CHAPTER TWO
CHAPTER II

A SURVEY OF THE EARLIER STUDIES

This chapter deals with some of the important studies that have been carried out on different aspects of Indian agriculture and that have some bearing on our theme. One of the aspects that has occupied the attention of economists in agriculture is that of functional relationships between inputs and output. The main objective of these studies has been to study the economic rationality of the Indian farmer. One of the earlier studies carried out on this aspect has been that of Hopper.\(^1\) After conducting a survey in a village, he studied the relationship between the value of marginal product of inputs like land, bullocks, labour and irrigation water. He concluded that inputs used by farmers

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Some of the other studies following this are:


did earn the value of their estimated marginal products - thus reflecting the economic efficiency of Indian farmers. Hopper's conclusion has, however, been criticised because his single-equation estimation of production function gives estimates that are statistically neither unbiased nor consistent.² Chenna Reddy also came to the conclusion that marginal productivity and factor costs are not different from one another, thus implying the economic rationality of the farmer.³

In another study, C.R. Hanumantha Rao⁴ analysed disaggregated data of three natural regions of the earlier State of Hyderabad. Two of his main findings are, first, there is a positive production elasticity for labour and

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second, production elasticity of labour is higher for larger farms with more than five or ten acres of land. Rao also concluded that production elasticity of labour is higher than that of land as an input.

Most of these conclusions were arrived at by fitting a production function to the data. Forms of production function generally applied are: (i) linear, (ii) Spillman, (iii) quadratic, (iv) square-root, (v) Cobb-Douglas and Generalised Cobb-Douglas, (vi) Constant Elasticity of Substitution. Out of these, the most widely used form is the Cobb-Douglas type. The assumptions for these are: that all the inputs are perfectly substitutable, that the farmer has free access to these inputs and that he has complete knowledge necessary to operate in a free market. Sometimes, where it is felt that these assumptions do not hold, various methodological elaborations have been developed within the broad framework of production functions to accommodate the complex situation existing in the under-developed countries. This can be seen by the fact that in many studies a number of assumptions are relaxed


and output is expressed as a function of land, labour and material inputs. The assumptions as reformulated are: a perfectly elastic horizontal supply curve of labour or the existence of monopoly elements in certain other markets. In all these studies, one tends to treat a cultivator and his problem of resource acquisition and utilisation as one would do with a competitive firm. Such a treatment gives rise to the problems of handling owned inputs like family labour, owned land, etc. Attempts to impute market prices for such inputs have resulted in the majority of cultivators showing up net losses. In most of the studies, market prices of the inputs are compared with the marginal productivity of the respective inputs derived from such fitted equations. However, it is realised that assumptions like profit maximisation or mobility of resource guided by freely fluctuating market prices do not correspond to the reality, these are relaxed or modified keeping the

6. See, among other:

S.K. Mallapathey, Sources of Variation in Agricultural Productivity : A Cross-section Time Series Study in India, NERAC 1976


rest of the framework undisturbed. Assumptions like the "absence of externalities" etc. are used to avoid or exclude the effects of economic activities which cannot be studied by usual market pricing system.

It, therefore, would be useful not to take production activities mechanically as a certain set of inputs being converted into outputs especially when the agrarian economy is in the process of a gradual transformation. The crucial debate at this point revolves around the efficient resource allocation and institutional factors or economic and non-economic factors. The oft-adopted single factor approach ignores a complex of interlocking, circular and cumulative changes taking place in an economy. This has resulted in a number of studies being carried out on these aspects. In the following section, an attempt has been made to survey these changes.

