship was observed between the decline in culturable waste lands and the Land Revenue Code amendment of 1966-67 related to the reclamation

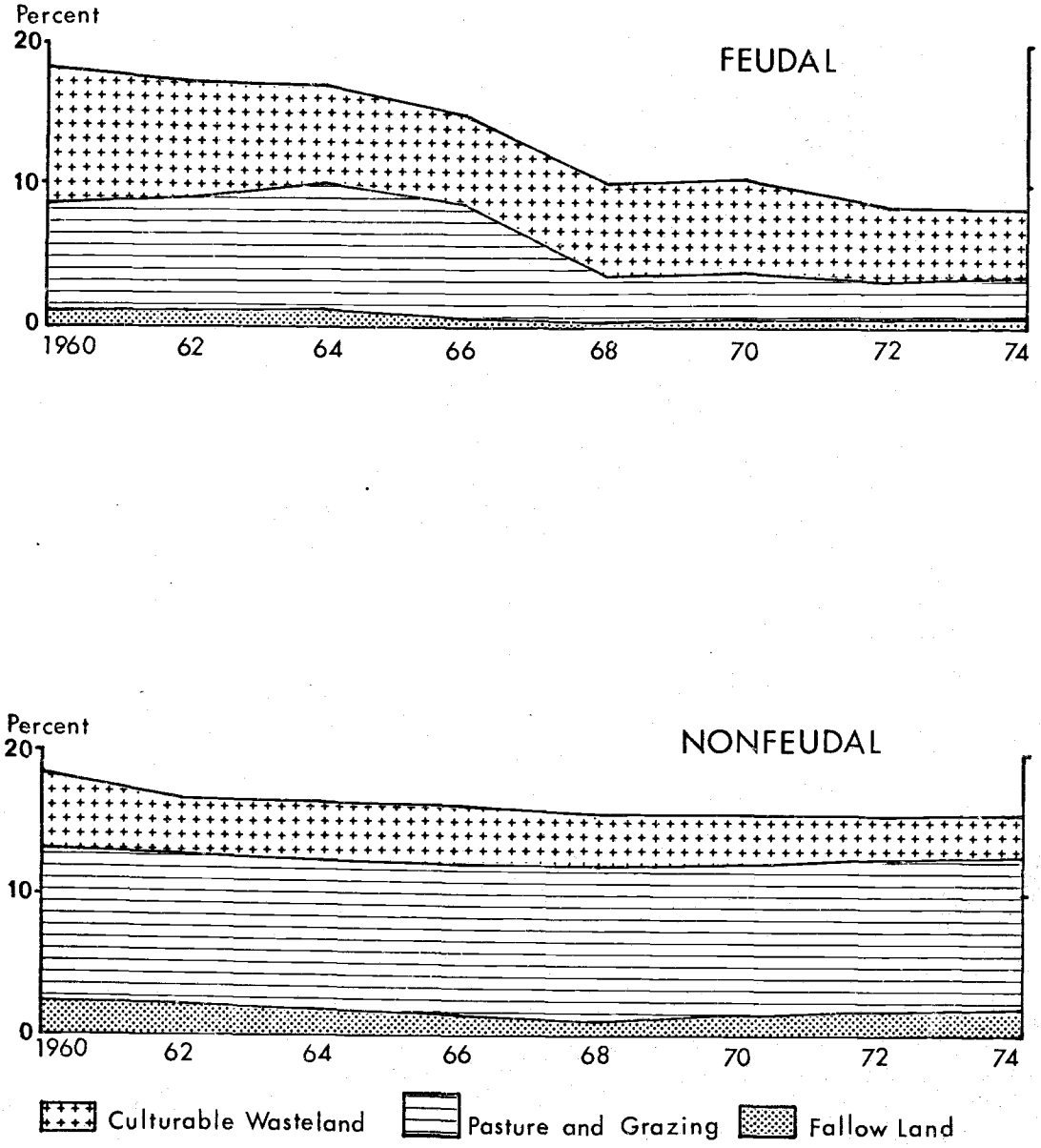

Figure 7. Trends of use under culturable waste, pasture and grazing, and fallow land (percent of total), land area, 1960-74, District Raisen (feudal) and Sagar (nonfeudal), primary pair.

Source of Date: Madhya Pradesh Directorate of Economics and Statistics, Bhopal.

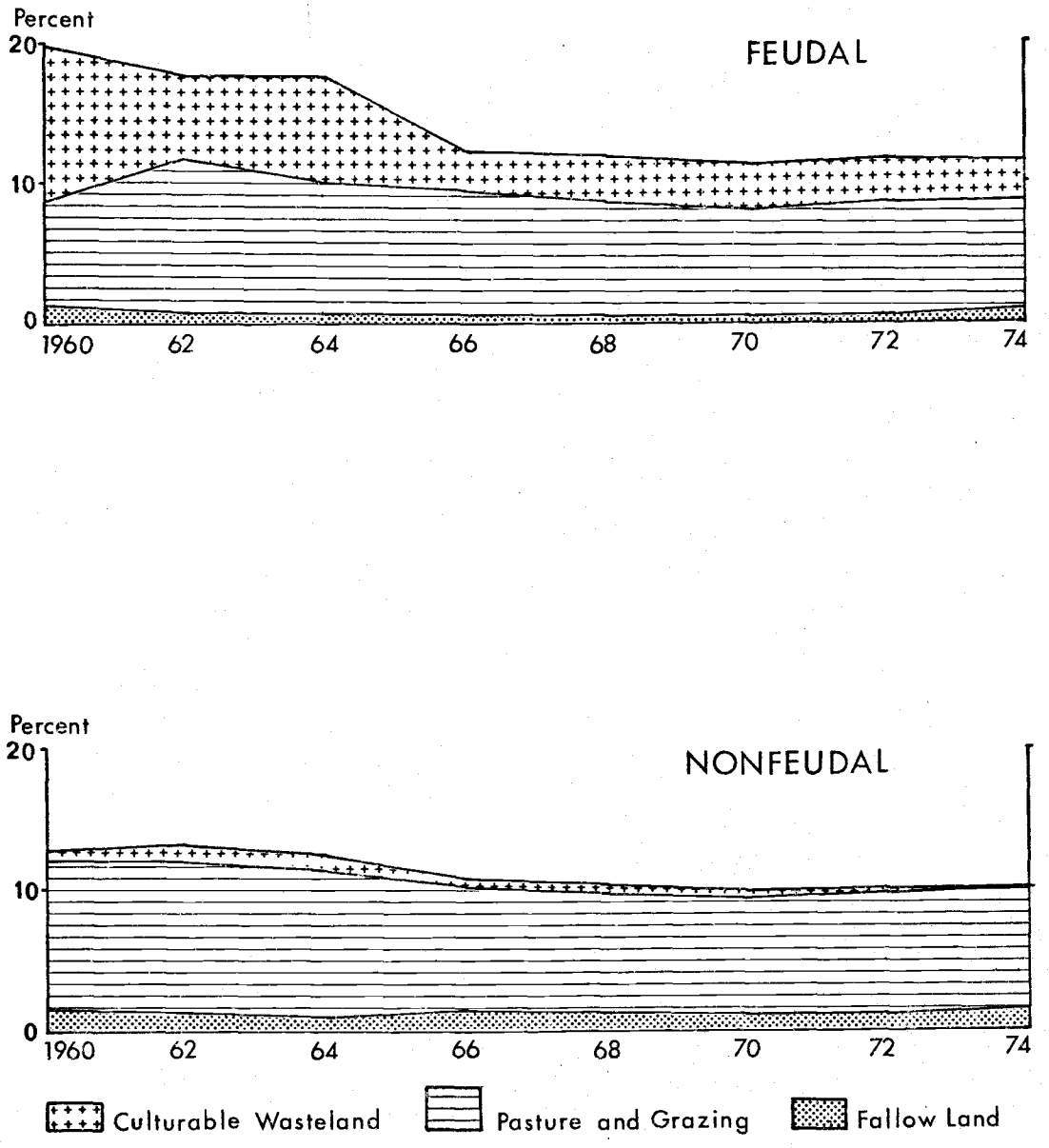

Figure 8. Trends of land use under culturable waste, pasture and grazing, and fallow land, 1960-74 (percent of total land), District Khargone (feudal) and Khandwa (nonfeudal), secondary pair.

Source of data: Madhya Pradesh Directorate of Economics and Statistics, Bhopal.

Table 11. Major Land Use, District Raisen (feudal) and District Sagar (nonfeudal), Primary Research Pair, 1973-74 (in thousand hectares)

Land Use	Raisen		Sagar	
	Total	Percent	Total	Percent
1. Area	779	100	1,023	100
2. Forests	273	35	294	28.7
3. Not available for cultivation	36	4.6	57	5.6
4. Permanent pasture	31	3.8	110	10.7
5. Culturable waste land	42	5.4	32	3.1
6. Fallow lands	7	.8	21	2.0
7. Total cropped	394	50.5	526	51.4
a. Area double cropped	4	.5	18	1.75

Source: Madhya Pradesh Directorate of Agriculture, Agricultural Statistics, 1974.

of waste lands.

In the primary research pair, a greater decline in the culturable waste land and permanent pasture was observed for the feudal district as compared to the nonfeudal. In the secondary pair except for a drop in culturable waste land between the years of 1964-66, the area under culturable waste and permanent pasture had remained almost constant with no major variation between the feudal and the nonfeudal district. A greater area was found to be under culturable waste land in the feudal district in both the primary and secondary pair.

Table 12. Major Land Use, District Khargone (feudal) and District Khandwa (nonfeudal). Secondary Pair, 1973-74 (in thousand hectares)

	Khargone		Khandwa	
	Total	Percent	Total	Percent
1. Area	1,349	100	1,071	100
2. Forests	473	35	462	43
3. Not available for cultivation	103	7.6	62	5.8
4. Permanent pasture	105	7.7	93	8.7
5. Culturable waste land	38	2.8	2	.2
6. Fallow lands	14	1.0	17	1.58
7. Total cropped	665	49.3	455	42.4
a. Area double cropped	49	3.6	24	2.2

Source: Directorate of Agriculture, Madhya Pradesh, Agricultural Statistics, 1974.

Cropping Pattern

Two cropping seasons are recognized in the area. The monsoon (Kharif) cropping season commences in May and lasts until October. The winter (Rabi) cropping commences in October and crops are harvested in March. Small variations in monsoon and winter cropping acreages are known to occur on account of climatic vagaries. A drought or heavy rain might hinder ploughing in the monsoon season or delayed heavy rains might affect sowing of winter crops. Frost is a big factor affecting acreage under winter crops.

The primary research pair is primarily a winter crop area where wheat is the main winter crop. The monsoon crops, consisting mostly of staple coarse grain of millets (Jowar) and commercial

crops of oilseeds is of greater importance in the nonfeudal district compared to the feudal. While the winter crop acreages are almost the same for both the districts, monsoon crop acreages in the nonfeudal district were twice that of the feudal district (Table 13).

Table 13. Seasonal Crop Acreages, Primary and Secondary Pair, 1973-74 (in hectares)

Dist. name	Crop	Monsoon (Kahrif)	Winter (Rabi)	Total
Primary Pair				
Raisen	Food	34, 300	287, 000	322, 100
(feudal)	Nonfood	37, 000	33, 900	71, 000
Total		71, 700	321, 900	393, 400
Sagar	Food	70, 700	345, 000	416, 200
(nonfeudal)	Nonfood	86, 000	23, 000	110, 300
Total		157, 000	369, 000	526, 500
Secondary Pair				
Khargone	Food	409, 000	56, 000	466, 200
(feudal)	Nonfood	197, 000	1, 600	199, 200
Total		607, 000	58, 400	665, 400
Khandwa	Food	251, 100	39, 500	290, 600
(nonfeudal)	Nonfood	161, 100	3, 200	164, 700
Total		412, 300	42, 700	454, 900

Source: Madhya Pradesh Statistical Abstract, Directorate of Economics and Statistics, Bhopal, 1974.

The secondary pair, unlike the primary pair is mainly a monsoon crop area due to the suitability of soil and rainfall conditions. Cotton, millets (Jowar) and groundnut (peanuts) are the important crops with pulses and oilseeds following a close second. The winter crop, of minor importance, consists of wheat interspersed with gram (chick-peas) on poorer soils. There was no major variation in the cropping pattern in the feudal and the nonfeudal district. Introduction of the groundnut cultivation in the beginning of the century had given the area a three year rotation system of millets, ground nut and cotton which had given a boost to the development of commercial agriculture.

Irrigation

Well irrigation was the main source of irrigation in both the pairs of districts, approximately 80 percent of all irrigation is done by wells. Table 14 shows the growth in the number of wells, irrigated hectares and hectares irrigated per well during the time period of 1960-61 to 1972-73. In the primary research pair, increases in the number of wells was much greater (almost 100 percent) for the nonfeudal district, whereas the number of wells increased very little in the feudal district during the period. Also, the area irrigated per unit of well was higher for the nonfeudal district almost for the entire period.

Similarly, in the secondary pair, although the rate of increase

Table 14. Number of Wells and Area Irrigated (in hectares), 1960-61 to 1972-73

District	Wells and area	1960-61	1965-66	1968-69	1970-71	1972-73
1	2	3	4	5	6	7
Primary Pair						
Feudal	1 Number of wells	1,168	1,543	1,662	1,613	1,977
	2 Total area irrigated (hectares)	491	798	755	999	2,013
	3 Hectares irrigated per well	.42	.51	.45	.61	1.0
Nonfeudal						
	1 Number of wells	6,643	8,359	9,565	10,234	11,620
	2 Total area irrigated (hectares)	3,756	5,283	5,121	6,967	8,116
	3 Hectares irrigated per well	.56	.63	.53	.63	.69
Secondary Pair						
Feudal	1 Number of wells	14,640	15,629	23,361	26,452	29,114
	2 Total area irrigated (hectares)	15,486	15,008	23,725	31,238	35,825
	3 Hectares irrigated per well	1.0	.96	.98	.84	.81
Nonfeudal						
	1 Number of wells	9,368	10,741	15,194	16,689	18,318
	2 Total area irrigated (hectares)	9,175	9,309	16,232	18,674	22,242
	3 Hectares irrigated per well	.97	.86	1.06	1.11	1.21

Source: Madhya Pradesh Directorate of Economics and Statistics, Statistical Abstract of Madhya Pradesh, 1974.

in the number of wells was similar for the two districts, but the increases in irrigated area and hectares irrigated per unit of well was greater for the nonfeudal district.

Spread of wells and extent of farm units served by wells was calculated by drawing ratio of well to farm units (Table 15). The results reveal a much higher ratio of well to farm units for the feudal district in the primary research pair. In the nonfeudal district,

Table 15. Ratio of Wells to Farm Units, 1970-71

	Number of wells	Number of farm units	Ratio of wells to farm units
Primary Pair			
Raisen (F)	1,613	64,000	1:40
Sagar (NF)	10,234	157,300	1:15
Secondary Pair			
Khargone (F)	26,452	112,400	1:4.2
Khandwa (NF)	16,689	86,200	1:4.8

Source: Agricultural Statistics of Madhya Pradesh, Directorate of Economics and Statistics 1974; Agriculture in Madhya Pradesh, Statistical Information, Madhya Pradesh Co-operative Union, Bhopal 1974.

on the other hand, a low ratio depicts a greater number of wells to total farm units. In the secondary pair however, no variation in the ratio of wells to farm units was observed between the feudal and non-feudal districts. The well to farm unit ratio however, was much lower for the secondary pair compared to the primary pair. The

fact seems to be an anomaly since it is the primary research pair which is more dependent on irrigation for its winter farming than the secondary pair which is predominantly a summer crop area. It is however, suggestive of a better level of farming operations in the secondary pair compared to the primary.

Table 16 shows the trends in the proportion of irrigated cropped area in the two pairs of districts. The data reveals the low extent of irrigation in the area although the table shows 100 percent increase in the proportions of irrigated cropped acreage over the time period. The primary pair shows a greater percentage of irrigated cropped area in the nonfeudal district, which endorses the earlier findings of greater area irrigated per well and a lower farm to well ratio.

In the secondary pair, a different pattern was observed. Irrigation, in this pair, is only required for the secondary winter crop and as a safety against monsoon failures. In this pair, the feudal district reveals a greater proportion of irrigated cropped area. Greater proximity of the river, easy availability of water and progressiveness of the farmers explains the higher proportions (Gazetteer West Niman 1969: 104). The nonfeudal district, being comparatively farther from readily available water sources, required capital investments for lifting water for irrigation.[11/]

[15/] See p. 44 for location of the districts.

Table 16. Percent Irrigated to Total Cropped Area (Primary and Secondary Pairs), 1960-1974

	1960	1962	1964	1966	1968	1970	1972	1974
Primary Pair								
Raisen (F)	.7	.8	1.0	1.45	1.1	1.0	2.15	3.0
Sagar (NF)	1.5	1.5	1.6	2.28	1.55	1.90	3.3	3.8
Secondary Pair								
Kargone (F)	3.3	3.3	3.2	2.8	4.6	5.95	6.8	6.6
Khandwa (NF)	2.4	2.2	2.4	2.3	3.53	4.17	4.7	5.3

Source: Districtwise Economic Indicators 1960-61 to 1973-74, Directorate of Economics and Statistics, Madhya Pradish 1973.

Intensity of irrigated farming of the feudal and the nonfeudal district of the primary research pair was also derived through the survey data (Table 17). The percent irrigating holders obtaining more than one crop a year on irrigated land was found to be almost less than half in the feudal district as compared to the nonfeudal district.

Table 17. Irrigating Holders and Number of Harvests, Primary Research Pair, 1975

District	Percent holders irrigating	Irrigating holders (percent of total)	
		One crop	Two crop
Raisen (F)	23	80	20
Sagar (NF)	29	53.5	46.7

Source: Field survey data, 1975.

Agricultural Services

The two important agricultural services offered by the state are the (1) farm extension service and (2) the co-operative credit service. Extent of the spread of such services was assessed for the feudal and nonfeudal districts.

