CHAPTER II

DESIGN OF THE STUDY
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(This Chapter has two sections. The first covers the need, objectives, hypotheses and scope of the study. The second outlines the scheme for sample selection. A geographical stratification of the study area and description of the sample households are provided. The estimates and the sampling error are discussed. Mention is made of the contents of the recording schedule and the non-sampling errors]

Section I

Need for the study:

It is well accepted that development of all other sectors excluding agriculture will not solve the problem of poverty in a developing economy like India. Therefore a marked impetus has been given to rural development programmes in recent plans. New areas are being explored in the agrarian sector for applying development strategies. It is noteworthy that most of the recently mooted rural development programmes are land based. This makes a study
on the impact of land reform on agricultural development quite essential. The need for the present study may be spelt out specifically as follows:

Land reform, in particular tenancy reform, was basically envisaged as a passive solution to the otherwise possible revolutionary change in the agrarian sector. Ultimately these reforms are expected to bring about economic development. With a widespread criticism that land reform has not resulted in such a desired economic growth an evaluation of their performance is called for. An objective analysis of the land reform measure will provide useful suggestions for improving its effectiveness in future besides giving an appraisal of the past.

Another motivation for the present study is its timeliness. Bergmann observed that the period of evaluation can be important because short term phenomena are of no evidence for long term effects. Economic consequences need certain basic social and other infrastructural prerequisites for their realisation. These themselves require quite a long period to evolve. In such a situation it is essential that a fairly long period of, say, ten to fifteen years has to elapse before gauging a change on the economic front. Hurried and quick
conclusions may be misleading. It is now about fifteen years since the implementation of land reform measures in Karnataka. Thus it is the right time for conducting a meaningful evaluation of the reform impact.

It is argued that size of farm is production neutral thus supporting the cause of land reforms. It is often proved that small farms are better production units. However the production function in agriculture in India is by and large determined by the power configuration of rich landlords. They enjoy greater accessibility to resource and credit as compared to small farmers. This goes against the concept of size neutrality of production function and it places the large holdings at an advantage. If credit and other facilities are provided, how will the small and marginal farmers perform? This is an important question to be answered. This thesis attempts precisely to examine this issue.

Land reform continues to assume great importance in planning at the national level. The central government has asked the planning commission to propose and undertake many rural development programmes based on land reform. A committee to this effect has been constituted by the Central Government to guide and control the state governments.
Development programmes are to be formulated depending on the success of tenancy measures. In view of such a development strategy of the government it is essential to conduct a realistic analysis of the economic efficiency of land reform.

Implementation of land reform differs in degree from one region to another. Its results also reveal regional differences. Geographic and ecological conditions add to this variation. All these together with different crops and cropping patterns make the concept of viable unit differ from one region to another. This limits the generalisation of the findings of a regional study on land reform. A study like the present one conducted in Dakshina Kannada District of Karnataka State is essential since it may reflect such special regional trends and effects of land reform which earlier studies in other regions might not have revealed.

It is also to be emphasized that land reform has a significant social effect in any developing agrarian society. These social issues may be changing rapidly over time. Their track is to be kept to know the direction of change and for corrective measures, if necessary. Though the present study is mainly an economic enquiry, it also
tries to explore general social transformation that occurred due to tenancy reform.

**Objectives of the study:**

In the light of the need for an economic evaluation of land reform elaborated above, the following are the objectives of the present study.

**Primary Objectives:**

1. To examine whether tenancy reform has further accentuated subdivision and fragmentation of land and thus made the landholding nonviable.

2. To find out whether land reform has increased total agricultural production in all classes of farmers.

3. To know the impact of tenancy reform on the productivity of small and marginal farmers in particular.

4. To assess the change in employment pattern and opportunity in different classes of farmers due to reform.

5. To investigate the causes for the changes related to objectives 2 and 3 above.
6. To enquire into the changes that occurred in the income level and standard of living of the farmers affected by tenancy reform.

**Secondary objective**

To assess the social and ecological impact in general terms.

**Hypotheses**:

The enquiry has the following hypotheses to be tested:

1. Tenancy reform has lead to subdivision and fragmentation of land making the operational holding nonviable and economically inefficient by reducing the productive capacity of farmers.

2. The reform has thrown a sizeable number of marginal farmers and agricultural labourers out of the agrarian sector.

3. The reform has led to reduced agricultural income for small and marginal farmers, pushing them further down economically.