Institutional Factors

The study of institutional aspects entails an understanding of the ownership and operational pattern of land — the most important asset in agriculture. Ownership of land becomes an important parameter while studying the production

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10. Ibid., p. 2.
decisions of the cultivators. Studies on the pattern of ownership and distribution of land have been linked with the agrarian structure and the inequitable distribution of land. This has also been accompanied by studies on the operational aspects of land and the gaps existing between the ownership and operational aspects. This has involved studies on tenancy. 11

Studies on tenancy may, conveniently be divided into two groups — first, on the extent of tenancy and second, on the period and forms of tenancy. Government legislation against tenancy in the fifties and the sixties, made 'concealed' tenancy a widespread phenomenon. It resulted in a large number of holdings reporting as 'purely-owned' or 'self-cultivated', hence, the sharp decline in the area under tenancy. A decline in the area 'leased-in' has been

11. Amongst the earlier studies on agrarian structure, see, among other, Rachakant Mukherjee, Rural Economy of India, London, 1926.


Kati Raj, Ownership and Distribution of Land, Delhi, University of Delhi Publication, 1970.


Daniel Thomer, Agrarian Prospects in India, Delhi, 1956.
reported owing to the resumption of land for self-cultivation
due to greater incentive in the form of increased productiv-
vity. 12 In a study of Kota district of Rajasthan by Bapna,
a decline in the area under tenancy was reported and
resumption of land for self-cultivation led to an increase
in the concentration of operated land. 13 Similarly a study
on Punjab showed that the introduction of labour-saving
techniques had led to an increased demand for land by land-
owners for self-cultivation. 15 However, another study in
the same area showed that the area under cash rent regis-
tered an increase while area under share-crop rentals
dropped. 15 The exact estimate of the extent or magnitude
of tenancy cannot be estimated — more so due to its concealed
character, to evade tenancy legislation.

Tenurial conditions vary from region to region, as
well as within regions in India. Hence, it is difficult
to generalise on the basis of information for one state or
region. A broad pattern, however, may be worked out by

12. Dhemar Narain and P.C. Joshi, "Magnitude of Agricultural
Tenancy", Economic and Political Weekly, Review of

13. S.L. Bapna, Economic and Social Implications of Green
Revolution : A Case Study of the Kota District, (Mimeo)
Agen-Economic Research Centre, Sardar Patel Univ.,
1973, p. 49.


Implications of Large Scale Introduction of High Yielding
Varieties of Wheat in Punjab with Reference to the
Fonnonaur District, Ludhiana, 1973, p. 73.
comparing similar types of tenancy in different regions. Questions are always raised about the relative efficiency of the comparative performance of different tenurial systems. These are mainly related to sharecropping and fixed rent. Sharecropping has been found out to be sub-optimal from the point of view of efficient factor use.\textsuperscript{16} Studies concerned with these aspects deal mainly with efficiency in terms of net income generated per unit of land. These also deal with the adoption of technical change promoting productivity.\textsuperscript{17} These studies give an insight into the varied situation existing in Indian agriculture and the issues that face a farmer at the time of cultivation.

**Types of Tenancy**

The terms on which land is leased-in, can be broadly classified into three categories: sharecropping, fixed kind rent and fixed cash rent, and within these broad categories, a number of variations can exist. It is the relative efficiency of various forms of rent that has been

\textsuperscript{16} Sharecropping is less efficient as compared to other forms of rent, than owner-operated ones. It is so because sharecropping system does not provide enough incentive for either the tenant or the landlord to undertake productive investment.


A study tries to predict, on the assumption of profit maximisation and specified technological relationship and prices of output and inputs, the extent to which the sharecropping will have incentive to use fertilisers. See, Minhas, B.S., and T.K. Srinivasan, "New Agricultural Strategy Analysed", *Yojana*, January 1966, pp. 20-24.
attracting the attention of the economists. With the introduction of new technology, the impact of various forms of rent coupled with the changes taking place in the form of rent itself, have become an important area of study.

A number of hypotheses put forward with regard to tenancy and the new technology refer to the possibility of 'concealed' tenancy in irrigated areas. It could be due to the managerial and supervisory discoveries associated with labour-intensive irrigated farming. Increased productivity per acre can lead to an increased demand by the landlords for self-cultivation. Larger cultivators, with better access to capital resources, try to capture the increased gains from new technology. The gains from investment in modern inputs are generally high enough to more than match the high rates of interest that the landowners may be able to realise through money-lending.