Farm Extension

Dissemination of scientific knowledge regarding improved agricultural practices were carried on by the state Department of

Agriculture through its district offices.

In the primary research pair, the major extension work has been with regard to the spread of improved varieties of wheat seeds and associated farm practices through experimental farms and demonstrations.

The survey of the primary area revealed poor extension service programs in the area. Farm demonstration impacts were found to be weaker in the nonfeudal district as compared to the feudal district (Table 18).

Table 18. Relative Frequency: Farm Demonstration. Primary Research Pair, 1975; by Percent of Farmers Reporting

	Raisen (F)	Sagar (NF)
Have observed extension demonstrations	42.3	23.6
Have never observed	57.7	76.4

Note: The high nonwatcher's figure in the nonfeudal district was probably due to the large percentage of marginal and small farmers who had little access to modern agricultural services.

Source: Survey data, 1975.

In the secondary pair, agricultural research seems to have been active. The regional research station established in 1945 has been able to develop improved seed varieties of local pulses and cotton, has been successful in oilseed development and is reported to have been active in spread of improved techniques of cultivation

(Gazetteer of Khargone and Khandwa 1969-70: pp 120 and 140). Since secondary pair was not surveyed, the extent of spread of farm extension in the rural area could not be ascertained.

Co-operative Movement

An important function of the Agriculture Department has been the spread of co-operative movement. Although the state has encouraged the formation of co-operative farming societies, the movement in the state and in the study area was found to be predominantly concerned with credit. The state had adopted a three tier structure in credit movement; the Apex Co-operative Bank at the state level, Co-operative Central Bank at the district level and the primary credit societies at the village level. The primary credit societies provide short term loans for seasonal agricultural operations, purchase of agricultural supplements, marketing of crops and consumption purposes. The society medium term loans are provided for sinking of wells, purchase of machinery, cattle and minor improvements on land.

The distribution of long term loans are done by a separate agency called the Co-operative Land Development Bank at the state level and the Primary Land Development Bank at the district level. Loans are advanced for development of land, digging of wells, establishing diesel and electric pumps, purchase of tractors and other

agricultural equipment.

Comparison of the feudal and the nonfeudal districts in terms of per capita agricultural credit advanced by co-operative societies reveal differences in the two districts and also in the two pairs (Table 19). In the primary research pair, the yearly per capita credit advancements were higher for the feudal district, except in most recent years when the per capita credit of the nonfeudal district soars over the feudal district.

In the secondary pair, it is the nonfeudal district that has greater per capita credit advancements for most of the years.

Table 19. Per Capita (Rural) Agricultural Credit Advanced Through Co-operative Societies (in Rupees), 1960-1971; Primary and Secondary Research Pairs

	1960-61	1963	1965	1967	1969	1971
Primary Pair						
Raisen (F)	10	10.9	17.4	12.68	20.98	21.12
Sagar (NF)	4.8	4.2	8.9	11.8	17.38	30.21
Secondary Pair						
Khargone (F)	7.2	6.94	13.05	23.4	17.27	18.25
Khandwa (NF)	10.6	17.53	20.01	36.68	16.03	26.15

Source: Districtwise Economic Indicators, Directorate of Economics and Statistics, 1974, Bhopal.

The Co-operative credit is meant to free the marginal, small and medium farmers from private sources of credit. In the primary pair, the per capita credit advancements have been higher for the feudal district that has a greater proportion of big holders. The per capita credit advancements have been consistently lower for the non-feudal district, except for the year 1971.

The secondary pair reveals a higher per capita credit advancements for the nonfeudal district. It might be recollected here that the proportion of small, medium and large holders were found to be the same in the two districts in this pair. The greater per capita credit advancements for the nonfeudal district of Khandwa was explained by the greater need for capital to lift water for irrigation by this district.

Summary

The feudal and the nonfeudal districts in each of the primary and secondary pairs, being dissimilar in their historical backgrounds, are similar in their physical characteristics, rural tenure structures and administrative conditions. In spite of such similarities, certain differences in the economic patterns and operations appear discernible.

In the primary research pair, acreages under monsoon crops was found to be higher in the nonfeudal district, suggesting a

greater area under double cropping. Irrigated area per well, well to farm ratio and proportion of farmers obtaining more than one crop a year was also found higher in the nonfeudal district.

In the feudal district, on the other hand, farm extension activity and co-operative credit advancements were found to be higher compared to the nonfeudal district.

The secondary pair did not often corroborate such patterns of differences between the feudal and the nonfeudal district found in the primary pair. A few times the results obtained were opposite of that of the primary research pair. Proportion of irrigated cropped area was found higher in the feudal district, which explains the greater acreage under winter cropping in this district. The nonfeudal district, on the other hand, revealing lesser proportions of irrigated cropped acreage, also revealed a greater per capita advancements of credit that is required to lift water for irrigation and hence explains the lesser extent of irrigation in this district.

A pattern of observations were already felt to be appearing for the primary pair with a background of typically feudalistic tenure characteristics. Governmental services were more active in the feudal district which has a greater number of big holders. Efficiency and intensity of farming operations appeared to be relatively higher in the peasant proprietory district. A detail analysis of comparable

differences in agricultural patterns and practices in the feudal and the nonfeudal districts was undertaken in the next chapter.

V. COMPARATIVE ANALYSIS OF THE FEUDAL AND THE NONFEUDAL DISTRICTS ON AGRICULTURAL OWNERSHIPS AND PATTERNS

Some dissimilar patterns in agricultural operational efficiency between the feudal and the nonfeudal districts have already been discussed in the previous chapter. In this chapter, a detail comparison of the two districts was undertaken to test the hypothesis that agricultural patterns would be dissimilar under different tenure backgrounds. The two districts were examined by (1) census livelihood classes, in order to assess the differences in tenure, (2) ownerships, in order to examine the proportional distribution of ownerships under small, medium and large classes, (3) land use practices and production trends, and (4) differential impacts of agricultural services on productivity.

Livelihood Classes

The Land Reform legislation has brought about changes in rural ownership structures. Some changes have been direct and are reflected in the census livelihood classification. Some changes are slow and indirect, such as award of ownership rights to landless workers, and can only be perceived after several years. Rural livelihood classes in the feudal and the nonfeudal districts were examined to assess the difference in the direct as well as the indirect

changes that have occurred on account of reform laws.

The 1951 census was based on the prevailing tenure structure of the pre-independence period (Table 20 (a)). The four definite classes recognized as the basic tenure pattern were as follows:

1. The class of cultivating owners of land or the peasant proprietors (column 4) with rights to own, inherit and transfer the land.

2. Cultivating laborers who were working on unowned land. This consisted of the second largest sector of the cultivating class (column 5).

3. The noncultivating owners of land (column 7) whose lands were wholly or mainly cultivated by tenant cultivators, belonging to the second category. Apart from the noncultivating owners of land were also rent receivers who were landlords or intermediaries, owning large estates but not the land. Income of these people consisted of rents paid by those belonging to category one, who were the actual owners of land.

4. Cultivating laborers who worked on wages with the first two classes.

The enactment of the "Abolition of the Intermediaries Act" in 1950-51 and its successive execution in later years led to the elimination of the category of agricultural rent receivers from the 1961 census. Also, the noncultivating owners of land were forced to

Table 20(a). Agricultural Population by Classes, 1951, Primary Pair

District	Census year	Rural pop.	Cultivators of land wholly or mainly owned & dependents	Cultivators of land wholly or mainly unowned & dependents	Cultivating laborers & their dependents	Noncultivating owners of land, agr. rent receivers & dependents
1	2	3	4	5	6	7
Raisen (feudal)	1951	308,741	134,770	19,007	76,002	5,204
Sagar (nonfeudal)	1951	512,758	261,102	20,566	119,633	10,070

Source: District Census Handbook of Raisen and Sagar, 1951.

Table 20(b). Agricultural Workers, 1961-71; Primary Pair

District	Census year	Total rural population	Owner-cultivators	Agricultural laborers
1	2	3	4	5
Raisen (feudal)	1961	411,426	93,690 (69% of agr. worker population) (23 % of total rural population)	42,746 (31% agr. worker population) (10.4% of rural population)
	1971	522,259	75,527 (51% of agr. worker population) (14% of total rural population)	73,473 (49% agr. worker population) (14% of total rural population)
Sagar (nonfeudal)	1961	615,843	163,227 (74% of agr. worker population) (26.5% of total rural population)	55,817 (26% of agr. worker population) (9% of total rural population)
	1971	802,033	139,738 (60% of agr. worker population) (17.4% of total rural population)	91,335 (40% of agr. worker population) (11% of total rural population)

Source: Census Hand Book, District Raisen, 1961 and 1971; Census Hand Book, District Sagar, 1961 and 1971.

become "cultivating owners of land". Later, the enactment of the Land Revenue Code of 1959, which recognizes only one type of land-holder, the "Bhumiswami" or the owner cultivator, led to the formation of two distinct categories of agricultural workers for the 1961 census; the cultivator class and the agricultural labor class (Table 20 (b)).

With the implementation of reform laws of 1951 and 1959, on record the tenant cultivators became either owner cultivators or agricultural laborers (Fig. 9). The process of eviction of tenants was made possible under the provision of the Land Revenue Code (section 188)[12], according to which an owner of rented land could apply for resumption of land for personal cultivation if the area held under personal cultivation was below 25 acres of unirrigated land.

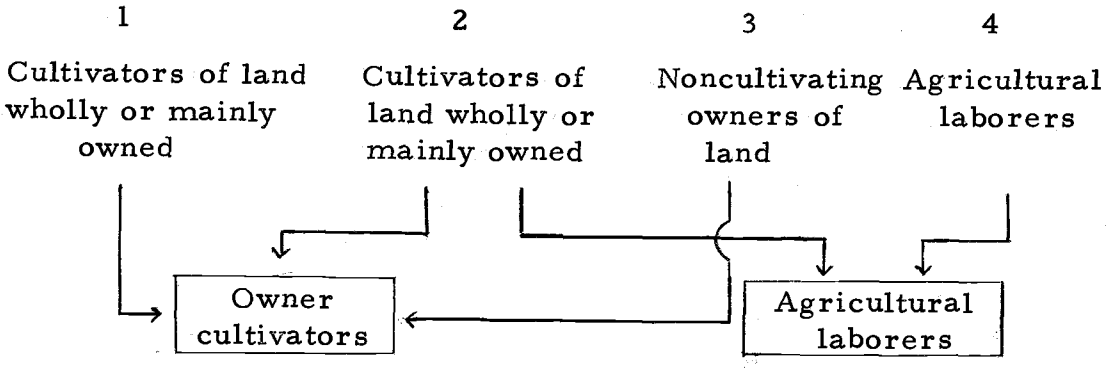

Figure 9. Change in the categories of agricultural livelihood classes, 1951 through 1961 census

Source: Census of Madhya Pradesh, 1951 and 1961.

[12] See Chapter III, p. 31.

The analysis of change in the absolute numbers in the cultivator and agricultural labor class for the decade of 1951-61 is not possible because of the inclusion of the number of dependents to each class in the 1951 census. The 1961 and 1971 census however, gives the absolute number of cultivators and agricultural laborers. The comparison of census classes for the decade of 1961 and 1971 reveals that there has been a substantial population increase in the rural area during the decade of 1960-70. Secondly, there has not only been a decrease in the owner cultivator class as a percent to total rural population, but there has been a decrease in absolute number of owner cultivators from the 1961 census year which seems to be contrary to the objectives of land reform.

Table 21 gives the variation between the feudal and the nonfeudal district of percent increase or decrease of the agricultural work force, cultivator class and agricultural laborers. The table shows that (1) there has been a substantial drop in the cultivator class in both the districts but the decrease is greater for the feudal district than for the nonfeudal, (2) the agricultural labor class has increased more in the feudal district, and (3) there is a greater increase of the total agricultural work force in the feudal district.

Calculating the size of the cultivator and the agricultural labor class as a percent of total agricultural work force for the feudal and the nonfeudal district, it appears that whereas the cultivator class

Table 21. Trends in Agricultural Worker Population, 1961-71; Primary Pair

District	Year	Total agr. workers	Percent increase or decrease	Cultivators	Percent increase or decrease	Agr. laborers	Percent increase or decrease
1	2	3	4	5	6	7	8
Raisen	1961	136,436		93,690		42,746	
(feudal)	1971	149,000	+9.2	75,527	-19.3	73,473	+71.9
Sagar	1961	219,044		163,227		55,817	
(nonfeudal)	1971	231,073	+5.4	139,738	-14.4	91,335	+63.6

Source: Census Handbook of District Raisen, 1961 and 1971, Government of Madhya Pradesh.
Census Handbook of District Sagar, 1961 and 1971, Government of Madhya Pradesh.

had shrunk from 70 to 50 percent in the feudal district, it shrunk from 74 to only 60 percent in the nonfeudal district. Likewise, the increase in the size of the agricultural labor class was greater for the feudal district.

It was presumed that land reform, undertaken primarily to award ownership rights to cultivators of land and to bring landless laborers, as far as possible, into the fold of cultivating owners of land, ought to express itself in increased numbers in the cultivating class and a decreasing agricultural labor class. Results revealed in the data in Table 21 were contrary and probably suggestive of the fact that a greater number of tenant cultivators might have lost their holdings to the noncultivating owners of land, than those who acquired rights on land. It might be true that the decrease in owner cultivator class was proportional to the size of the tenant cultivator class (cultivators of land wholly or mainly unowned) in the two districts.

Distribution of Size of Holdings

Distribution of holdings in size classes was examined to trace the difference in the proportion of large and small holders in the two districts. The size classes were grouped into the broad categories of small, medium and large and the range of holdings representative of each size class was determined on consultation with the district

administrators. The differences observed in the distribution of holdings by area and number in each size class in the two districts of the primary pair were as follows (Figs. 10 and 11, Appendix 1: 3 and 4):

1. The number of marginal holdings (less than an hectare) was much greater in the nonfeudal district compared to the feudal. Thirty percent of all holders belonged to the marginal class in the nonfeudal district, as compared to only 13 percent in the feudal district.

2. The number and area in small size holdings (1.1 to 2 hectares) was also larger in the nonfeudal district.

3. The number of holdings in the medium size class (2.1 to 10 hectares) was smaller in the nonfeudal district but the area under medium size class was larger, reflecting bigger parcels in this size class in the nonfeudal district.

4. The number and area in large size class (over 10 hectares) was greater in the feudal district. This was presumed to reflect a carryover of the feudal background.

5. The largest percentage of holdings were in the medium size class of 2 to 10 hectares.

In the secondary pair (Fig. 11, Appendix 1:4), no significant differences were perceived in the feudal and the nonfeudal districts. In both districts, the maximum number of holdings fell in the medium

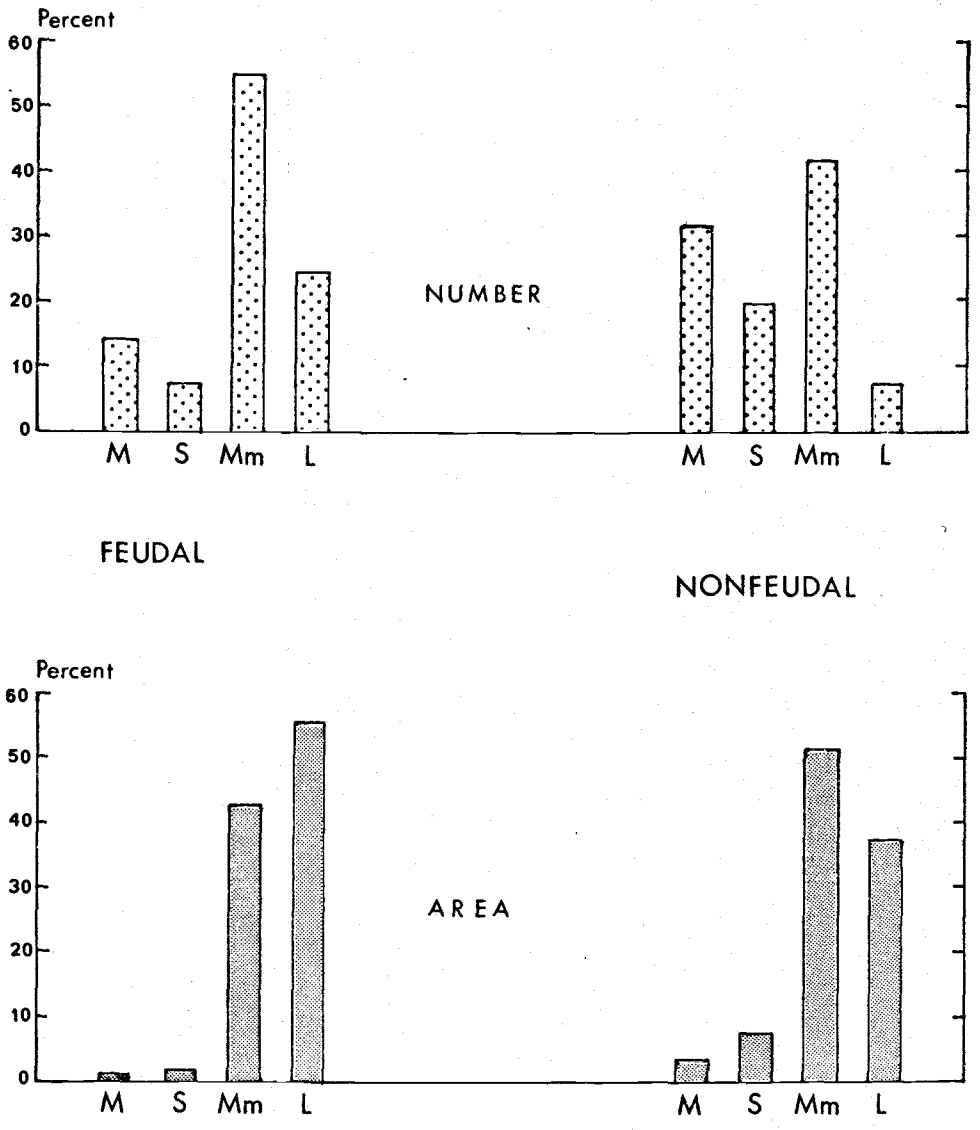

Figure 10. Distribution of holdings by number and area in percent of total, Districts of Raisen (feudal) and Sagar (nonfeudal), primary pair, 1971.