**Area of study**: In order to fulfill the above objectives the area selected for study is Dakshina Kannada district of
Karnataka State with reference period 1974-88. The year 1974 marked the beginning of vigorous implementation of land reform and primary data were collected for the study in 1988. This district was chosen for the prime reason that it recorded a very high rate of implementation of tenancy reform among the districts in the state. Chapter 4 provides a detailed district profile. The other details of sample selection and study methodology are in the next section.

**Scope of the Work:**

The present work mainly covers the economic aspects of tenancy reform. An analysis of tenancy reform versus productivity, employment and income will help to know their interrelations and consequences. A relation proved or disproved will go a long way to help formulating policies for the future. The study will also help to identify the corrective steps in order to make land reform more effective.

The study will help to understand in general the hurdles for agrarian development. The need for assisting small and marginal farmers will be highlighted along with the mode of doing the same. This will have a scope for generalisation, which could serve as guidelines for future.
The intention of the government to link other rural development programmes with land reform widens the scope for the study. An analysis of the role of voluntary organisations in assisting a small or marginal farmer who is a land reform beneficiary will show the advantage of accommodating nongovernmental agencies in such programmes.

In brief, the scope of the work includes an evaluation of the implemented land reform programmes and it will help to formulate right agrarian policies in future.

SECTION 2

Definition of a Few Terms:

The study makes a distinction among the following types of households, on the basis of their status prior to the reform: i) Landlord, ii) Tenant and iii) Landless agricultural labourer.

Landlord: A person who was earlier either an absentee land owner enjoying ownership right or an owner who does not carry out cultivation by himself or both. This category of persons depended on tenants for cultivation. The basic factor distinguishing this category from the others was the
ownership right rested in this category and the owner was the receiver of rent for such a right from the tenant. In some cases one could have been an absentee landlord as well as an owner cultivator and a tenant since he might have had different statuses in different parcels of land with which he was associated. Such a person has been grouped in landlord category in the present study.

**Tenant**: This term denotes a person (household) who cultivated land mostly by self-cultivation, sometimes with the help of hired labour, but did not enjoy ownership right over the land prior to reform. Conditions and type of tenancy vary within this class in different regions. The basic characteristic of any type of tenancy is that the tenant paid an agreed upon annual rent to the landlord.

**Landless Agricultural Labourer**:

This refers to a person whose major source of income is wage from agricultural operations and who does not own any cultivating land.

**Geographical Coverage**:

The target population consists of all agricultural households having a landholding or depending on land as the
principal source of income for living in the Dakshina Kannada district as at 1981 Census. Since most of the agricultural households are in the rural areas, the sampling frame was limited to only the rural agricultural households. Thus the city of Mangalore and other towns and their urban agglomerations are excluded.

METHOD OF STUDY:

The Survey method is used in the present study. Data are collected on a recording schedule from units included in the sample. The methodology used was as follows.

Stratification: It was considered desirable that the target population be stratified according to some suitable criterion. The basic principle of stratification is to subdivide a population into nonoverlapping parts or strata which are internally more homogeneous with respect to the characteristic features under study than the population as a whole. Independent samples are then drawn from the strata. These are used to provide separate estimates which are aggregated to give overall estimates. These are expected to have greater precision as compared to the estimates obtained from a matching random sample from the unstratified population. Administrative convenience in terms of setting up local offices or deputing different persons for data
collection is another practical consideration for stratification. Although the stratification variable and the actual strata are fixed purposively, the selection of sample units in each stratum is at random.

Geographical stratification was a natural choice in the present study since some amount of variation with respect to the main crops grown, the extent of land reform implementation and productivity, etc, is noted among the taluks. Thus the 8 taluks in the district were treated as 8 strata. This was also operationally convenient.

**SAMPLE SIZE:**

Cochran has discussed the formula for the sample size in sampling for percentages\(^1\). He shows that in simple random sampling, assuming the percentage to be normally distributed, the formula for sample size \(n\) is given by

\[
n = \frac{4PQ}{25}
\]

where \(P\) is the population percentage and \(Q = 100 - P\). The value of \(P\) is not known except that it lies between 0 and

\[---------------------\]

For any value of P between 30 and 60, the product PQ lies between 2100 and a maximum of 2500 at P=50. The corresponding n lies between 336 and 400. To be on the safe side we may take n = 400. In technical terms, this will ensure the sample percentage to lie in the range P ≤ 5 except for a 1 in 20 chance. In the present study the situation should be even better than this in view of the initial stratification of the population. Thus it was decided to draw a sample of 400 households. This also suited the time and resource at hand. In fact it may be pointed out that the precision of the results depends mainly on the absolute size of the sample and not so much on how large the sample is in relation to the population size.  