However, in some areas it is possible that landowners may not adopt new technology because the additions to their incomes may not compensate for the decline in the income from usury. It implies, that in a general situation,

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new agricultural technology may not be adopted unless its profitability is high enough to match the high rate of return from usury. This is possible if the area under sharecropping or rental share does not undergo any change with the introduction of new technology or the tenant captures a substantial share of the gains possible from technological change.

A number of other hypotheses have been suggested in connection with the impact of technological changes on tenancy. With the introduction of new technology, landowners' demand for self-cultivation may lead to a decline in the area under tenancy and also lead to an increase in rent per acre.21 However, Bardhan and Srinivasan hold contrary views.22 They maintain that there is an increase in the percentage of land leased out under sharecropping with land augmenting technology. This has, however, been questioned because labour substituting technology and other land-augmenting agricultural methods would lead to increased self-cultivation and thus a decrease in area under tenancy.

Technological changes have tended to change the form of land rent. Increased gains have led to greater incentives

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for investment in land. To capture the gains on these investments leads to a preference for rents fixed before the sowing season has been observed.\textsuperscript{23} Fixed rents - cash or kind - have shown a tendency to rise. According to some studies sharecropping rentals have either remained stagnant or increased but in no case have they shown any decline.\textsuperscript{24} Besides, there are other variations creeping into the old rental forms and which differ from region to region. In a study in the district of Bota, landowners demanded interest free loans from the tenants, over and above the traditional rent-share, the alternative being to pay two-thirds of output as rent.\textsuperscript{25} In a study in Ramal district, it was observed that in a number of cases, share-rents were raised from one third to half the share in gross output.\textsuperscript{26} According to another study, in West Godavari, landowners insist on two-thirds share as rent, if the tenant chooses to grow high yielding varieties of paddy.\textsuperscript{27} With the expectations of increased

\begin{itemize}
  \item \textsuperscript{23} C.J.H. Rao, \textit{op. cit.}, p. 212.
  \item \textsuperscript{24} P.K. Bardhan and T.K. Srinivasan, \textit{op. cit.}, p. 57.
  \item \textsuperscript{25} S.I. Supna, \textit{op. cit.}, p. 72.
  \item \textsuperscript{26} Raminarayan, "The Social and Economic Implications of the Large Scale Introduction of High Yielding Varieties of Wheat in Harana" (Mimeo), Agro-Economic Research Centre, University of Delhi, 1973, p. 69.
  \item \textsuperscript{27} G. Parthasarathy and P.S. Prasad, "Response to and Impact of HYV Rice According to Land Size and Tenure in a Delta Village, Andhra Pradesh", \textit{The Developing Economies}, Vol. XXI, No. 2, June 1974, p. 150.
\end{itemize}
gains from the application of new technology, the type and the extent of rent paid is undergoing a change.

A decline in the area under sharecropping was observed in a number of studies in some villages of West Bengal, Gujarat, Orissa, etc. In a study by Bhaudaj and Das, the area under sharecropping declined in newly irrigated area of Sambalpur district in Orissa but it was not so in the villages of the old delta of Cuttuck district. In another study, Bardhan comes to the conclusion that "except in Punjab (including Haryana), Kerala and Assam, area under sharecropping and fixed rent tenancy has increased to a significant extent in all major states ...".


30. Some of the other studies that did not observe any decline in crop-share rentals include:


P. Bardhan, "Variations in Extent and Forms of Agricultural Tenancy -- II, Analysis of Indian Data Across Regions and Over Time", Economic and Political Weekly, September 18, 1976, p. 1545.
He maintains, further, that sharecropping is still predominant form of tenancy in India. In Punjab (including Haryana)
Kerala and Assam, sharecropping has shown a slight decline.