Note: Holding sizes: Marginal, 1 hectare and less; Small, 1.1 to 2 hectares; Medium, 2.1 to 10 hectares, Large, greater than 10 hectares.

Source: Directorate of Agriculture, Agricultural Statistics, 1974, Bhopal.

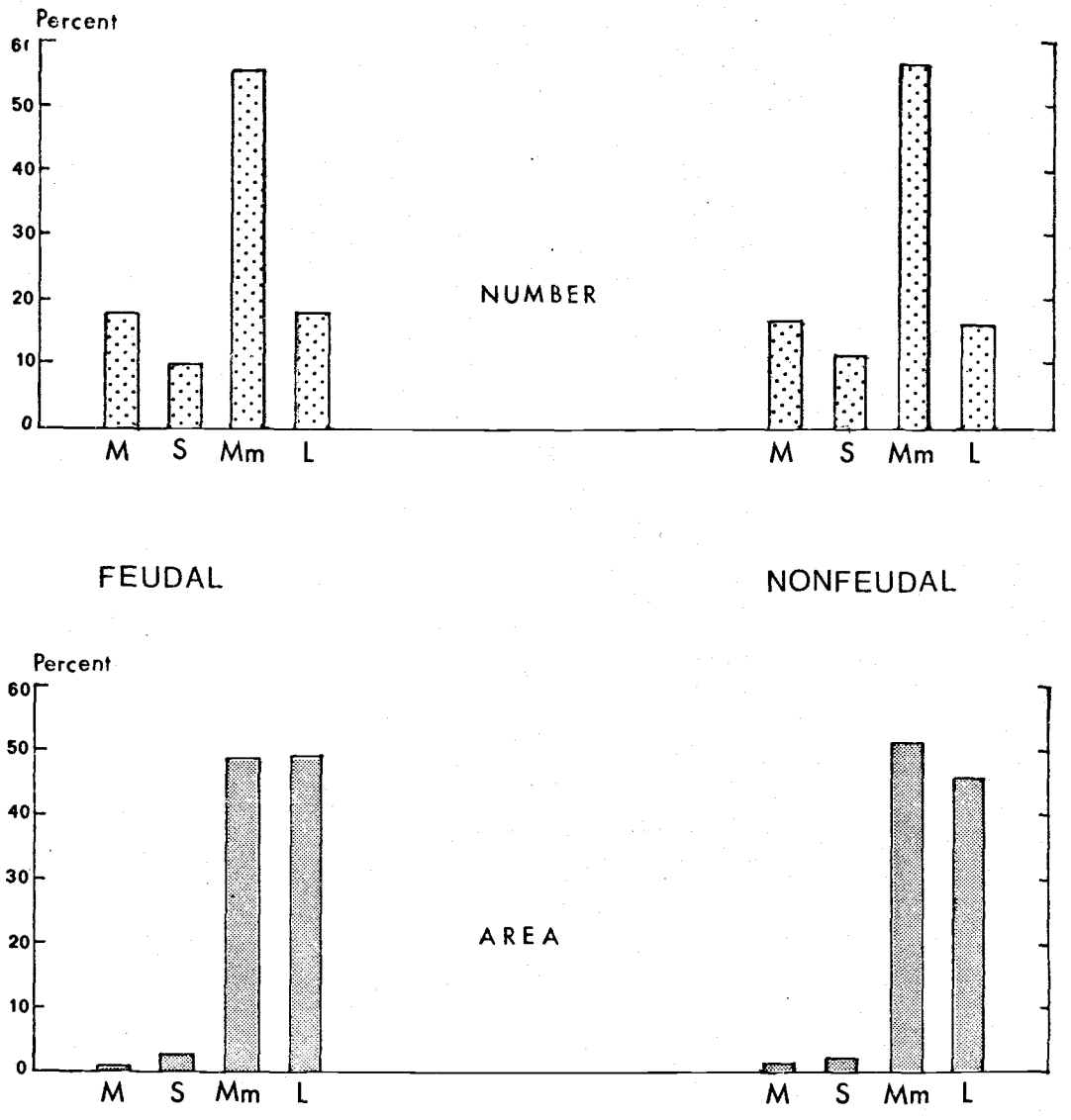

Figure 11. Distribution of holdings by number and area in percent of total, Districts of Khargone (feudal) and Khandwa (nonfeudal), secondary pair, 1971.

Note: Holding sizes: Marginal, 1 hectare and less, Small, 1.1 to 2 hectares; Medium, 2.1 to 10 hectares; Large, greater than 10 hectares.

Source: Directorate of Agriculture, Agricultural Statistics, 1974, Bhopal.

size class of 5 to 10 hectares, the area given to each size class was the same and almost the similar percentage of holders were found in each size class.

It is necessary to point out here that the feudal territory of Holkar State, of which the district of Khargone was a part, was freed from the feudal type of tenure as early as 1910. The peasant proprietorship has mostly prevailed in the district since then, similar to the adjacent territory of Khandwa which was under British administration. Thus, almost similar tenure structures must have resulted in similar distribution of ownerships.

Comparison of the primary and the secondary pair on distribution of ownerships does suggest that wherever feudal tenure structures persisted for long periods, the large size holdings, in area and to some extent in numbers, predominate.

Land Use Patterns

Comparison of the land use patterns of the feudal and nonfeudal districts were undertaken on items of (1) farming of food and nonfood crops, as a measure of the degree of commercialization, (2) acreages under double cropping reflecting the intensity of farming, and (3) change in acreages under culturable waste lands.

Food and Nonfood Crop Farming

In the feudal and the nonfeudal district, growing of food and nonfood (commercial) crops was examined to assess the variation in the two districts in the degree of commercialization, mainly in the small and medium size class. The field observations revealed that in the large size class, food and nonfood crops both were grown for commercial purposes. But in the small and medium size class most of the food crop was grown for domestic consumption and the growing of nonfood crop was, to a great extent, indicative of the commercial activity.

The growing of the food and nonfood crops in the small, medium and large size class for the feudal and the nonfeudal district of the primary research pair was examined through the survey data. Parallel analysis for the secondary pair hence could not be undertaken. Also, the secondary pair of districts was primarily a commercial crop growing region and hence such analysis was not valid for the pair.

Table 22 shows percent of holders growing food and nonfood crops in each size class. In the small, medium and large size class, percent of holders growing nonfood (commercial) crops was higher in the nonfeudal district.

Table 22. Food and Nonfood Crop Farming, District Raisen (F) and District Sagar (NF), Primary Pair, 1975 (by Percent of of Holders)

Size 1	District 2	Wheat 3	Millets 4	Pulses 5	Rice 6	Nonfood* 7
Small	Raisen (feudal)	91.7	-	25	83.3	26
	Sagar (nonfeudal)	85.2	44.4	14.8	48.1	33.3
Medium	Raisen (feudal)	100	15.4	23	96.2	26.9
	Sagar (nonfeudal)	95.5	68.2	13.6	81.8	57.1
Large	Raisen (feudal)	100	7.1	21.4	100	57
	Sagar (nonfeudal)	100	50	50	83.3	66.7

* Oilseeds are the major nonfood crop in the area.
Note: The marginal class was merged with the small size class for the agricultural analysis as the farming operations were found similar in the two classes.
Source: Survey Data, 1975.

Growing of nonfood crops however, is not the sole indicator of commercial activity. In the medium size class some marketing of food crops is surely carried on. In the large size class, both food and nonfood crops were grown for commercial purposes. Yet, for the small size class and to some extent for the medium size class, growing of nonfood crops is one of the indicators of commercial activity. On such a premise, commercial activity in the small and medium size class was found to be greater in the nonfeudal district.

Intensity of Farming

Intensity of farming was considered a measure of efficiency and effort in farm activity. Variations in the intensity of farming in the feudal and the nonfeudal districts of the primary and the secondary pair was assessed by examining the trends and acreages under double cropping (Fig. 12).

The primary research pair was primarily a winter (Rabi) crop area. Two cropping seasons however, were recognized in the area. The monsoon (Kharif) crops consist mostly of staple and subsistence crops of millets (Jowar), coarse rice (Kodon), pulses (Tuar) and sesamum. The winter (Rabi) crops are wheat, chickpeas (gram), barley and linseed which are mostly revenue paying crops.

Double cropped acreages were found to be consistently higher during the study period in the nonfeudal district of the primary pair, suggesting that intensity of farming was greater in the nonfeudal district. The truth of the statement is substantiated by the survey data (see Table 17, Chapter IV) that even in irrigated areas, only 20 percent of the holders in the feudal district grow two crops a year whereas in the nonfeudal district, 47 percent of the holders grow more than one crop a year.

Examination of the trends of recovery in acreages since the drought years of 1965-66 reveals that the nonfeudal district

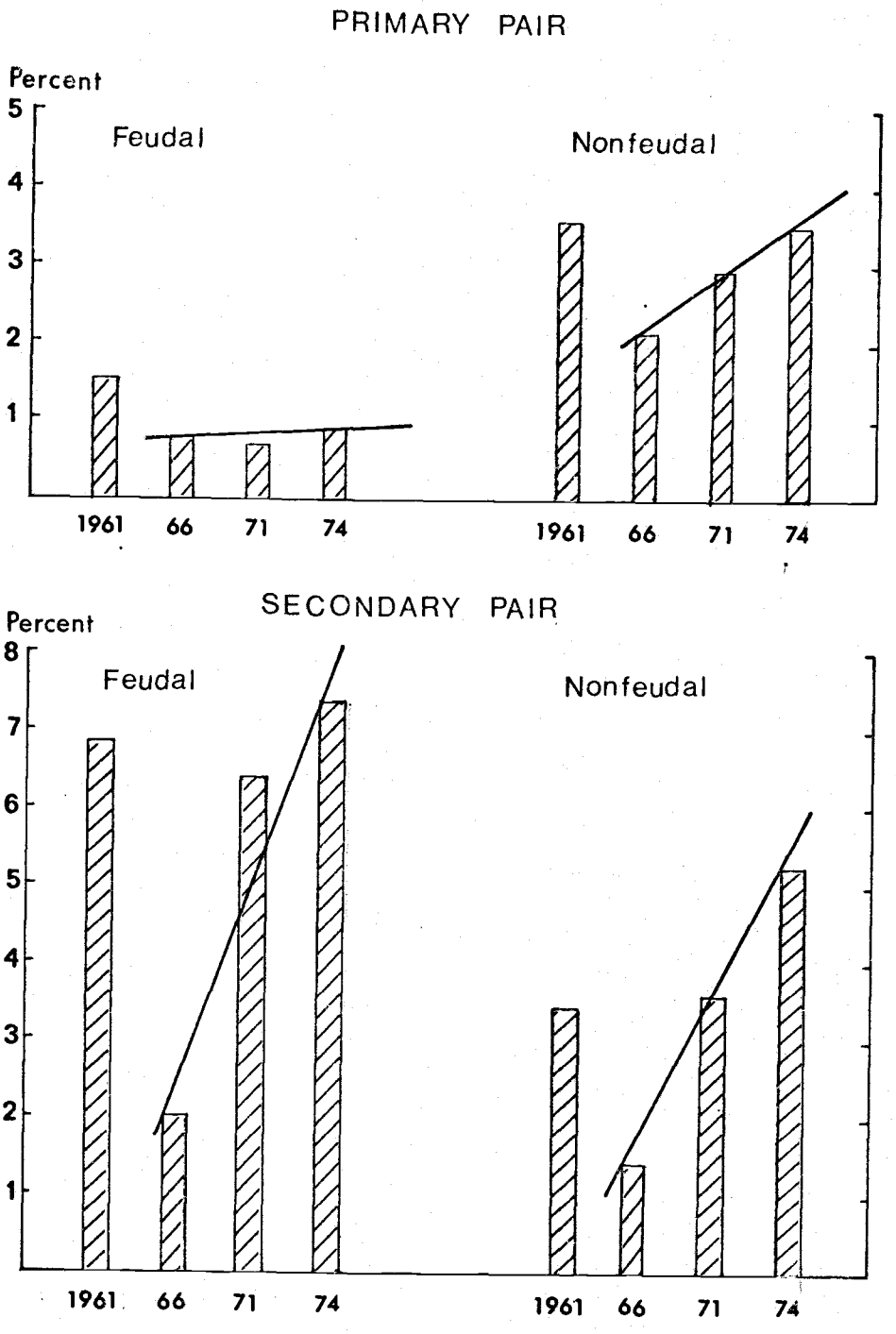

Figure 12. Percent of cropland double cropped, Districts Raisen (feudal) and Sagar (nonfeudal), primary pair; Districts Khargone (feudal) and Khandwa (nonfeudal), secondary pair.

Note: The continuous line denotes the trends of acreage recovery since the drought of 1965-66.

Source of Data: Directorate of Economics and Statistics, Bhopal, 1974.

recovered quickly from the drop in acreage and revealed positive growth trends, whereas the feudal district had recovered very little and had not been able to recapture the earlier acreage levels.

Comparison of the double cropped acreages in the feudal and the nonfeudal districts of the secondary pair revealed that unlike the primary research pair, percent area double cropped was greater in the feudal district. The area is dominantly a Kharif cropping area, growing mainly cotton, groundnut and millets in the monsoon season. The winter (Rabi) cropping is secondary and the acreages are dependent on the extent of irrigation. The feudal district, having a larger proportion of cropped area under irrigation[13/] revealed greater double cropped acreages.

Examination of trends of double cropped acreage in the secondary pair, since the drought year, reveals very little difference between the feudal and the nonfeudal districts. The recovery line runs almost parallel for both the districts, revealing a steady rise in farming intensities.

Land Reclamation

Acreages under culturable waste lands were examined in order to assess the extension of cropped area through land reclamation, for the study period, in the feudal and the nonfeudal districts.

13/ See irrigation in Chapter IV, Tables 14 and 16.

The Madhya Pradesh Land Reclamation Act was passed in 1967. The act ordained that the state government was to constitute district committees in each district in order to prepare land improvement schemes. On the execution of the scheme, the cost or part of the cost of the improvement works was to be recovered from the owner of the land on whose land the scheme was carried out. Private works could however, be carried out under free technical guidance of the district committee, after proper notification to the committee (Ghatiya and Pilodiya 1973: 458-70).

In the primary research pair (Fig. 7), the decline in culturable waste lands were found to be greater for the feudal district, compared to the nonfeudal. The percent of area under culturable waste lands has also been higher for the feudal district. The waste lands declined from 12 percent in 1960 to 5 percent in 1974 in the feudal district, compared to a decline of only 2 percent for the time period in the nonfeudal district. It may be mentioned here that the field survey revealed that pasture and grazing lands constituted yet another kind of culturable land which, in some cases, was left under pasture for want of reclamation facilities. Decrease in pasture and grazing lands (Fig. 7), which is greater in the feudal district, indicated that more pasture land was being brought under cultivation in this district.

In the secondary research pair (Fig. 8) culturable waste land,

as a percent to total, was found to be greater in the feudal district, same as that of the primary pair. The trends suggest that the feudal district decreased its culturable waste lands considerably during the period of 1964-66. Since then the waste lands reflect a steady trend for both the districts.

It is inferred here that the feudal district in the primary pair, having a greater percentage of big holders possessing the resources and influence, were able to use the governmental assistance of land reclamation to a degree greater than those in the nonfeudal district.

Trends of Production and Yield

Trends in production and yields for the time period of 1960-74 were examined to assess the variation in production and productivity levels of the feudal and the nonfeudal district pairs.

Production Trends

Comparative analysis of production trends for the feudal and the nonfeudal districts were made on the basis of production data of wheat which is the common significant cereal crop in both the pairs (Table 23). The variations in production trends of the two districts were compared by index numbers (Figs. 13 and 14), with 1960-61 as the base year.

Table 23. Production of Wheat, 1960 to 1973-74 (in thousand metric tons)

Years	Raisen (feudal)	Sagar (nonfeudal)	Khargone (feudal)	Khandwa (nonfeudal)
1. 1960-61	101.3	166.9	23.5	16.0
2. 1965-66	107.8	125.6	8.5	7.5
3. 1966-67	68.8	67.7	16.3	10.7
4. 1967-68	101.9	157.1	23.0	13.9
5. 1968-69	111.4	162.0	26.1	16.5
6. 1969-70	114.9	159.7	32.3	18.7
7. 1970-71	118.9	172.4	42.1	24.2
8. 1971-72	281.8	221.5	31.3	27.2
9. 1972-73	139.9	185.1	30.4	21.5
10. 1973-74	119.0	188.2	44.8	31.5

Source: Madhya Pradesh Directorate of Economics and Statistics, Statistical Abstract of Madhya Pradesh 1974.

Comparison of Figures 13 and 14 suggests that (1) the production responses of a good and a bad weather year were significantly different in the two districts of the primary pair, but not so in the secondary pair; the production dropped more in the nonfeudal district in a bad weather year and increased less in a good weather year as compared to the feudal district, and (2) the production level of the feudal district appears to be a little higher than the nonfeudal district in the primary pair, but this difference is not significant in the secondary pair.