In order to allocate the sample size to the 8 strata the feasible options were: i) allocation proportional to the number of villages in the stratum and ii) equal allocation to all the strata. The latter was preferred in view of it providing equal load of data collection work in the strata. Thus a sample of 50 households was drawn from each stratum.

**Sampling Frame**: An ideal sampling frame is an accurate list or map of the units of the target population. It was noted that a list of agricultural households in the district was neither available nor feasible to be compiled. On the other hand, a document giving the list of villages in each taluk was available from Census of India, 1981, series 9, Karnataka. Such a list is more or less stable even over a considerable period of time. Thus it was decided to select the households in two stages:

Stage I : Selection of Villages in each Taluk.
Stage II : Selection of households from the selected villages.

This limited the operation of listing the households to the selected villages only, which is a substantial reduction over listing of all households in the target population.
Sample Selection

A stratified two stage selection procedure was used for getting the sample of households. In each stratum random sampling without replacement was used in both the stages. A distinction was made among the households belonging to the three categories: Landlord, tenant and landless agricultural labourer. The following notation refers to stratum h.

\( N_h \): Number of villages in the stratum.

\( M_{hij} \): Number of households in village \( i \) belonging to category \( j \).

\( n_h \): Number of villages selected from stratum \( h \).

\( m_{hij} \): Number of households selected from village \( i \), belonging to category \( j \).

It was decided that 5 villages be selected at random in each stratum and 10 households be selected at random in each selected village with the following break up for the three categories. Landlords: 4, Tenants: 4, Landless labourers: 2. Thus \( n_h = 5 \). \( m_{h11} = m_{h2} = 4 \) and \( m_{h3} = 2 \).

Sampling Stage I:

The villages in each stratum were serially numbered and a simple random sample without replacement of 5 villages was
### Table - 2.1

**LIST OF SAMPLE VILLAGES**

<table>
<thead>
<tr>
<th>Puttur Taluk</th>
<th>Mangalore Taluk</th>
<th>Belthangadi Taluk</th>
<th>Udupi Taluk</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sulya Taluk</th>
<th>Bantwala Taluk</th>
<th>Karkala Taluk</th>
<th>Kundapura Taluk</th>
</tr>
</thead>
</table>
drawn using a table of random numbers. Table 2.1 shows the villages selected.

**Sampling Stage II**

For the selected villages a list of households was prepared under the categories of landlord, tenant and landless agricultural labourer. This provided sampling frame for selecting the households. From the first two categories a sample of 4 units each was selected at random, while 2 households of landless labourers were selected at random. This gave a sample of 10 households from a selected village, 50 households from a stratum and 400 households from the district. Thus the categorywise break up of sample households is as follows:

<table>
<thead>
<tr>
<th>Households</th>
<th>Village</th>
<th>Strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Landlord</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>(ii) Tenant</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>(iii) Landless Labourer</td>
<td>2</td>
<td>X</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Formation of Estimators:**

(i) A distinction is kept throughout among the three
categories: Landlord, Tenant and Landless labourer. Accordingly separate estimates are formed and inferences drawn for each category. Stratumwise estimates are found only when a special point is made about the Taluk. Otherwise district level estimates (averages and percentages) are computed.

The trends in important variables with respect to productivity and income are compared on a 'before' and 'after' basis and shown graphically.

The next part concerns computation of summary statistics. Simple measures like mean, median and quartiles are computed as measures of location. Standard deviation is used as an absolute measure of dispersion while the co-efficient of variation is occasionally employed as a relative measure of dispersion. A chisquare test is used to test independence of two attributes and whenever the null hypothesis of independence is rejected, a coefficient of contingency based on chisquare is given to measure the strength of association between the attributes. Lorenz curves are drawn to show the degrees of concentration.

**Sampling Error:**

Estimates based on any sample contain two kinds of
errors: (a) sampling error (b) nonsampling errors. The former is due to the fact that only a part of the population is selected for the study and based on this, generalisations are made for the entire population. Generally the sampling error decreases as the size of sample is increased. The choice of a suitable sample design is another factor used to control the sampling error. As mentioned above a sample of 400 units was considered adequate for the present study. A stratified design was employed to select the sample. These two aspects are expected to keep the sampling error within a reasonable margin. As mentioned later this claim is supported by the closeness of the estimates obtained to the corresponding known figures for the district.