In the areas where technological changes are taking place, landowners in a number of cases share the costs on
modern inputs in the same proportion in which they share
the output with the tenant. In a study of West Godavari
it was observed that landowners provided all the modern
inputs at the time of sowing and deducted the tenants'
share of the costs in proportion to his share in gross
output after the harvest. 31 Another study of the same
district, brings out that generally costs on fertilisers
and pesticides are paid by the landowner proportionate to
his share in the gross produce. 32 Similarly another study
for Haryana revealed that in areas with new technology,
landowners and tenants shared the cost on modern inputs
equally and also divided the output equally. 33 A study
for Ramagpur shows that the costs on seeds and fertilisers
were shared equally between the landowners and the tenant
and it was 40:60 for irrigation expenses. 34 A study for

and Improved Technology - An Investigation in West
Godavari District", Community Development and Pancha-
vati Rai Digest, April 1973, p. 179.
33. Laxminarayana, op. cit., p. 90.
34. H.S. Randhawa, op. cit., p. 225.
Gujarat of the farmers who have adopted new technology reveals that under half-share rent arrangement, the tenant supplies family labour, bullocks, implements, seeds and seedlings. For remaining inputs, both the tenant and the landowner share half the cost. The change could be because the allocation of resources would be optimal under such situations, that is, when costs on variable inputs are shared by the landowners and the tenant in the same proportion as output is shared.

Theories on the allocation of resources under share-cropping point out the inefficiency of this system arising from the disincentive to the sharecroppers to invest in inputs. However, another formulation on sharecropping starts by treating it as a mutual contract within the framework of competitive markets and private property thus implying an optimum use of all the resources. It maintains that there is a parity among all systems of farming — whether 'peasant', 'capitalist' or leased-in under share-cropping or fixed rent. The third set of arguments does consider the uncertain and discontinuous opportunities for


37. Sharecroppers tend not to invest in inputs due to their weak economic position; similarly resource-use can be restricted under the fixed-rent system for the same reason.

Therefore, the opportunity cost of family labour, working on owned or leased-in farms, is to be taken as less than the prevailing market wage rate so that the usual equilibrium condition of equating marginal product to opportunity cost implies higher intensity of cultivation on capitalist farms. However, inefficiency of tenant farms may persist as compared to owner-cultivated farms inspite of the fact that both are family labour based. Since the basic assumption of uncertain employment is maintained, the difference between the efficiency of the tenanted and owner-cultivated farms will tend to narrow down. It is because both kinds of farms will cultivate with the objective of maximising gross output, given the total family labour at their disposal.

In the areas, where sharecropping survives with cost sharing the reasons could be the relative weak bargaining position of the landowners or the nature of ownership of land (such as ryotwari) which tends to be more conducive to new innovations. Therefore, the lack of investment in new inputs or the absence of cost sharing depends largely on concentration of land ownership and the prevalence of

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poverty on a large scale. Tenants do not have enough investable surplus and even landlords may find usury more lucrative. In certain cases, tenants might prefer the share-crop rental because it ensures a stable amount of foodgrains for consumption.  

Various issues related to the tenurial conditions have been much debated. Some of the conclusions concern (a) extent of tenancy have revealed that a large amount of concealed is still prevalent in the country, (b) the area under tenancy tends to decline due to land-augmenting technology. Certain studies have, however, tried to prove the contrary. (c) with the introduction of new technology, tenants and land owners have in some cases, started sharing the input cost and (d) the relative efficiency of different types of tenancy have been debated without reaching any firm conclusion. However, it is generally agreed that tenancy does act as a disincentive to a tenant.

Farm Size

Another much debated point in Indian agriculture has been the relationship between yield per acre and size of holding. These two factors have shown, according to a number of studies, an inverse relationship. This inverse relationship has a clear reference to the policy issues

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pertaining to land ceilings and also to co-operative farming, though these have not been discussed openly. The debate was started with the conclusion arrived at by A.K. Sen 41 from the data collected by Farm Management Studies. And the debate was carried on by a number of other economists. 42

The argument presented by Sen for an inverse relationship is that the smaller farms are characterised by peasant family cultivators and the larger farms by capitalist cultivation. Cultivation is thus carried on the small farms right up to the point where marginal productivity is zero or below the prevailing market wage rate while it stops on the capitalist farms at the point where the marginal product is equal to the wage rate. Hence, higher productivity per acre on small farms. However, this explanation


42.  A.K. Rhouse, "Returns to Scale in Indian Agriculture", Indian Journal of Agricultural Economics, July-December 1966, P. 51.

becomes untenable when one considers the co-existence of two agrarian systems. The opportunity cost of family labour in a subsistence farming system is not likely to be equivalent to the wage rate that the capitalist farmer offers. Khosla 43 has shown that productivity differentials between small and big farmers decrease if land is standardised according to the land assessment - implying, thereby, that the fertility of the soil is lower on larger farms.