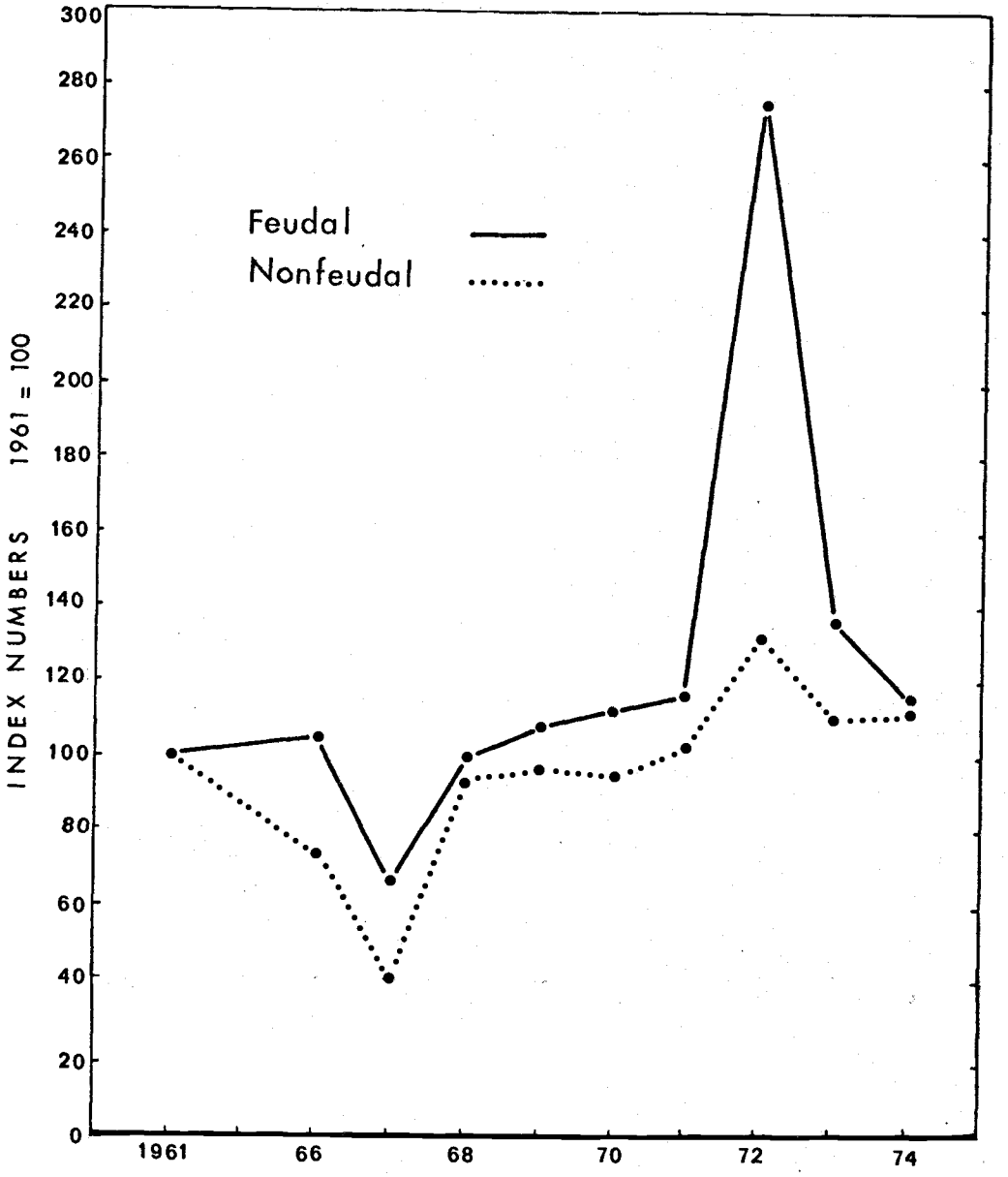

Figure 13. Index numbers of wheat production, Districts Raisen (feudal) and Sagar (nonfeudal), primary pair; base year 1960-61.

Source of data: Madhya Pradesh Directorate of Economics and Statistics, Bhopal.

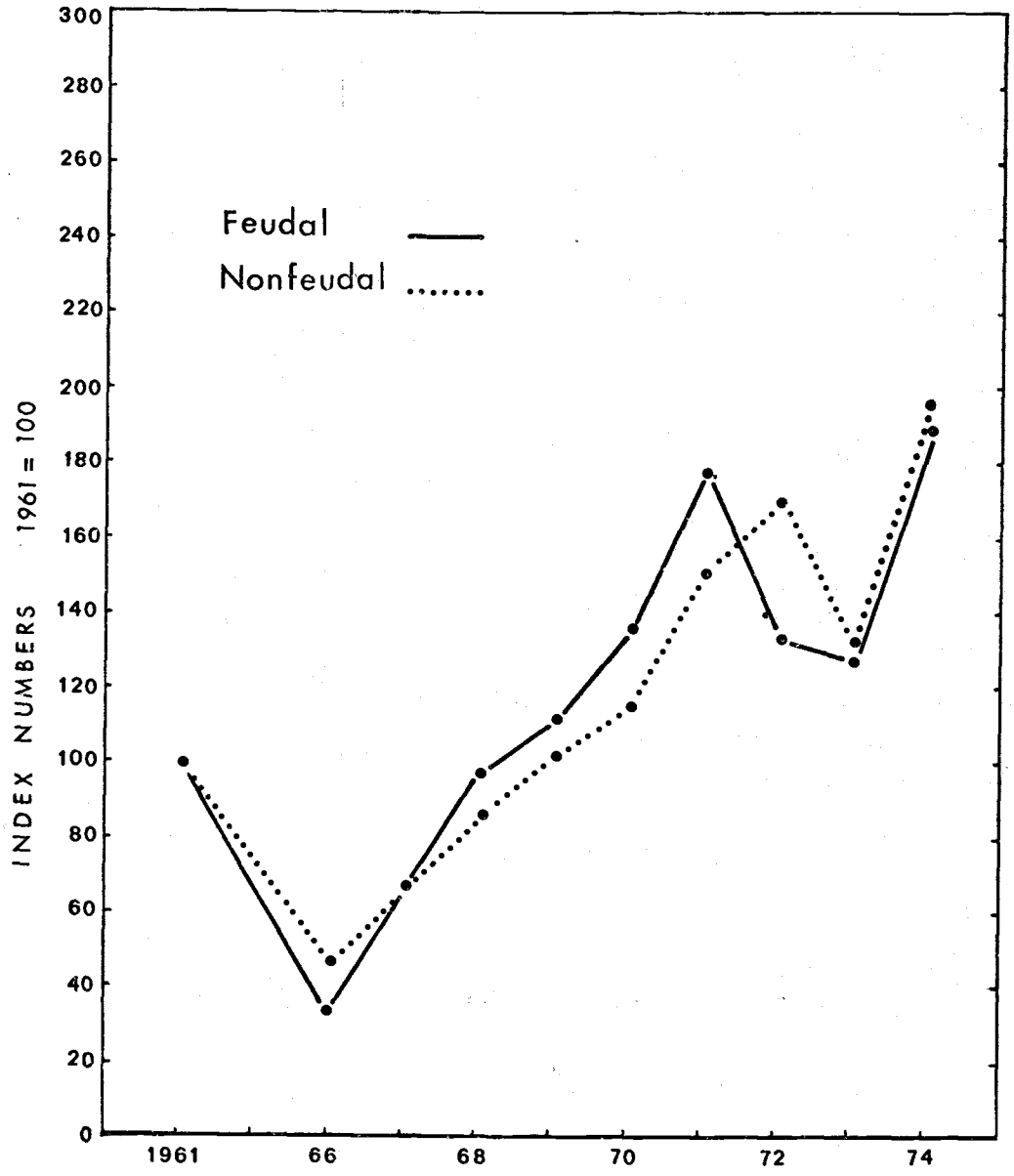

Figure 14. Index numbers of wheat production, Districts Khargone (feudal) and Khandwa (nonfeudal), secondary pair; base year 1960-61.

Source of Data: Madhya Pradesh Directorate of Economics and Statistics, Bhopal, 1974.

Effect of Acreage and Yield Fluctuations on Production

On acquiring evidences of a higher production level for the feudal district of the primary research pair, it was decided to examine the consequences of yield and acreage variations on production of the main crop in the feudal and the nonfeudal districts of each pair (Figs. 15 and 16).

In Figures 15 and 16 variations in yield were shown on the Y axis and variations in acreage were shown on the X axis. The area within the box, formed by the co-ordinates of X and Y represented the volume of production. Three year averages were shown as data points to avoid yearly fluctuations. The last year of the three year period was shown on each box.

Comparison of the volume of production of wheat as affected by yield and acreage variation in the two districts of the primary pair (Fig. 15) revealed the following:

1. The year 1967 shows the drop in production in both districts on account of the drought of 1965-66. The significant difference observed between the two districts was that whereas in the nonfeudal district, both yield and acreage dropped during the drought years, the feudal district, registering a drop in acreage, shows a substantial increase in yields. The fact possibly is suggestive of a greater dependence of the nonfeudal district on weather conditions.

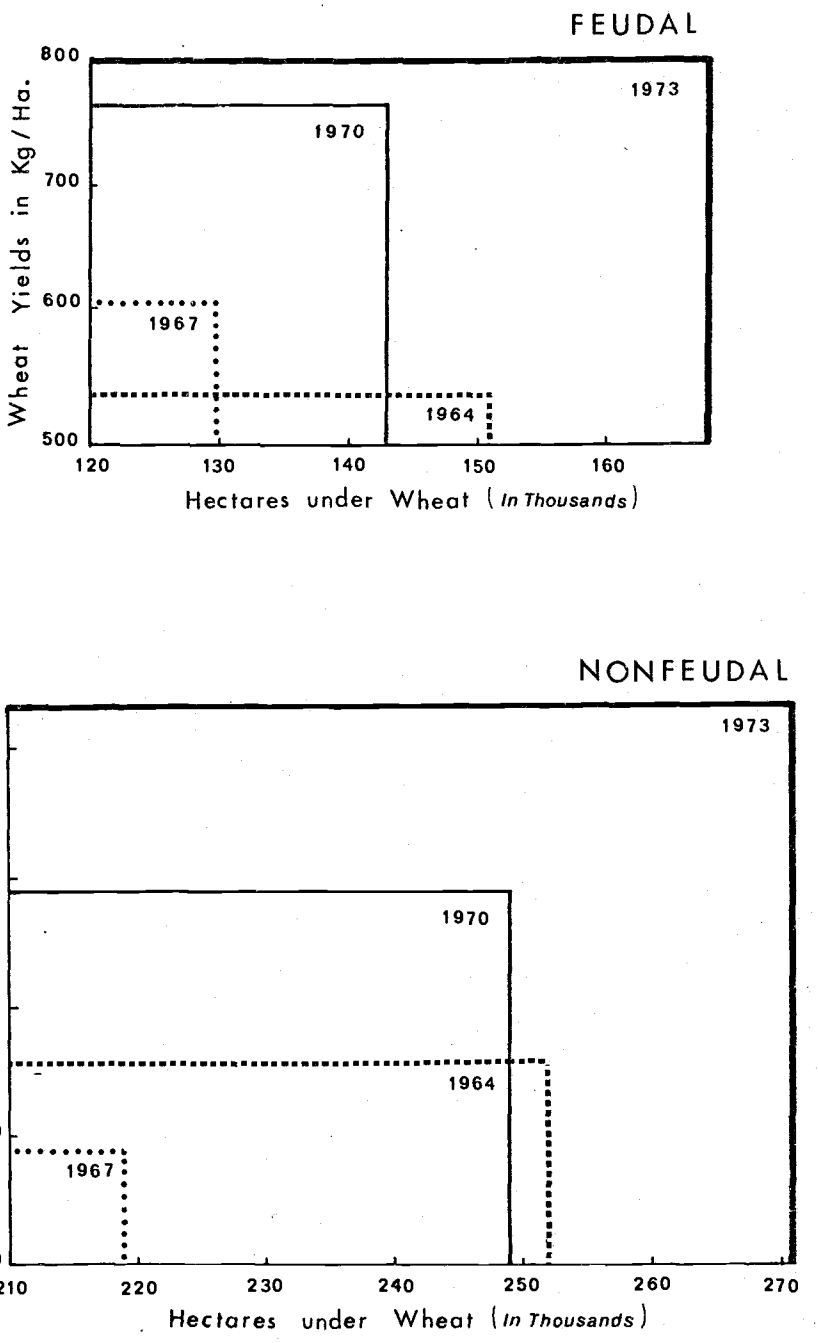

Figure 15. Volume of Production of wheat, measured by acreage and yields 1960-74, District Raisen (feudal) and Sagar (nonfeudal), primary pair.

Note: Each box denotes volume based on three year averages. The last of the three year period appears on each box.

Source of Data: District Statistical Offices and Directorate of Economics and Statistics, Bhopal, 1974.

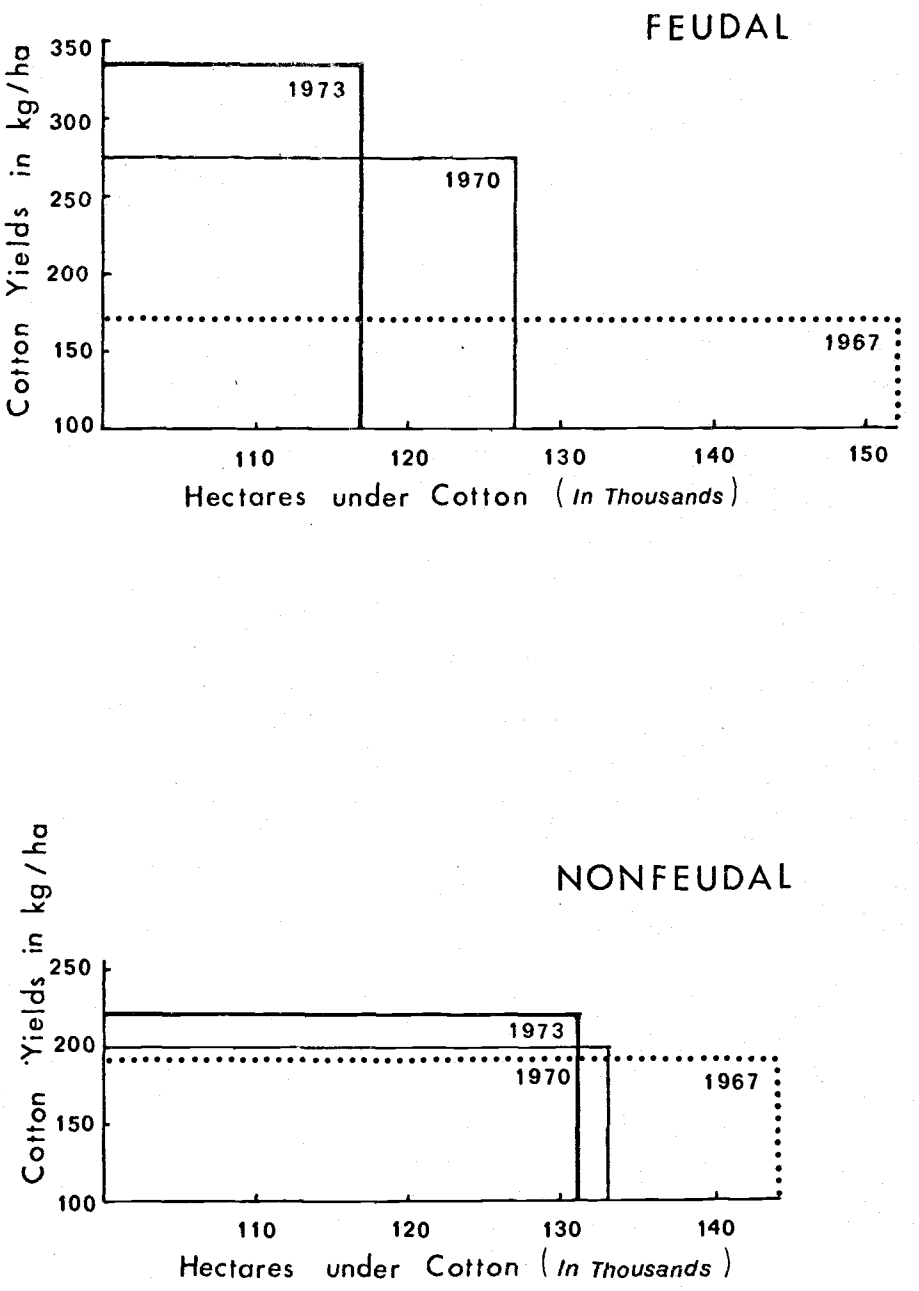

Figure 16. Volume of production of wheat, measured by acreage and yields 1965-74, District Khargone (feudal) and Khandwa (nonfeudal), secondary pair.

Note: Each box denotes volume based on three year averages. The last of the three year period appears on the box.

Source of data: Agricultural Statistics, 1950-71, Directorate of Agriculture, Madhya Pradesh, Bhopal.

2. After 1967, both districts exhibit a steady increase in yield for each point in years. But the increase in yields was substantially greater for the nonfeudal district.

3. Combined impact of yield and acreage increases on the volume of production was also found to be substantially higher for the nonfeudal district.

Relative increases in yields and volume of production of wheat, which is the main cereal crop in the area, was found to be greater in the nonfeudal district during the time period of study.

Comparison of the districts of the secondary pair (Fig. 16), in terms of the volume of production of cotton, which is the main crop, affected by yield and acreage variations revealed different results. (1) The volume of production did not change significantly for both districts during the time period, and (2) the decreases in acreage were always accompanied by increases in yields, but (3) the increases in yields were significantly higher for the feudal district compared to the nonfeudal.

Relationship of Yield Variations to Fertilizer, Better Seed and Pesticide Use

Since yields are strongly affected by the use of fertilizer, seeds and pesticides, it was felt necessary to examine the magnitude of impact of each of the above modern inputs on yields in the two districts.

In the absence of districtwise published data on variations in the use of fertilizers, pesticides and seeds for the feudal and the non-feudal district, the analysis was undertaken on the basis of field survey data.

In order to assess the magnitude of impact of the inputs on yields, multiple regressions were drawn with yield as the dependent variable and fertilizer, seeds and pesticides as the independent variables. The independent variables were computed as follows:

1. Fertilizer = $\frac{\text{Total expenditure on fertilizers}}{\text{Acres of land owned}}$

2. Seeds = $\frac{\text{Total expenses on purchase of seeds}}{\text{Acres of land owned}}$

3. Pesticides = $\frac{\text{Total expenditure on pesticides}}{\text{Acres of land owned}}$

Since use of fertilizers was dependent to a great extent on irrigation, the latter was entered as dummy variable; those irrigating equivalent to one and those nonirrigating equivalent to zero. In order to assess the magnitude of impact of the independent variables singly and jointly on yields, the variables were entered in the model in the stepwise order of irrigation entering first, followed by fertilizers, seeds and pesticides (Table 24).