**Data Base:**

Information was collected from primary and secondary sources. Secondary data were obtained from the documents of the State and Central Governments, mainly from the land record cell and planning departments. At the district level data were collected from the district revenue offices, tribunals and district land records cell of Dakshina Kannada situated at Mangalore. Data were also obtained from census of India reports. The 1971 and 1981 Census data were used to reflect the 'before' and 'after' effects of reform
programmes since they were nearest available census years. Further the position up to 1988 is noted wherever necessary to support the arguments. Information from Agricultural department, Bureau of Economics and Statistics, Planning division of the State Government etc., are used. The latest available district data were collected from the Office of Divisional Commissioner, Mangalore and the Planning division of State Government. Since the study was confined to the period 1971 to 1988, the later data are not used. Nevertheless a few important latest figures are provided as a matter of information. Data were also drawn from Agricultural situation in India, Yearly Plan Programmes and statistical publications pertaining to districts by the Government of Karnataka.

THE SCHEDULE:

Primary data at the household level were collected using a structured recording schedule which had two main sections (i) general information and (ii) specific information.

(i) General Information includes identification particulars of households and questions on general living and housing conditions.
(ii) The second part on specific information has subdivisions on (a) productivity, (b) income, and (c) employment.

**Productivity** :- The key variables used to measure productivity before and after the implementation of land reform are: (i) size of holding (ii) cropping pattern (iii) inputs used (divisible and indivisible) (iv) land reclamation and extensive cultivation (v) use of modern techniques of cultivation (vi) use of high yielding varieties and (vii) size of farm and production function.

**Income** :- This consists of questions meant for assessing change in income pattern over the years, measured through the following variables: (i) source of income (ii) occupation (iii) assets owned (iv) financial assistance (v) cost of cultivation (vi) household expenditure and (vii) annual income from all sources.

**Employment** : The questions under this subsection seek the following particulars: (i) total labour utilised (ii) employment generated cropwise, (iii) number of days (man days) of employment per year (iv) wage rates over the years, and (v) change in labour input (variation in labour absorption).
The schedule was quite exhaustive running to 23 pages, with relevant questions and subquestions. Most of them assessed the conditions of the farmers before and after the reform.

**Pre-test** :- The schedule was pretested before it was finalised and canvassed in order to check whether it could fetch the required information. Data were collected from a few households in Narimogaru village of Puttur taluk. Consequently a few changes were made in the schedule in order to augment its clarity. These related mainly to the questions under productivity. The details on cropping pattern and inputs had to be rearranged. A few questions were also added.

It is well known that direct questions on income rarely fetch reliable information. A common human tendency is to Understate the income and overstate the expenditure. The pretest only confirmed this fact. Hence direct questions on income were carefully avoided and whenever inevitable such questions were dealt with skillfully. Discussions were held with specialists in agrarian studies before finalising the schedule leading to some further useful changes.
Collection of primary data

Five enumerators personally visited the sample households, set up a dialogue with the head of the household and elicited the needed information which was recorded on the schedule. The average time taken for filling up a schedule was about an hour. In cases where the head of the household was unable to give the information clearly, he or she was assisted by another member of the family who had a better capacity to express. This does not introduce any bias as the reporting unit was household and not the individual.

Nonsampling errors :-

These are errors that creep in any study for reasons other than sampling. The usual nonsampling errors in studies of the present type are : (i) interviewer bias (ii) nonresponse (iii) memory lapse of the respondent, and (iv) deflated response (response error).

The interviewer bias arises mainly from differential interpretation of the questions by the interviewers. Five enumerators were used including the candidate for data collection. All were post-graduate degree holders with
some field experience and were from the Dakshina Kannada district itself. Detailed discussions about the schedule, meaning and interpretation of the terms and the mode of data collection were held with the interviewers before the start of the survey in order to ensure an uniform administering of the schedule. Initially two or three interviewers went together for data collection so that the procedure got standardized. The interviewers had a good knowledge of the topography of the district as well as the local language, Tulu. This was essential for easy moving around and establishing rapport with the respondents. Conversation in the local language almost instantaneously wins the confidence of the respondents even for a stranger. This facility lubricates the wheel of conversation and makes its onward movement easy and smooth. This factor went a long way in making the respondents friendly and co-operative with the enumerators and thereby improving the reliability of data.

Nonresponse errors may be sub-classified as follows: (a) noncoverage, (b) non-at-homes, (c) unable to answer, and (d) resistant households.