Table 24. Regression Coefficients of Yield as the Dependent Variable and Fertilizer, Seed and Pesticide Use as the Independent Variable, Primary Pair, 1975.

	Raisen (feudal)	Sagar (nonfeudal)
Constant	227.01	186.58
	(9.04)	(7.6)
Irrigation	116.8 **	193.8 **
	(2.02)	(4.2)
Fertilizer	.90	-.62
	(1.3)	(.77)
Pesticide	-.72	11.3**
	(.06)	(2.4)
Seeds	.54	.28
	(.35)	(.65)
R^2	.27	.45

Note: Figures in parentheses are the T values.
** Significant at the .05 level.
Source: Survey Data 1975.

The results of the regression was summarized as follows:

1. Irrigation was the only variable which was statistically significant in both districts explaining the variations in yield in both the districts but had a higher regression coefficient value for the nonfeudal district.

2. Pesticide use was also significant in explaining yields in the nonfeudal district but it had a negative coefficient value, although insignificant, in the feudal district.

3. The four variables in the equation were able to explain 45 percent (R^2 = .45) of the variation in yield in the nonfeudal district, whereas they only explain 27 percent (R^2 = .27) of the variation in the feudal district. In other words, there were factors other than these four major inputs, not included in the equation, that were affecting yields in the feudal district.

Irrigation was found to be affecting yields very strongly in both the districts. Since it was observed during field survey that extent of irrigation was strongly dependent on credit facilities, variations in credit-irrigation-yield relationships were next examined for the feudal and the nonfeudal districts of the primary pairs. Parallel analysis for the secondary pair was not possible due to absence of data on credit advancements.

Relationship of Irrigation and Credit to Yields

The relationship of wheat yields and irrigated acreages over the time period of 1960-61 to 1974 were first examined graphically (Figs. 18 and 19). Variations in terms of the relationship was observed in the two districts. In the feudal district, yields did not as strongly reflect the effects of irrigation as it did in the nonfeudal district.

To further verify the variation in the relationship of irrigated acreage under wheat to yields in the feudal and the nonfeudal district,

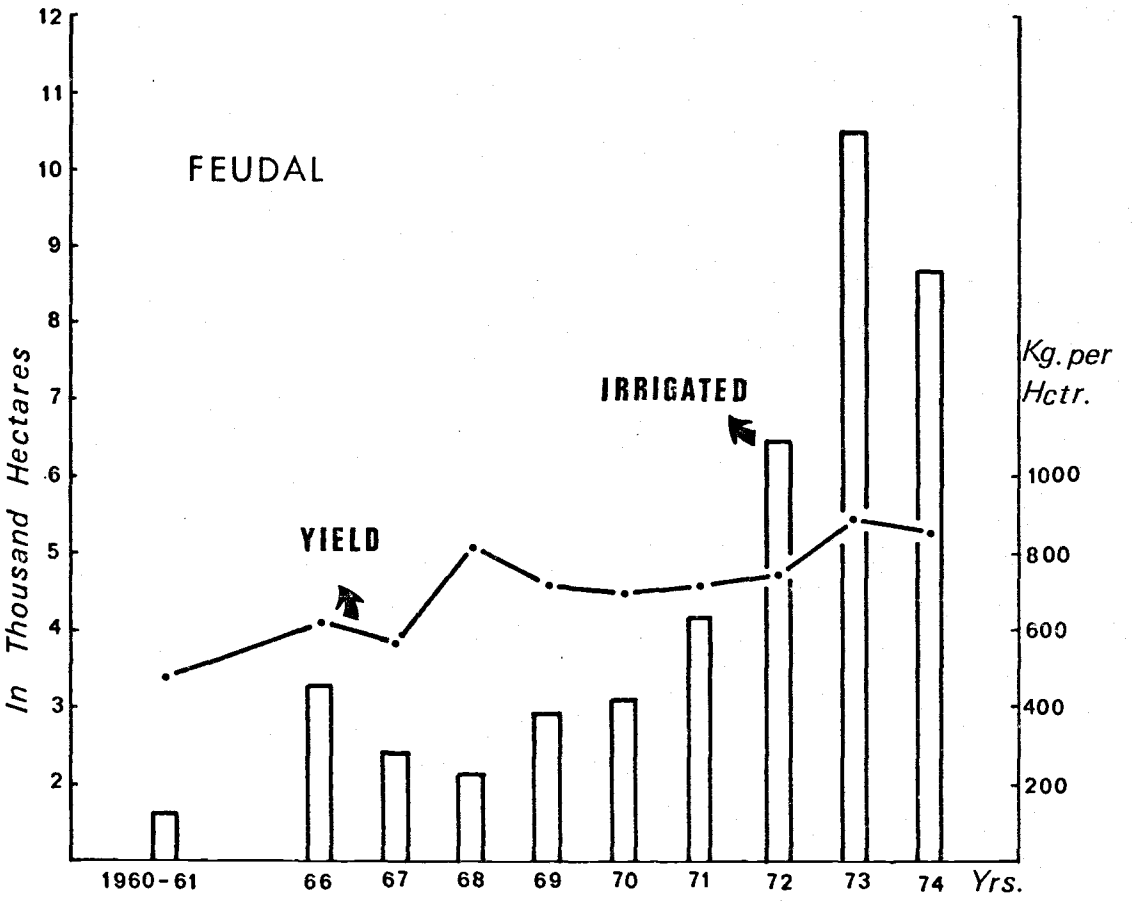

Figure 17. Relationship of area under irrigated wheat to yields of wheat on irrigated and unirrigated land (1960-74), District Raisen (feudal), primary pair.

Source: District Statistical Office Raisen; Directorate of Economics and Statistics, Bhopal, 1974.

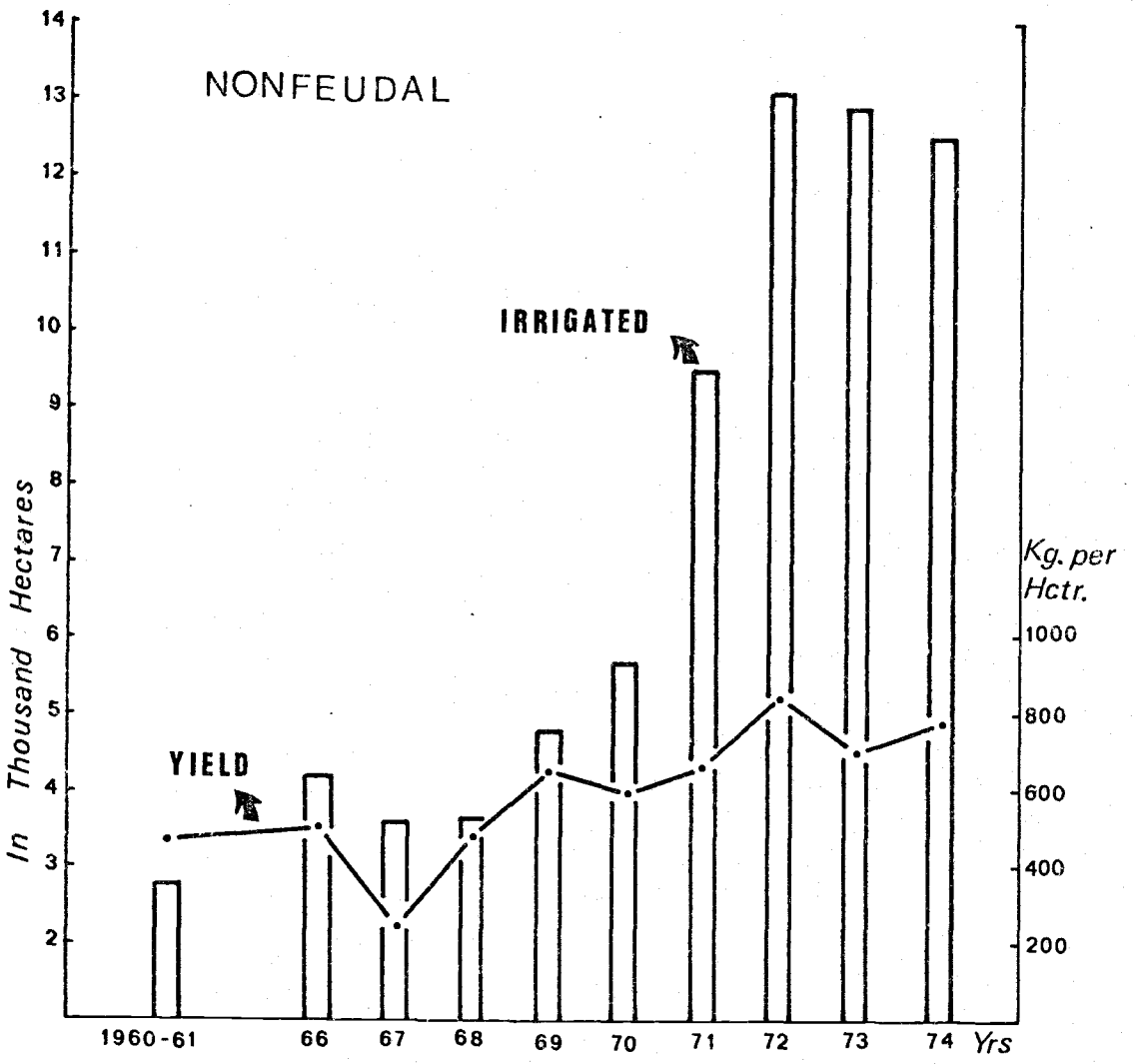

Figure 18. Relationship of area under irrigated wheat to yields of wheat on irrigated and unirrigated land (1960-74), District Sagar (nonfeudal), primary pair.

Source: District Statistical Office, Sagar; Directorate of Economics and Statistics, Bhopal, 1974.

yield as the dependent variable was regressed on irrigated acreages as the independent variable with each year of 1960 to 1974 as the data points. The results show a stronger correlation of the two variables in the nonfeudal district (see Table 25 for R values). In the nonfeudal district, variation in irrigation explained 65 percent of variation in yields whereas in the feudal district only 45 percent of the variation in yields was explained by irrigation (see R^2 values in Table 25). The T values reveal a much higher significance level of relationship for the nonfeudal district (.001 for the nonfeudal compared to .01 for the feudal district). It may be recalled here that in the earlier

Table 25. Regression Coefficients of Yield and Irrigated Acreages of Wheat, Primary Pair, 1975.

	Raisen (feudal)	Sagar (nonfeudal)
Constant	583.3	310.3
	(9.3)	(5.1)
Irrigation	.03	.03
	(3.0) *	(4.7) **
R^2	.45	.66
R	.67	.81

Note: Figures in parentheses are T values.
* Significant at the .01 level.
** Significant at the .001 level.
Source: District Statistical Office of Raisen and Sagar; Directorate of Economics and Statistics, Bhopal 1974.

regression analysis of variation in yields, explained by the use of irrigation, fertilizer, pesticide and seeds (Table 24), the variable irrigation had a higher regression coefficient for the nonfeudal district.

Credit, Irrigation and Yield

In order to assess the magnitude of effect of irrigation and credit on yield the dependent variable, the two independent variables of irrigated hectares under wheat and credit advancements for the years 1960 through 1974 were considered jointly. The degree of relationship of the two variables was first examined (Fig. 20) and a high correlation and R^2 value was obtained for both the districts, suggesting strong dependency of irrigation on credit.

Next, the relationship of yields to the two independent variables were examined independently. Relationship of yields to irrigation has been ascertained earlier. Results of regression of yield on credit reveals a higher R^2 value and significance level for the non-feudal district, meaning that the variability in yield was being explained to a greater degree in the nonfeudal district as compared to the feudal, when credit was considered as the single independent variable (Table 26).

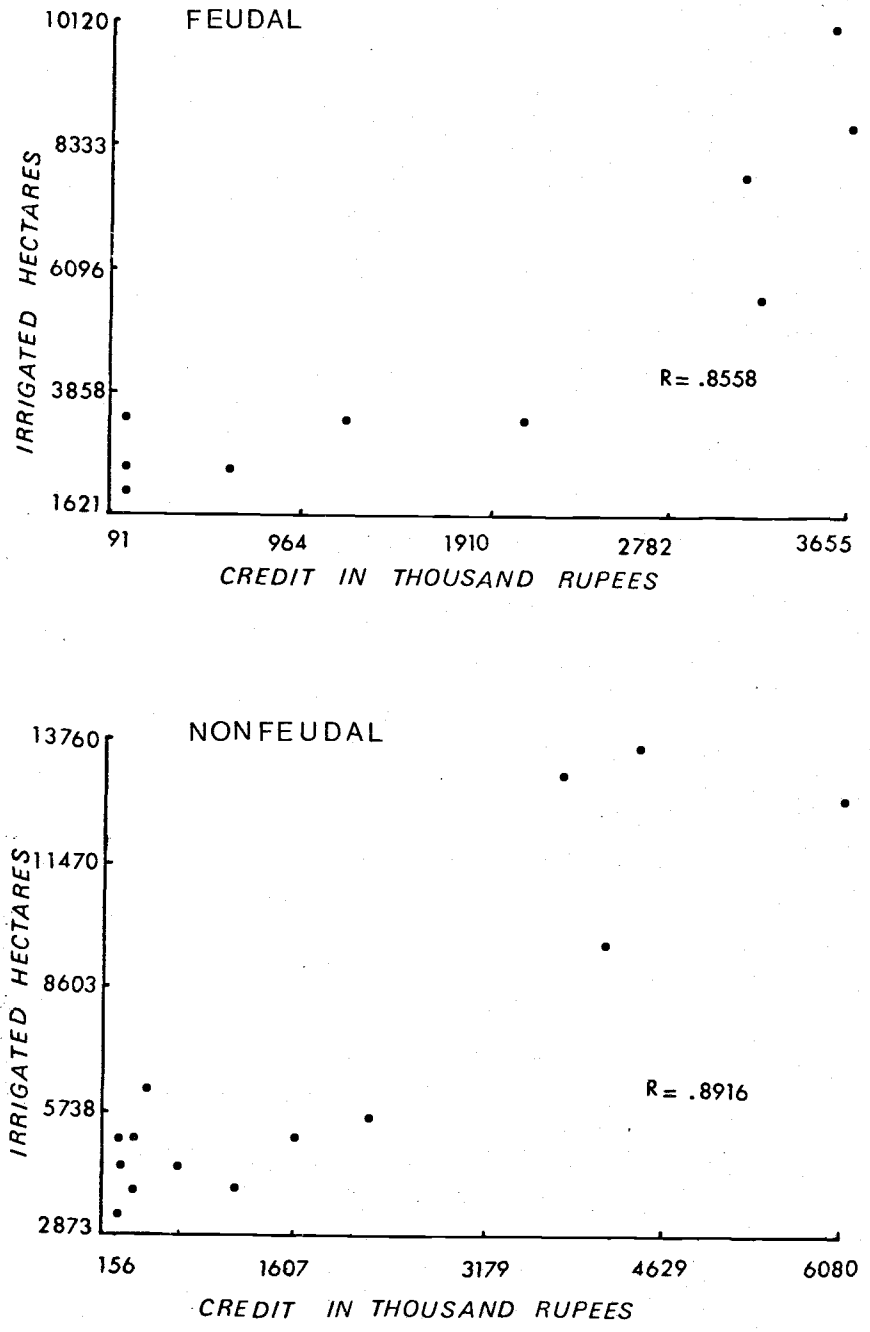

Figure 19. Credit and irrigation correlationship, Districts Raisen (feudal) and Sagar (nonfeudal), primary pair, 1960-74.

Source of Data: District Statistical Offices of Raisen and Sagar; Co-operative Central Bank, Bhopal, 1975.

Table 26. Regression Coefficients of Yields of Wheat and Credit Advancements, Primary Pair, 1975

	Raisen (feudal)	Sagar (nonfeudal)
Constant	592.5	413.3
	(18.5)	(11.7)
Credit	.00	.00
	(4.3)**	(5.8)**
R^2	.63	.75
R	.80	.86

Note: Figures in parentheses are the T values.
** Significant at the .001 level.
Source: District Statistical Office, District Co-operative Bank, Raisen and Sagar, 1974.

Since credit and irrigation were already found to be strongly co-related, the combined effect of the two variables was further examined by the help of multiple regression (Table 27) in order to assess the joint effect of the two variables on yield for the two districts.

The results still reveal a higher R^2 value for the nonfeudal district. Both variables jointly are able to explain 76 percent of the variation in yield in the nonfeudal districts compared to only 63 percent in the feudal district. The examination of the T values however, reveals that (1) inclusion of both the variables of irrigation and credit in the equation gave a much higher significance level of relationship for the variable credit in both the districts, meaning that when credit

Table 27. Multiple Regression Coefficients of Yields of Wheat on Irrigated Wheat Acreage and Credit Advancements, Primary Pair, 1960-74

	Raisen (feudal)	Sagar (nonfeudal)
Constant	593.2 (10.7)	376.8 (6.0)
Irrigation	-.0002 (.01) n/	.009 (.07) n/
Credit	.00006 (2.2)**	.00005 (2.0)*
R^2	.63	.76

Note: Figures in parentheses are the T values.
* Significant at .1 level.
** Significant at .05 level.
n/ Not significant.
Source of data: District Statistical Office and District Co-operative Bank, Raisen and Sagar, 1974.

and irrigation were both considered, credit turned out to be the more significant variable. The reason irrigation was not significant was because of the co-linearity between credit and irrigation; (2) the significance level of credit turns out to be higher for the feudal district than for the nonfeudal district. In other words, probability of credit strongly affecting yields was at 95 percent confidence level for the feudal district and at only 90 percent level for the nonfeudal district.

Finally a T test was made to determine whether the variations in the observed relationships of variables between the two districts could be regarded as statistically significant so as to reject the null hypothesis of no variance between the districts. Results appear in Table 28.

Table 28. Statistical Test of Variance Between the Feudal and the Nonfeudal District, Primary Pair

	Raisen (feudal)	Sagar (nonfeudal)
Mean	689.7	559.4
Std. error of mean	29.0	41.4
Variance	10899.0	22287.2
Standard deviation	104.3	421.3
T value	-2.58	
Degrees of freedom	24	
T table at .05	2.06	
T table at .01	2.797	

Source of data: District Statistical Office, District Co-operative Bank, Raisen and Sagar, 1974.

Since the calculated T value of -2.58 was more than the critical T at .05 level, in a two tailed test, the hypothesis of variance between the two districts was accepted at 95 percent confidence level.

Summary

In the analysis of ownership patterns, the district of Raisen of the primary research pair was found to be reflecting the past feudalistic background in having a greater area and number under large

size holdings. The distribution of ownership in the district pairs of the secondary pair, on the other hand revealed no such differences.

Analysis of farming patterns revealed a greater intensity of farming measured by double cropped acreages, in the nonfeudal district. Although production and yield levels were found higher in the feudal district, greater increases in the yield levels and volume of production was observed in the nonfeudal district for the study period. Use of irrigation, fertilizers, pesticides, better seeds and credit as factors of production were found to be affecting yields to a greater degree in the feudal district compared to the nonfeudal. Also, variables of irrigation and pesticides were found more significant in the nonfeudal district, compared to the feudal.

The feudal district however, revealed a greater extent of reclamation of waste lands and a greater significance level for credit as a variable.

The secondary pair, as far as the analysis could be done, revealed no significant difference in the feudal and the nonfeudal district in terms of distribution of ownerships or in the intensity of farming operations. On the contrary, some evidence of better farming trends for the feudal district was observed. The reason for the absence of significant differential levels in the two districts appeared to be the almost similar tenure patterns of peasant

proprietorship, prevailing in both the districts as a result of early withdrawal of the feudal tenure system from a large part of the feudal district in the secondary pair. Results were indicative of a feudal system more progressive than the primary pair.

Following the findings of variations in agricultural performance between the feudal and the nonfeudal district of the primary pair, the next chapter was devoted to a detail inquiry into farm practices of the two districts by size classes. The objective was to assess whether or not such district level variation as were observed in the present chapter, were also perceptible in the farm practices by various size classes.

VI. COMPARATIVE ANALYSIS OF FEUDAL AND NONFEUDAL DISTRICTS UNDER FARM PRACTICES AND PRODUCTIVITY LEVELS BY FARM SIZE CLASSES

Evidences of differential patterns of agricultural efficiency between the feudal and the nonfeudal districts was obtained in the previous chapter. This final chapter undertakes to probe in the differences in farming patterns and productivity levels in the two districts by farm size classes. Presuming that farm practices would significantly vary in the broad farm size classes of small, medium and large landholders, the investigation was directed to economic responses and efficiency levels of each size class in the two dissimilar districts under uniform governmental programs.

The analysis was based on data gathered during field survey, undertaken in the primary research pair. Data was acquired on agricultural practices and utilization of governmental services from each interviewed landholder.

The sample population, taken from each district in the pair was grouped into small, medium and large, based on their economic levels, as follows:

1. Marginal and small farmers who owned holdings of two hectares and less.

2. Medium size holders who owned above two hectares and up to 10 hectares.

3. Big holders who owned holdings above 10 hectares.

The items scrutinized to assess the agricultural level of each class were (1) farm practices, (2) production factors used and (3) productivity patterns. On each of these items, detail information was secured through the survey questionnaire.

Farm practices, production factors and productivity levels were categorized and classified. The percent values of holders in each size class in each category were obtained through cross tabulations. The allocation of sample by farm size and by each district appears in Table 29. As mentioned earlier, the values obtained

Table 29. Allocation of Sample by Farm Size and District, Primary Pair, 1975

Size class	Raisen (feudal)	Sagar (nonfeudal)
Small	12	27
Medium	26	22
Large	14	6
Total	52	55

through cross tabulation were percentages and expressed occurrences per hundred. The percent values, at times could be misleading, particularly when size class observations were as low as 6 or as high as 26. During the analysis, the fact however, was kept in mind in order to avoid misleading conclusions. The significance of

association by size class and the difference between the districts, for the variables relating to farm practice or use of modern inputs and governmental services were ascertained through chi-square tests. Since results until now have been indicative of a consistent variance between the feudal and the nonfeudal district of the primary pair, a confidence level of 90 percent and above was considered strongly significant. Nevertheless, a confidence level of less than 90 and greater than 80 percent was considered indicative of a difference between districts that was not totally a chance occurrence. The null hypothesis of no variance was therefore accepted at below 80 percent (. 20 significance level) confidence level.

Characteristic feature of each class was then identified on the basis of the percent values obtained for each variable. Such characterization was itemized under (1) personal traits of each class, and (2) production resources and modernization traits. It was presumed, on the basis of earlier studies (Biggs 1974, Johnson and Kilby 1975, Kanel 1967) that significant differences on each of the variables were likely to be encountered in the different farm size classes. The investigation was then directed to comparison of each class between the two districts.

Under personal traits, the data gathered and dealt with were

(1) caste, (2) literacy level and (3) family size.[14/] Under farm practice, production resources and productivity traits, the variables examined were (1) implements, (2) labor, (3) marketing of crops, and (4) yield levels. The variables considered under modernizing traits were the specialized inputs and governmental services availed, such as irrigation, fertilizers, better seeds, pesticides, farm extension and credit. Finally, impact of reform legislation on different classes in the feudal and the nonfeudal district was tested by the degree and manner in which the different classes were affected.

Size Class Structure in the Feudal and the Nonfeudal District

In the two samples drawn, one from the feudal and the other from the nonfeudal district, the percent distribution of holders in each size class was found to be as shown in Table 30. Each size class

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14/ The variable family size was initially considered on the presumption that the small holders class, dependent mostly on family labor, was likely to have larger families, whereas, the large holders, not dependent so much on family labor, may have small families. On investigation, it was found that family size did not vary with size class. The variable was hence dropped as a characteristic factor for farm classes.

Table 30. Size Class Structure (by percent), Primary Pair Districts, 1975

Size class	Raisen (feudal)	Sagar (nonfeudal)
Small	23	49
Medium	50	40
Large	27	11

Source: Survey Data, 1975.

was relatively well represented in the sample for each district. The distribution in Table 30 nevertheless reflects the difference in the two districts in terms of the distribution of ownership. The small holders class was much larger in the nonfeudal district; 50 percent of the sample in the nonfeudal district consisted of small farmers compared to 40 percent in the feudal district. The large holders class was one and a half times larger in the feudal district.

Comparison of Personal Traits by Size Class in the Feudal and the Nonfeudal District

The first two variables of caste and literacy level were examined on the assumption that in the rural social structure, members of high caste were most often the socio-economically privileged class, which in turn was reflected in the educational levels. 15/

15/ Descendants of the priestly and warrior class are identified as high caste and are known to occupy higher socio-economic status in society.

Hence, members of high caste were expected to constitute a big proportion of the large holders class and were expected to possess a higher literacy level. The opposite of this was expected to be true for the small size class.

Table 31. Caste Distribution, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size class	Raisen (feudal)		Sagar (nonfeudal)	
	High	Low	High	Low
Small	0	26	26	74
Medium	38	62	33	67
Large	67	33	33	67
Total of sample	40	60	30	70

Note: Small (2 hectars and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).
Source: Survey Data, 1975.

The data revealed that the small holders largely belonged to low caste. The caste distinction between the small and large size class was found more marked in the feudal district than in the non-feudal district. In the feudal district the entire small size class belonged to low caste, whereas a majority of holders in the large size class belonged to high caste. In the nonfeudal district, approximately one-fifth of the small holders were in the high caste and about two-thirds of the large size holders were from low caste.

Similarly, literacy distinction between size classes was also

found less marked in the nonfeudal district (Table 32). In the feudal district, 75 percent of holders in the small size class were illiterates as compared to none in the large size class were found to be illiterates. In the nonfeudal district, a fairly good proportion of holders in the large size class were found to be illiterate. Overall educational level, regardless of size was found to be higher in the feudal district.

Table 32. Literacy Levels, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size	Illiterate	Primary	Middle	High school
Raisen (feudal)				
Small	75	25	0	0
Medium	46	27	23	0
Large	0	43	43	14.3
Total of sample	40.4	31	23	4
Sagar (nonfeudal)				
Small	59.3	33.3	7.4	0
Medium	32	50	9	9
Large	17	83	0	0
Total of sample	43.6	45.5	40.3	3.6

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).
Source: Survey Data, 1975.

The caste and literacy distinction in farm sizes, resultant of socio-economic conditions, being greater in the feudal district, tends to lend a power structure to rural society that leans heavily on the side of the privileged class.

The medium holders group was found to be distributed between the high and low caste and a significant number of illiterate were found in both districts, but the proportion was higher in the feudal district.

Production Resources, Farm Practices and Productivity

The variables examined to typify the production resources, farm practices and productivity of each size class were (1) degree of fragmentation of holdings, (2) type of implements used, (3) labor, and (4) yield patterns.

Fragmentation of Holdings

In the nonfeudal district, 55.6 percent of the holdings were unfragmented, whereas only 43 percent of the holdings were found to be unfragmented in the feudal district (Table 33). Also, the number of fragmented holdings located far apart was much higher in the feudal district; 39.6 percent located far apart in the feudal district compared to 17 percent in the nonfeudal district. Fragmentation thus, was found to be more common in the feudal district.

Table 33. Fragmentation of Holdings, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size	Unfragmented	Fragmented but close	Fragmented and far
Raisen (feudal)			
Small	54.5	18	27
Medium	43.5	8.7	48
Large	36	28.6	36
Total of sample	44	17	40
Sagar (nonfeudal)			
Small	76	16	8
Medium	38	28.5	33.3
Large	33.3	66.7	0
Total of sample	56	27	17.3

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. No significant association between farm size and fragmentation in the feudal district.
b. Significant association (.00 level) between size and fragmentation in the nonfeudal district.
c. Significant differences (.04 level) between districts in fragmentation.

Source: Survey Data, 1975.

Examining fragmentation in various classes in each of the districts, the table reveals that majority of holdings in the small size class were unfragmented, the proportion was higher in the nonfeudal district (76 percent) compared to the feudal district (54 percent). The number of holdings located far apart in the small size class were, on the other hand lower in the nonfeudal district (8%) compared to the feudal (27.3%). The association between farm size and fragmentation was found to be statistically highly significant in the nonfeudal district, and not significant in the feudal district.

The medium size class shows the largest proportion of holdings, located far apart, among all the three classes and the percentage was higher in the feudal district. Since the pattern in the feudal district had a low significance level, it was not possible to make valid judgement about the feudal district.

Summarizing, fragmentation was found minor in small size class, greater in the medium holders class and even greater in the large size class. The difference in fragmentation between the two districts was found to be statistically significant at 96 percent confidence level.

Fragmentation can occur through two types of processes. Firstly, it can occur through inheritance of a piece or pieces of land, not contiguous to one's holding. Secondly, it can occur through sale or purchase of pieces of land not contiguous to one's

parcel. While it is difficult to account for the difference encountered in the extent of fragmentation in the feudal and the nonfeudal district by the first process, it is likely that the greater extent of fragmentation in the feudal district although a chance factor could have come about through scattered purchases of holdings of the marginal farmers by the big landholders. Since fragmented and far apart holdings were more in the big size class in the feudal district and were nonexistent in this class in the nonfeudal district, the inference of a gradual transfer of land holdings from the marginal and small size class to large holders, under exploitative tenure conditions, can be substantiated.

Implements Used

The variable implement was examined to identify the difference in the use of nonmechanical (traditional) and mechanical (modern) implements in the two districts by size class (Table 34).

The small and medium size class were largely dependent on traditional implements in both districts. The results indicate a greater percentage of holders in the big size class in the nonfeudal district using mechanical implements (67%) compared to the low (21%) of feudal district. The distribution in the nonfeudal district was found to be at 100 percent confidence level whereas the distribution in the feudal district had a lower significance level.

Table 34. Use of Mechanical/Nonmechanical Implements, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size class	Mechanical	Nonmechanical
Raisen (feudal)		
Small	0	100
Medium	8	92
Large	21.4	78.6
Total of sample	9.6	90.4
Sagar (nonfeudal)		
Small	0	100
Medium	0	100
Large	66.7	33.3
Total of sample	7.3	92.7

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. Statistical indication of association (.16 level) between farm size and implements in the feudal district.
b. Significant association (.00 level) between farm size and implements in the nonfeudal district.
c. Differences in use of implements between districts not significant.

Source: Survey data, 1975.

The variance between the two districts was not found statistically significant. The percent values also did not indicate a significant degree of mechanization in any of the two districts.

Use of Farm Labor

Use of farm labor was examined to assess the dependence on hired and family labor by each size class in the feudal and the non-feudal district (Table 35).

In the feudal district, 48 percent of the holders were found to be dependent on hired labor, whereas only 18 percent of the holders in the nonfeudal district were using hired labor, The variance between the two districts was found to be at 96 percent confidence level.

The size class comparison revealed that whereas the small size class was largely dependent on family labor, the large holders were largely dependent on hired labor and the dependence was greater (100%) in the feudal district. The association was found highly significant in both the districts. The lesser dependence on hired labor by the big size class of the nonfeudal district probably validates the earlier findings of greater use of mechanical implements by this class, observed in Table 34. It can also be inferred that the greater use of hired labor in the feudal district was related to availability of cheap labor due to a larger agricultural labor population in the

Table 35. Use of Farm Labor, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size class	Hires labor	Family labor
Raisen (feudal)		
Small	16.7	83
Medium	34.6	65
Large	100	0
Total of sample	48	52
Sagar (nonfeudal)		
Small	4	96
Medium	23	77
Large	67	33
Total of sample	18.5	81.5

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. Significant association (.00 level) between farm size and use of farm labor in the feudal district.
b. Significant association (.001 level) between farm size and use of farm labor in the nonfeudal district.
c. Significant differences (.004 level) in use of farm labor between districts.

Source: Survey Data, 1975.

district. The difference in the use of farm labor between the two districts was found to be highly significant.

Marketing of Crops

Incidence of marketing of crops was examined to assess mainly the extent of market exposure in each size class in the

two districts (Table 36).

Table 36. Marketing of Produce, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Size class	Raisen (feudal)	Sagar (nonfeudal)
Small	8.3	15.4
Medium	76.9	59
Large	100.0	100.0
Total of sample	67.3	42.6

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. Significant association (.001 level) between farm size and marketing in the feudal and the nonfeudal district.

b. Significant differences in marketing (.025 level) between districts.

Source: Survey Data, 1975.

The small size class was found largely subsistent and not exposed to market conditions. But the extent of market exposure in this size class was found higher in the nonfeudal district. The big holders class, on the other hand, was 100 percent market oriented in both the districts.

The medium holders group was found to be conspicuous for its variation from the small size class in market exposures. A high proportion was commercially inclined. But the percentage of this class was higher in the feudal district; 76 percent of the holders were marketing their crops in the feudal district as compared to 59 percent in the nonfeudal district. In both districts, association

between the size class and marketing were found to be highly significant.

On the whole, incidence of marketing was higher in the feudal district (67.3 percent) compared to the nonfeudal district (42.6 percent). The difference in marketing between the districts was found to be highly significant.

Yield Comparison

Yields of wheat, reported by survey respondents were analyzed to assess the degree of productive efficiency of each class and to identify the yield levels by size classes in the feudal and the nonfeudal districts (Table 37). Yields of wheat, measured in kilograms per hectare were grouped into (1) less than 100 and the lowest, (2) greater than 100 through 300, which was found to be the mode, and (3) greater than 300, considered the higher yield level.

The results revealed that the central tendency of yield level in all the three classes in each of the districts was between 100 to 300 kilograms per hectare. Although the results obtained of variance between the two districts were statistically at a very low significance level, some observations were found significant.

1. Approximately one-third of the holders in the small size class in both the districts were in the lowest yield level. The fact was comprehensible since the small class includes the marginal

Table 37. Yield Levels of Wheat, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Less than 100 lowest	100 through 300 the mode	Above 300 higher
Raisen (feudal)			
Small	33.3	58.3	8.3
Medium	11.5	73	15
Large	7	78.6	14
Total of sample	15.4	71.2	13.5
Sagar (nonfeudal)			
Small	29.6	52	18
Medium	22.7	54.5	23
Large	0	83.3	16.7
Total of sample	23.6	56.4	19

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. No significant association between farm size and yields in the feudal and the nonfeudal district.

b. Differences in yields between districts at a low significance level.

Source: Survey Data, 1975.

farmers whose yields were expected to be lowest.

2. It was also normal that almost none from the large size class belonged to the lowest yield group.

3. Whereas 75 percent of holders in the large size class in each of the districts were obtaining yields between 100 to 300 Kg/Ha., a large percentage (above 50%) of holders in the small and medium

holders group also belonged to this yield level. In other words the findings were consistent with the earlier studies that a majority of small and medium holders were just as productive per unit of land as the large farmers.

Production Factors and Services

Variables considered under production factors and services, to compare the degree of modernization penetrating in the cultivating classes in the feudal and the nonfeudal districts, were (1) practice and modes of irrigation, (2) use of chemical fertilizers, (3) source of seeds, (4) use of pesticides, (5) farm extension services, and (6) use of credit institutions.

Use of Irrigation

The practice of irrigation and the common modes of irrigation adopted by each size class was examined to assess the variation in the extent of irrigation in the feudal and the nonfeudal district (Table 38).

The results indicate no significant variance in the overall occurrence of irrigation in the two districts. Nevertheless, the association of irrigation to farm size within each district was found statistically significant at 90 percent level. Accordingly, comparison of the percent values by size class reveals that there was a

Table 38. Irrigation, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal)
Small	25	22
Medium	11	27
Large	42	67
Total of sample	23	29

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (about 10 hectares).

a. Significant association (.08 level) between farm size and irrigation in the feudal district.

b. Significant association (.008 level) between farm size and irrigation between districts not significant.