**Noncoverage** :- It is the failure to locate or visit some units in the sample. This was the highest in Sulya taluk
for want of transport facilities (as compared to other taluks) and lack of approach roads to the selected households. A self driven motorcycle proved to be of great help in reaching the houses of respondents in the nook and corner of the village.

**Not-at-home** :- This group contains units who were temporarily away from the house at the time of visit by the interviewer. In such cases a revisit was made. When this also turned futile the unit was substituted by the nearest neighbour of the same category.

**Unable to Answer** :- This was due to the respondent not having the information needed for certain questions. However such cases were not many.

**Resistant Farmers** :- These are the respondents who refuse to be interviewed. In such cases help from a person known to such respondents was sought, which was often fruitful. When this too did not succeed, a household of the same tenurial condition was used as a substitute, leaving the distribution over the categories unaltered. The number of such replacements was only four.

**Memory lapse** : This can be included in the category unable to answer. These are the households who were not able to
answer certain portions of the schedule due to lapse of memory. This was mainly on details of wage rate and input particulars. But many landlords had maintained a record of these details. To assist recapitulation by the respondents one began with the latest time point and proceeded in the reverse time order.

Nonavailability of units: The district has several small and large rivers which make it difficult for the enumerators to reach the sample units during monsoon. The farmers are generally busy during the planting and harvest time. Avoiding such periods, data were collected during January-May 1988.

Deflated Response: It was noted that the landlords had a tendency to exaggerate the wage rate paid to the labourers, while the labourers exhibited the reverse tendency. The enumerators knowledge of the wage rate provided a useful consistency check. Also all categories of households showed a tendency to understate the productivity and income levels. Since the enumerators hailed from the same district and had personal knowledge of agricultural operations, this tendency was easily noted and corrected. For instance, 1 acre of paddy under normal cultivation yields around 600 kg of local variety or about 900 kgs of
hybrid varieties per crop. An acre of normally maintained areca garden yields about 1000 kgs per year. This knowledge helped as a cross check. Revisits were made, wherever possible in the cases of nonavailability. Some of them turned out fruitful. Appropriate substitutions were used in other cases. Subject to the above limitations, the nonsampling errors were kept under control.

To sum up, the study used geographic stratification of the target population and a random sample of 400 rural households was drawn in two stages: villages first and then households from the selected villages. The size of the sample is justified both in terms of feasibility and on statistical grounds. A distinction is kept among the categories of landlords, tenants and agricultural labourers. The primary data were collected on a pretested recording schedule and the nonsampling errors in this context were controlled by proper training of the interviewers, good rapport with the respondents, suitable substitutions when inevitable and a few consistency checks. The period of data collection avoided the rainy season as well as planting and harvesting periods. Broad agreement of the estimates with the corresponding known figures indicates that the data are fairly reliable.
Limitation of the study:

A sample study on land reform cannot be generalised to the whole agrarian sector. Differences among the regions in the ecological and topographical conditions obviously restrict the scope for such generalisation.

Variation in the degree of implementation of reform in different states and even among the regions of the state limits the scope of the study. A tenurial system may be characteristic of a particular region. Wide variation in the agrarian and tenurial history and development poses a handicap in generalising the findings. Of course, these limitations are beyond the control of the researcher.

The data provided by different government departments are not consistent in some respects. There is no quantitative assessment of the reliability of these data. The in-built limitations of secondary data have thus crept into this work to some extent. Wherever possible cross checking at various levels with different sources has been done. The primary data have been collected on a sample basis. Thus the generalisations based on the sample are subject to sampling and nonsampling errors. However, these have been controlled by the choice of a proper sample design.
and some necessary precautions to reduce the nonsampling errors.

**Layout of the Thesis**

The chapterwise layout of the thesis is as follows:

First chapter provides an introduction to the problem. The Second one describes the design of the study along with the need, scope, objectives, hypotheses and the limitations of the study. Chapter III gives a critical analysis of literature relating to the issue of land reforms and its economic implications. Chapter IV is divided into parts A and B. Part A outlines the extent and progress of land reform implemented at the national and State (Karnataka) levels. Part B covers the progress of land reform measures implemented in the study area - Dakshina Kannada District. This chapter provides a background for the next chapter which deals with the analysis of sample. Chapter V deals exclusively with the land reform effects noted in the villages included in the sample. A detailed analysis covering general and specific factors relating to these villages is provided. Chapter VI contains a discussion and a critical appraisal. Chapter VII lists the major findings and tests a few hypotheses. The final chapter draws some general conclusions and mentions the potential for future work in this area.