Source: Survey Data, 1975.

greater occurrence of irrigation in the medium and large holders class in the nonfeudal district. The results were considered important since they endorse the findings in Chapter V of a higher coefficient value for irrigation in the nonfeudal district. Spread of irrigation in the small size class was found limited in both the districts.

Use of mechanical source of irrigation (pumps) was observed to be very low in both districts (Table 39). The table indicates a greater use of pumps for irrigation in the nonfeudal district, by the medium and large holders group. Valid judgements could not be made due to very small number of observations. Nevertheless, the statistical test of variance was indicative of some difference in the use of mechanical source of irrigation between districts.

Table 39. Mechanical Source of Irrigation, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal)
Small	8	7.4
Medium	0	13.6
Large	14	33
Total of sample	6	13

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).
a. Variance between the two districts significant at .20.
Source: District Surveys, 1975.

Fertilizer Use

Use of chemical fertilizer was next examined to assess the degree of spread of the modern input in each of the classes in the feudal and the nonfeudal district. It was determined during the field survey that the high cost of fertilizer and nonavailability of irrigation made fertilizer use almost prohibitive for the small and medium size holders.

In both districts, use of chemical fertilizer was found to be rather low, but lower still in the feudal district, although the difference between the two districts was not found statistically significant.

Examination of the size class variances within each district,

Table 40. Fertilizer Use, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal
Small	16.7	22
Medium	7.7	13.6
Large	35.7	83.3
Total of sample	14.3	25.5

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares.

a. Significant association (.08 level) between farm size and fertilizer use in the feudal district.
b. Significant association (.002 level) between farm size and irrigation in the nonfeudal district.
c. Difference in irrigation between districts not significant.
Source: District Survey, 1975.

the distribution was found statistically significant, but more significant for the nonfeudal district. Whereas a small percentage of holders in the small and medium size class were found using chemical fertilizers, a significantly higher proportion of holders in the big size class in the nonfeudal district were using fertilizers (83.3%) as compared to this class in the feudal district (36%).

Nevertheless, it might be recalled here that the variable fertilizer had a negative coefficient value (Table 24) in explaining the variation in yields in the nonfeudal district. It was inferred that although the occurrence of fertilizer used was greater, it was probably not used as effectively as in the feudal district.

In both districts a relationship between extent of fertilizer

use and irrigation was apparent through the tables. A greater incidence of irrigation in the nonfeudal district seems to be reflected in greater use of fertilizers.

Use of Pesticides[16/]

Use of pesticides, in general was found to be little higher in the feudal district; 48 percent of holders were using some kind of pesticide in the feudal district (Table 41) compared to the low percentage of 33.3 in the nonfeudal district. The variance, although at the low significance level of .17, was still considered indicative of some variance between the two districts.

An exception to the trend was observed in the greater proportion of holders in the big size class in the nonfeudal district using pesticides (83% vs. 71%). The pattern of variance observed within the nonfeudal district was at 99 percent confidence level.

Comparison of the different classes revealed that only one-third of the small size class used pesticides, whereas a great majority (70% and above) of the big size class were exposed to pesticide use. A higher proportion of the medium size holders in the feudal district were using pesticides compared to the nonfeudal district.

16/ The variable seed was dropped from analysis for being at a low statistical significance level in both districts.

Table 41. Use of Pesticides, Percent of Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal)
Small	33.3	34.7
Medium	42.3	18.2
Large	71.4	83.3
Total of sample	48	33.3

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. Significant association (.10 level) between farm size and pesticide use in the feudal district.
b. Significant association (.01 level) between farm size and pesticide use in the nonfeudal district.
c. Significance level of .17 was considered indicative of a difference between districts in pesticide use.

Source: Survey data, 1975.

The small and most of the medium size class cultivators, lacking knowledge about pesticides, seldom use them. Use of pesticide could be related to extension activity which was next examined to assess the variation in the dissemination of scientific knowledge in the feudal and nonfeudal district by size classes.

Farm Extension

Extension activity was found to be more active in the feudal district than in the nonfeudal (Table 42); 42.3 percent of all holders were aware of farm demonstration activity in the feudal district whereas only 23.6 percent of holders in the nonfeudal district were

Table 42. Extension Services Availed, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal)
Small	33	29
Medium	38.5	4.5
Large	57	67
Total of sample	42.3	23.6

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. Significant difference (.06 level) in spread of extension service between districts.

Source: District Surveys, 1975.

Table 43. Co-operative Credit Membership, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	Raisen (feudal)	Sagar (nonfeudal)
Small	42	11
Medium	34.6	41
Large	50	50
Total of sample	40	27

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).

a. No significant association between farm size and credit in the feudal district.

b. Significant association (.02 level) between farm size and credit in the nonfeudal district.

c. Significance level of .20 was considered indicative of difference between districts that was totally a chance factor.

Source: Survey data, 1975.

found to be knowledgeable about such demonstrations. The difference between the two districts was found to be highly significant.

Only less than one-third of the small holders group used extension services, whereas extension had reached to two-thirds of the big holders group. A much higher percentage of the medium holders class availed of extension in the feudal district (38.5%) than in the nonfeudal district (4.5%).

Governmental extension services appeared to be availed to a greater degree by the feudal district and by the large holders class.

Credit and Credit Institution

The co-operative credit organization, built up by the state, to bring redress to the situation of rural indebtedness of the small and marginal farming sector, was not found to have spread evenly on the rural scene (Table 43). A greater spread of co-operative credit was observed in the feudal district. The significance of variance of 80 percent level was indicative of the difference in the two districts that was not totally a chance occurrence.

The size class comparison revealed that whereas co-operative credit membership in the big size class was equal for both districts, credit membership of the small size class was found higher in the feudal district, although the total relationship was found of greater significance in the nonfeudal district.

The institution of private money lenders was found to be substantially active in the area; approximately one-fifth of the small and medium holders still dependent on private credit sources (Table 44). The entire big holders class in the nonfeudal district was found to have switched over from private sources of credit, whereas this class in the feudal district was found to be still patronizing private money lending (28.6%). The variance between the districts in terms of the dependency on private sources of credit was found to be at 100 percent significance level.

On investigation of the items on which most of the credit money was spent by different classes (Table 45), it was observed that with decreasing size of holdings, there was an increasing incidence of credit money being spent on family affairs. The medium holders spent a good deal on bullocks, fertilizers, seeds and pesticides. The major investments of the big holders class was on the implements and pumps. The comparison revealed that a substantial number from small and medium classes in the feudal district were investing in pumps for irrigation, whereas none from these classes invested in pumps in the feudal district.

Impact of Land Reform in the Feudal and the Nonfeudal District

With the help of the questionnaire, it was possible to make

Table 44. Classwise Distribution of Dependency on Private Sources of Credit, Percent Farmers Reporting by Size Class and District, Primary Pair, 1975

Size class	Feudal		Nonfeudal	
	Landlord	Moneylender	Landlord	Moneylender
1. Small	-	20	3.8	23.1
2. Medium	-	15.4	0	23.8
3. Large	-	28.6	0	0

a. Significant difference (.000 level) in dependence of private sources of credit between the two districts.

Source: Survey Data, 1975.

Table 45. Itemwise Distribution of Expenditures of Credit Money, Percent Farmers Reporting by Size, Class and District, Primary Pair, 1975

Size class	Expenditures				
	Family	Bullocks, improvements on land	Implements	Fertilizer, seeds and pesticides	Pumps
1	2	3	4	5	6
Feudal					
Small	50	9.1	18.2	27.3	-
Medium	38.5	23.1	15.4	11.5	-
Large	21.4	28.6	50	42.9	14.3
Nonfeudal					
Small	40.7	-	-	11.9	22.2
Medium	38.1	23.8	4.8	19.0	10.0
Large	33.3	-	83.3	-	33.3

Source: Survey Data, 1975.

some assessment of the degree of impact of reform measures on the rural cultivating classes (Table 46).

The benefits of reform, assessed on the basis of new ownerships of land or improvement on land, was found to be unevenly distributed in both the districts. Approximately one-tenth of holders in the small size class could be called beneficiaries. In the medium and large size class, the number of beneficiaries was higher in the nonfeudal district. A very significant number was found to be unaffected by reform measures and this group was higher in the feudal district.

A large percentage of holders in each district, declaring unawareness to governmental reform measures, reflects on the extent to which the measures had touched the rural population and also presumably to the fact that the effects on a large section of the rural population had been more adverse than beneficial, to be accredited to a reform program.

Summary

Comparison of the feudal and the nonfeudal district by farm size classes revealed that the feudal district was characterized by larger proportion of holdings in big size class, greater class distinctions in caste and literacy levels, and greater fragmentation of holdings.

Table 46. Reform Effects, Percent Farmers Reporting by Size Class and Districts, Primary Pair, 1975

Farm size	0	1	2	3
Raisen (feudal)				
Small	70	20	10	0
Medium	77	18	4.5	0
Large	50	35	7.1	7
Total of sample	67	24	6.5	2.2
Sagar (nonfeudal)				
Small	63	22	11	4
Medium	72	4.5	18	4.5
Large	50	33	17	0
Total of sample	65	16	14.5	3.6

Note: Small (2 hectares and less), Medium (2.1 to 10 hectares), Large (above 10 hectares).
Key to columns: 0 - Not aware of reform measures;
1 - Unaffected by reform;
2 - Beneficiaries;
3 - Adversely affected by reform.
Source: District Surveys, 1975.

The significance level of the variance between the two districts for the variables relating to farm practice and factors of production was ordered in a tabular form, starting from the highest to the lowest significance level (Table 47). Except for the variables of fertilizer, irrigation and yields, the rest were either significantly variant or indicative of variance between the two districts.

Table 47. Summary of Significant Differences in Farming Practices or Factors of Production Variables Between Districts, Primary Pair, 1975

Significance 1	Variables 2
.001	Private sources of loan money
.005	Use of hired and family labor
.025	Marking of crops
.05	Fragmentation, farm demonstration
.15	Pesticides
.20	Co-operative credit
> .20	Irrigation, mechanical source of irrigation, fertilizer, yields

A significance level of .20 was considered indicative of significant differences in the indicated variables between the two districts.

Nevertheless, the chapter emphasizes the analysis of difference between the districts by size class in terms of the use of modern inputs. A summary of variation in the extent of modernization of the factors of production for each size class and districts, as was obtained in the cross tables, was therefore presented in Table 48. The tabulated values, based on percent occurrences, were graded into numbers of X's for each percent value of 20.

The table revealed that there was greater extent of market exposure in the feudal district in the medium size class, a greater use of hired labor by the large class, greater occurrence of pesticide use by the medium class and a greater spread of extension

Table 48. Comparative Summary of Farm Activity by Size Classes in the Districts of Raisen (feudal) and Sagar (nonfeudal), Primary Pair by Percent of Holders

District	Size class	Farm practice		Production factors								Productivity		
		Market exposure	Hired labor	Modern implements	Irrigation		Use of fertilizer	Purchased seeds	Use of pesticides	Use of extension service	Use of credit co-op.	Yield		
						Pump						Low	Avg.	High
Raisen (feudal)	Small	X	X		XX	X	X	XXX	XX	XX	XXX	XX	XXX	X
	Medium	XXXX	XX	X	X		X	XX	XXX	XXX	XX	X	XXXX	X
	Large	XXXX XX	XXXX XX	XX	XXX	X	XXX	XXX	XXXX	XXX	XXX	X	XXXX	X
Sagar (non-feudal)	Small	X	X		XX	X	XX	XXX	XX	XX	X	XX	XXX	X
	Medium	XXX	XX		XX	X	X	XXX	X	X	XX	XX	XXX	XX
	Large	XXXX XX	XXXX	XXXX	XXXX	XX	XXXX XX	XXXX	XXXX X	XXXX	XXX		XXXX X	X
		Greater in feudal district		Greater in nonfeudal district					Greater in feudal district			*		

Key to the X's. X (1-20%); XX (21-40%); XXX (41-60%); XXXX (61-805); XXXXX (81-99%); XXXXXX (100%).

*Note that the big size class in the feudal district is getting very low yields whereas none in the nonfeudal.

Source: Survey Data, 1975.

and co-operative credit in the whole district.

In the nonfeudal district, there was a greater incidence of use of mechanical implements in the large size class, irrigation in the medium and large size class, fertilizer use by the small and large class, pesticide use by the large class. In reality, the occurrence of use of modern inputs by the large size class was found greater in the nonfeudal district than in the feudal district.

Conclusions related to the degree and causes of difference in agricultural patterns and efficiency between the feudal and the non-feudal district were drawn in the concluding chapter.

VII. CONCLUSIONS

This thesis was based on the hypothesis that within Indian tenure backgrounds, regional levels of agricultural efficiency would be variant in areas with feudalistic versus those with nonfeudalistic tenure backgrounds and would be dependent upon the degree of implementation of land reform, particularly in cases where feudal tenure systems had existed. Two districts in Madhya Pradesh, India were picked for detail field study, that were essentially equal in physical and administrative environment but differed in their institutional backgrounds. The district of Raisen inherited a long history of feudal tenure and the contiguous district of Sagar inherited a peasant proprietory system. Current patterns of agricultural operations were analyzed to assess whether or not there was variation in farming operations and efficiency under different tenure background, such that support or not, the hypothesis.

The results revealed that in spite of the national land reform program instituted by the state of Madhya Pradesh, designed to level out inequalities in land holdings, differences in rural ownership and livelihood structures were encountered that presented evidences of residual feudalistic traits in the district of Raisen. Evidence was available of a larger proportion of big holdings held mostly by members of high caste, a phenomena which is characteristic of a feudal

system. A comparatively greater reduction in the cultivating class during a decade presented indirect evidence of partial implementation of land reform that was designed primarily to grant ownership rights to landless cultivators. Traces of old institution of private money lending were observed to a greater degree in the district. Greater extent of fragmented holdings in the large size, led to conclude to a gradual usurption of land of the destitute cultivator class by the big holders class. Lastly, findings leading to evidences of greater use of governmental services such as land reclamation, extension and co-operative credit, indicate a greater utilization of such services by the feudal district.

Agricultural farm practices were found to be variant in the two districts of Madhya Pradesh, and the agricultural efficiency level in the feudal district appeared to be under constraints of a residual feudalistic organization.

The feudal district presented evidences of a lesser intensity of farm practices. The lesser intensity was observed in (1) lower proportions of double cropped acreages, and (2) lesser extent and use of irrigation, measured in terms of area irrigated per unit of well, farm to well ratio and proportion of holders obtaining more than one crop on irrigated land. The lack of intensity of farming was attributed to the presence of a larger big holders sector, who might not be very intensive farmers.

The nonfeudal district revealed greater intensity of farm practices in terms of (1) a proportionately greater area under double cropping, and (2) a greater use of irrigational facilities within the available limits. It was thus conclusive that the peasant proprietors of the nonfeudal district, being for a lengthy period of time under direct control of the state, as opposed to feudal intermediaries, were more intensively involved in farming operations.

Regional farming efficiency was also assessed to be relatively less in the district with the feudal background. Farming efficiencies were higher in the nonfeudal district, measured in terms of (1) yield increments affecting volume of production, (2) total impacts of the modern inputs of irrigation, fertilizer, pesticides on yields of wheat. Use of fertilizer, being a costly input, was a more significant variable in the feudal district. Also, the variable co-operative credit turned out to be highly significant in the feudal district, yet its effect through irrigation on yields of wheat was less compared to the nonfeudal district. The agricultural system of the nonfeudal district appeared superior to the feudal district, the major factors of production bearing greater effects on yield levels. The statistical test confirmed the hypothesis of variance between the two districts.

Data from governmental sources revealed yield levels for wheat, considered a measure of productivity, to be higher for the feudal district. No such variation in yield levels however, was

recognized in the field survey analysis. The survey analysis of wheat yields in the two districts by farm size classes showed a majority of farmers from both the districts contributing to the yield group of 100-300 kg. per acre. The study thus revealed no significant difference in productivity levels in the two districts. The common belief that the big holders have higher yield levels in the feudal district was not confirmed by the field research.

Farm class performances, measured in terms of the degree of utilization of modern farm inputs, was observed to be higher in the nonfeudal district. The results from the feudal district revealed a greater degree of market orientation, greater dependence on hired labor in spite of larger sized parcels on which mechanization was possible, and a greater use of governmental extension and credit services. The nonfeudal district revealed a greater occurrence of irrigation and fertilizer use. Incidence of pesticide use was found higher in the feudal district, possibly on account of the spread of extension activity. But use of pesticide as a factor affecting yields was already determined to be more significant in the nonfeudal district.

In the absence of exploitative tenure structures, adoption of modernized inputs has spread more widely in the various size classes in the nonfeudal district. In the peasant proprietory district, a greater percentage of cultivators in the medium size class

were irrigators, a greater percentage of holders in the small, medium and large size class were using chemical fertilizers, a greater percentage of farmers in all the three classes were purchasing better seeds. The better adoption of modern inputs had come about in spite of a weaker government extension activity and lesser co-operative credit service.

The weaker absorption and usage of governmental extension and credit facilities in the nonfeudal district was considered indicative of the channels into which governmental assistance had a tendency to flow. The weak power structure of a peasant proprietory institutional environment often results in a lack of ability to attract governmental attention and services, particularly by the subsistence sector.

The thesis findings from the primary pair suggest that the district of Raisen, having a background of feudalistic tenure institution, was relatively constrained in agricultural efficiency and modernization level, compared to the adjacent district of Sagar, that had a peasant proprietory tenure background. Secondly, while feudalistic systems are commonly known to be exploitative, evidence from the secondary pair indicate that in exceptional cases, a feudal order under a progressive monarch could produce an efficient farming system. Further research on the effects of feudalistic systems

on farming patterns is hence warranted. The overriding conclusion to be drawn is that characteristics of land tenure system seem to be an important influence on agricultural systems and must be considered in planning agricultural development programs.

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APPENDICES

APPENDIX 1

Appendix Table 1. Scale of Compensation (Second Schedule)

Land revenue per acre 1	Compensation payable per acre 2
1. Land revenue per acre does not exceed 1 Re.	50 times the land revenue per acre, subject to a minimum of Rs. 20.
2. Land revenue per acre exceeds Re. 1 but does not exceed 2 Rs.	Rs. 50 plus 40 times the amount by which the land revenue per acre exceeds Rs. 2.
3. Land revenue per acre exceeds Rs. 2 but does not exceed Rs. 3.	Rs. 95, plus 40 times the amount by which the land revenue per acre exceeds Rs. 2.
4. Land revenue per acre exceeds Rs. 3 but does not exceed Rs. 4.	Rs. 135 plus 35 times the amount by which the land revenue per acre exceeds Rs. 3.
5. Land revenue per acre exceeds Rs. 4 but does not exceed Rs. 5.	Rs. 175 plus 30 times the amount by which the land revenue per acre exceeds Rs. 4.
6. Land revenue per acre exceeds Rs. 5 but does not exceed Rs. 6.	Rs. 200 plus 25 times the amount by which the land revenue per acre exceeds Rs. 5.
7. Where land revenue per acre exceeds Rs. 6.	Rs. 225 plus 20 times the amount by which land revenue per acre exceeds Rs. 6.

Note: In the case of land holding having assured irrigation, the land revenue per acre shall be a sum arrived at by adding 1 Rupee to land revenue of such land.

Source: B. L. Ghotiya and Pilodita, Manual of Revenue Laws in Madhya Pradesh, The Lawyers' Home Publication, Indore, India, 1973.

Appendix Table 2. Number and Area of Holdings in Different Size Classes (Primary Pair)

Size classes in hectares	No. of holdings	Percent of total No. of holdings	Area in hectares	Percent of total area in holdings
Raisen:				
1. Less than .5	7,200	10.7	800	.19
2. .5- 1.0	1,800	2.69	1,300	.31
3. 1.1- 2.0	4,800	7.18	7,100	1.68
4. 2.1- 3.0	7,000	10.47	17,200	4.08
5. 3.1- 4.0	6,100	9.13	21,100	5.01
6. 4.1- 5.0	6,300	9.43	28,400	6.75
7. 5.1- 10.0	17,200	25.74	110,700	26.32
8. 10.1- 20.0	12,500	18.71	117,400	27.91
9. 20.1- 30.0	2,400	3.59	52,000	12.36
10. 30.1- 40.0	900	1.34	25,000	5.94
11. 40.1- 50.0	300	.4	12,400	2.95
12. Above 50.0	300	.4	27,200	6.47
Total	66,800	100	420,600	100
Sagar:				
1. Less than .5	32,500	20.7	5,500	.98
2. .5- 1.0	17,100	10.9	12,400	2.20
3. 1.1- 2.0	30,400	19.3	44.400	7.89
4. 2.1- 3.0	20,500	13.0	50,400	8.96
5. 3.1- 4.0	13,300	8.5	46,100	8.19
6. 4.1- 5.0	9,900	6.3	44,400	7.89
7. 5.1- 10.0	21,200	13.5	147,800	26.27
8. 10.1- 20.0	9,800	6.2	133,100	23.66
9. 20.1- 30.0	1,700	1.1	40,800	7.25
10. 30.1- 40.0	500	.3	16,100	2.86
11. 40.1- 50.0	200	.1	8,000	1.42
12. Above 50.0	200	.1	13,600	2.42
Total	157,000	100	562,600	100

Source: Agricultural Census, 1970-71.

Appendix Table 3. Number and Area of Holdings in Different Size Classes (Secondary Pair)

Size classes in hectares	No. of holdings	Percent of total No. of holdings	Area in hectares	Percent of total area in holdings
Khargone:				
1. Less than .5	13,800	12.3	1,900	.28
2. .5- 1.0	6,000	5.3	3,900	.58
3. 1.1- 2.0	10,400	9.3	15,700	2.32
4. 2.1- 3.0	10,700	9.5	26,400	3.91
5. 3.1- 4.0	10,500	9.3	36,400	5.39
6. 4.1- 5.0	9,400	8.4	40,900	6.06
7. 5.1-10.0	31,600	28.1	224,700	33.27
8. 10.1-20.0	16,500	14.7	223,100	33.04
9. 20.1-30.0	2,600	2.3	62,800	9.38
10. 30.1-40.0	600	.5	20,800	3.03
11. 40.1-50.0	200	.2	8,100	1.20
12. Above 50.0	100	.1	10,600	1.57
Total	112,400	100	675,300	100
Khandna:				
1. Less than .5	8,900	10.3	1,500	.30
2. .5- 1.0	5,000	5.8	3,600	.78
3. 1.1- 2.0	10,000	11.6	15,100	2.07
4. 2.1- 3.0	10,300	12.0	25,500	5.18
5. 3.1- 4.0	8,200	9.5	22,600	5.81
6. 4.1- 5.0	8,200	9.5	36,600	7.44
7. 5.1-10.0	32,000	25.5	156,000	31.71
8. 10.1-20.0	10,800	12.5	145,200	29.52
9. 20.1-30.0	2,000	2.3	46,300	9.41
10. 30.1-40.1	500	.6	17,400	3.54
11. 40.1-50.0	200	.2	7,200	1.46
12. Above 50.0	100	.1	8,900	1.81
Total	86,200	100	491,900	100

Source: Agricultural Statistics, Madhya Pradesh, 1976.

Appendix Table 4. Yields of Wheat, Area Irrigated and Credit Advancements, 1960-74, District Raisen.

Years	Yields of wheat (kg/Ha)	Total area irrigated (Ha)	Agr. Co-op. credit (Rs.)
1960-61	450	2, 182	91, 246
1961-62	479	2, 325	100, 023
1962-63	585	2, 526	102, 912
1963-64	556	3, 180	112, 000
1964-65	607	4, 773	112, 900
1965-66	628	4, 693	136, 000
1966-67	572	3, 679	137, 000
1967-68	828	3, 303	650, 000
1968-69	735	4, 199	1, 233, 000
1969-70	719	4, 115	2, 096, 000
1970-71	722	6, 333	3, 248, 000
1971-72	755	8, 380	3, 213, 000
1972-73	909	11, 736	3, 623, 800
1973-74	872	10, 106	3, 728, 000

Source: District Statistical Office, District Co-operative Bank and Directorate of Economics and Statistics, Bhopal.

Appendix Table 5. Yields of Wheat, Area Irrigated and Agricultural Credit Advancements, 1960-74, District Sagar

Years	Yields of wheat (kg/Ha)	Total area irrigated (Ha)	Agr. Co-op. credit (Rs.)
1960-61	NA	5, 876	156, 128
1961-62	470	5, 752	170, 212
1962-63	492	6, 048	198, 200
1963-64	397	6, 396	217, 359
1964-65	410	7, 466	473, 919
1965-66	514	7, 891	726, 623
1966-67	246	7, 591	352, 536
1967-68	496	7, 787	1, 211, 103
1968-69	663	8, 246	1, 654, 240
1969-70	609	9, 652	2, 315, 883
1970-71	664	13, 143	4, 193, 921
1971-72	839	16, 976	4, 424, 571
1972-73	706	16, 591	3, 785, 397
1973-74	795	15, 687	6, 201, 143

Source: District Statistical Office, District Co-operative Bank and Directorate of Economics and Statistics, Bhopal.

APPENDIX 2

M. P. AGRICULTURAL SURVEY Nov. 1975

Interviewer's Name _____

If Respondent has lived a minimum of 10 years in the area go on.

Respondent's name _____ Age _____

Address _____

Village _____

Date of interview _____

Religion: _____

Religion: _____

Caste:

Location

District _____

Subdivision _____

Village _____

Level of Education		
None		0
St	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
High school	1	9
	2	10
	3	11
Above H.S.		12

INTRODUCTION

Good morning / afternoon

My name is _____ I am conducting a survey of agriculture in your area and want to find out about your ownership status, farming pattern and the kind of services you avail as a farmer.

This survey is confidential. Though the findings may be published some time at a later date in a book form, your responses will not be made public, so that you could be identified.

So feel free to answer the questions I ask. Your co-operation will help a lot in getting a good idea of the situation.

Could you personally answer the questions I ask about your land, crops, income, etc. If yes, thank you. Let us proceed. If no, could you name the person who could?

If you have resided in this area for at least 10 years, let us proceed.

1. How many years have you lived in the village? _____

2. Do you own land? now? 1. Yes 2. No
   If no, go to b.

   a. If yes, did you ever lose part of your land? 1. Yes 2. No
      If no, continue. If yes, go to 3.

   b. Did you ever own land? 1. Yes 2. No
      If no, go to 6. If yes, continue.

   c. How long ago?

      1. 0-5 2. 6-10 3. 11-15 4. 16-20 5. 20+

   d. How did you lose your land?
      1. Sold
      2. Lost to land owner
      3. Lost to government
      4. Lost in litigation
      5. Other (explain) _____

How much? _____ acres

3. How long have you owned all your land?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

If owned for more than 20 years, go to 4.
If owned for less than 20 years, continue.

a. How did you acquire the added land?

1. Inherited
2. Purchased
3. Obtained rights from government
4. Other (explain) _____

b. How long ago?

1. _____(time period) 3. _____
2. _____ 4. _____

c. Are your fields
1. Fragmented and far 3. Fragmented but close
2. Unfragmented

d. Have your fields been consolidated?

e. If yes, when (1) 0-5, (2) 6-10, (3) 11-15, (4) 16-20 (5) more than 20 years.

4. Do you cultivate all of it that you own? 1. Yes 2. No
If yes, continue. If no, go to 5.

a. Have you cultivated all of it for the last 20 years?

1. Yes 2. No

If yes, go to 6. If no, go to next.

b. Since how long have you cultivated all of it? _____

2. How did you decide to cultivate all of it? _____

Go to Question 7.

5. How much of your land, do you cultivate now?

F1 (acres) F3 (acres)

F2 (acres) F2 (acres

F1 (acres)

a. Do you cultivate now (1) the same area, you cultivated before?

OR (2) more at one time

OR (3) less at one time

b. How long ago did you start cultivating more? / less?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 30+

c. What made you decide to cultivate

1. More _____

2. Less _____

d. What do you do with the rest of your land?

1. rent out
2. lease out
3. Use for nonfarm purposes
4. Lies idle

e. How long have you been doing it?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

6. Do you pay rent 1. Cash 2. King on farm land?

If 2, go to 7.

a. Roughly, how much do you rent now? _____

b. Have you always farmed on rented land? 1. Yes 2. No

If yes, go to d. If no, continue.

c. Before you rented land, did you 1. share crop

2. work as a laborer on farm

3. nonfarm occupation

d. How long have you been working on rented land?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

e. Did you rent the same amount of land in last 20 years?

OR 2. more at one time

OR 3. Less at one time

If rented more/less

f. What made you

1. increase your rented area
2. decrease your rented area

g. How long ago that happened?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

7. How many acres do you share crop? _____

a. Have you always share cropped 1. Yes 2. No

If yes, go to d If no, continue

b. How long have you share cropped?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

c. Before you share cropped did you work as a 1. laborer
2. off farm
3. rented

d. Did you sharecrop 1. same area at one time
2. more
3. less

e. What made you 1. decrease your cropped area?
2. increase

f. What share do you pay to the owner? _____

g. On the land, you share crop, which of the following is provided by the landlord:

1. seeds 2. fertilizers 3. pesticides
4. water 5. marketing
6. irrigation (1) Yes (2) No If no, who does?
7. marketing (1) Yes (2) No If no, who does?
8. other works _____

8. Do you irrigate your land? 1. Yes 2. No

If no, go to 9

a. How long have you been irrigating?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

b. Roughly how many acres do you irrigate? _____

c. Do you irrigate 1. more, or 2. less now? 3. same

d. Why did you decide to irrigate more/less? _____

e. Since when did you decide to irrigate more/less?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

f. Do you pay for the water you use? 1. Yes 2. No

g. If yes, at what rate _____(unit)_____(Rs).

If no, go to 10.

h. To whom do you pay 1. government

2. landlord

3. other _____

i. How many crops do you obtain? One? Two? Three?

9. Why do you not irrigate? (Do not read out, mark one applicable)

1. you feel no need of irrigation water
2. fields are far from irrigation facilities
3. no irrigation water available
4. cannot afford
5. other (explain) _____

10. What implements do you use? (Do not read out, check ones applicable)

Traditional	Mechanical
1.	8.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

a. If column 2 applicable how long have you been using?

1. 0-5 2. 6-10 3. 11-15 4. 16-20 5 over 20

11. Do you own

1. Bullock cart 1. Yes 2. No
2. Horse carriage 1. Yes 2. No
3. Automobile 1. Yes 2. No

a. How long have you owned:

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

1. 1
2.
3.

12. Is your present dwelling place 1. owned by you
2. rented by you

If category 2 applicable, go to next, if not, go to c

a. Did you even own your dwelling? 1. Yes 2. No

b. From whom do you rent your house? 1. land owner
2. other

c. How long have you owned/rented your house?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

13. Do you hire laborers? 1. Yes 2. No

If yes, go to next, if no, go to 15.

a. How long have you been hiring laborers?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

b. In the last 20 years, do you think you are now hiring

1. The same number of laborers
2. Less number of laborers
3. More number of laborers

14. Let us have details on your crops

1. Grown now/acres
2. Always grown, acreage more/less/same

3. Grown formerly 4. Started to grow

1. wheat 2. maize 3. millets 4. rice 5. pulses 6. oilseeds

c. What are your seasonal rotation of crops?

1. monsoon 2. winter 3. summer 4. fallow, if any

15. How much do you obtain from an acre of land?

a. Have your yields (1) been the same, (2) have been more before, (3) less before

b. If less/more earlier, since when you started getting less/more from your land?

16. Do you sell your crops ? 1. Yes 2. No

If yes, go to next, if no, go to 17.

17. a. Which crops do you sell? (list)

1. _____ 2. _____ 3. _____ 4. _____

b. How long have you been selling your crops?

1. 0-5 2. 6-10 3. 11-14 5. 15-20 5. 20+

c. When do you sell your crop? (read out)

1. at harvest time 2. when the price is high

3. whenever you need money 4. No fixed time

d. To whom do you sell? (check ones applicable)

1. local market 2. urban center 3. landlord

4. co-operative 5. other (explain) _____

Do you use fertilizers? 1. Yes 2. No

If yes, continue; if no go to 18.

a. What kind?

1. Cow dung/compost _____kg
2. Green manure _____kg
3. Chemical fertilizers _____kg

if using (2) or (3)

b. How long have you been using?

1. Green manure _____
2. Chemical fertilizers

c. From where do you acquire them?

1. prepare yourself
2. Buy from a. Landlord b. Government c. Private owner

d. Distributed by Government

e. Other _____

d. How much do you pay for your fertilizers

Unit _____ Rs _____

e. Do you now use

1. The same amount of fertilizer as before
2. More than before
3. Less than before

18. Why do you not use any fertilizers?

1. Cannot afford 2. Never used 3. Is not needed
4. Cannot get 5. Other _____

a. Did you ever use fertilizers? 1. Yes 2. No

If yes, go to next; if no, go to 20.

19. From where you acquire your seeds?

1. Savings
2. Buy from (1) landlord (2) government (3) market
3. Other(explain) _____

a. When did you start buying seeds? _____

b. How much does it cost you to buy seeds?

Unit _____ Rs _____

20. Do you use pesticides? 1. yes 2. no

If yes, continue; if no go to 21

a. From where you get them:

1. Buy from government 2. Buy from private dealer

3. Other (explain _____

if you buy

b. How much does it cost?

Unit _____ Rs _____

c. How long have you used them?

1. 0-5 2. 6-10 3. 11-14 4. 15-20 5. 20+

21. If you had problems with your crop, to whom do you go for help?

	seeds	fertilizers	pl. diseases	irrigation	other
1. Neighbor/relative					
2. Landlord					
3. Private dealer					
4. Government agency					
5. Other					

22. Who decides on the following? 1. you 2. landlords 3. government agent 4. other

1. Which fields to plant
2. Which crops to plant
3. When to plant
4. When to market
5. How much to market
6. How much fertilizer to use
7. How much money to invest

23. If you ever needed money,

a. From whom would you borrow?

1. landlord
2. money lender
3. bank
4. co-operative
5. government
6. other (explain) _____

b. From whom had you been borrowing?

1. landlord
2. money lender
3. bank
4. co-operative
5. government
6. other (explain) _____

c. Do you now owe money to anybody? 1. yes 2. no

If yes, continue; if no, go to 25

d. To whom do you owe?

1. landlord
2. money lender
3. bank
4. co-operative
5. government
6. other (explain) _____

e. For what purpose did you borrow money?

1. family expenses
2. land
3. farm equipment
4. fertilizers
5. seeds
6. pesticides
7. Other (explain) _____

24. Are you a member of any co-operative? 1. yes 2. no

If yes, continue; if no, go to 25.

a. What type of co-operative?

1. credit
2. marketing
3. farmers

b. When did you become a member? _____

25. Do you watch or hear?

1. Farm demonstrations	1. yes	2. no
2. Extension agents	1. yes	2. no
3. Radio programes	1. yes	2. no

if yes, continue; if no, go to 27

26. How long have you regularly watching/hearing these?

1. 0-5 2. 6-10 3. 11-15 4. 16-20 5. 20+

27. Do you pay taxes? 1. yes 2. no

If yes, continue; if no, go to 28

a. How much?

1. on land _____yearly
2. income _____yearly
3. property _____yearly

28. Did you vote in the last election? 1. yes 2. no

Did you vote in the election before last? 1. yes 2. no

29. Are you familiar with Land Reform legislation? 1. yes 2. no

If yes

a. Do you think that the land reform legislations have

1. benefitted you
2. been disadvantageous for you
3. of none

if (1) or (2) applicable,
Have they been beneficial/disadvantageous by way of

1. land ownership
2. tenancy conditions
3. overall farming pattern

30

a. How many members in your family _____
b. How many are dependent on you _____
c. How many hold land in their name _____
d. How many work on your farm _____