A number of hypotheses have been advanced to explain the productivity differentials — firstly, large farms may have been broken up owing to a more rapid population growth and secondly, that the larger farms are put together by the purchase of land undergoing distress sale and that the poorer lands are sold and the better lands retained. 44 Another explanation of productivity differentials could be a more intensive use of resources like labour and other inputs on smaller farms. Differences in the intensity of cultivation and cropping pattern are found largely to explain the productivity differentials. 45

**Cropping Pattern and Intensity of Cultivation**

The debate on the relationship between the size of holding and yield per acre has encompassed cropping pattern

43. A. Khosla, *op. cit.*, p. 63
45. Krishna Bharadwaj, *op. cit.*, p. 18
and the intensity of cultivation. Smaller farmers tend to achieve higher productivity per acre due to a higher intensity of cultivation. Factors that determine the cropping pattern of a farmer have not been adequately studied. One of the methods used to study the crop combination of a farmer is the application of linear programming techniques to determine the optimum combination of different crops or by determining the optimum combination by the price elasticity of individual crops. Another method is to work out the relative profitability of two or three main crops and estimate the optimum combination of these crops.\(^46\) These studies look into various aspects of cropping pattern in relation to the

changes in the market prices and sometimes in relation to weather, annual rainfall, etc.

Another set of studies have investigated specific factors affecting the crop combination of a farmer. In a study in Uttar Pradesh, farm size and cropping pattern showed a definite relationship. Small farms had larger area under foodgrains. In another study, villages with urban influence and those without urban influence were studied separately. Villages in the former category had a much higher area under commercial crops. In another study, a strong relationship was observed between the crop combination and the distance of the village from the market place and this influence was much more significant than that of the size of holding, borrowings and the value of assets and irrigation. In another study, it was observed that cash crops were grown on a much larger area where irrigation was available more easily.

Along with the above mentioned aspects, it is essential to look into other factors that determine the objecti-


ves of agricultural activity and the crop combination adopted by a cultivator. This is possible only by finding the extent to which he is entrenched in market relations - his position in the factor and the output markets. Smaller farmers tend to use their land intensity - not so much to increase yield per acre as to increase their gross output. What remains to be seen, however, is the impact of the new technology on these aspects. Both the smaller and bigger farmers tend to raise the intensity of the land-use with increased irrigation and other co-operative inputs.

Input Utilisation

Input utilisation, in terms of fertiliser, seeds, etc. also depend on the cropping pattern and the extent to which land is utilised. As mentioned earlier, increased irrigation facilities lead to more intensive land use. An inverse relationship between farm size and intensity of cultivation had been observed in many studies. It implies that smaller farmer tended to use much more labour on the land. But recently, with the application of new technology, large farmers have also resorted to more intensive cultivation of land. Some studies have been carried out on the factors hindering the use of various new inputs by small farmers. The factors mentioned are lack of funds, lack of irrigation facilities and sometimes, both high yielding varieties and traditional varieties give the same yield levels. 51

51. Some of the studies on this are:
   A.S. Kahan and J.L. Paul, "Cooperative Study of Economics of High Yielding Varieties Programme of"
Labour Utilisation

Another important aspect in Indian agriculture is that of utilisation of labour. It is crucial both in terms of the use of high yielding variety seeds and the process of mechanisation taking place. The common approach to study the extent and efficiency of labour utilisation is the comparison of agricultural wage rates with the marginal productivity of labour. The argument put forward is that in labour-abundant economies, market wage rate is higher than the marginal productivity of family labour.52 This phenomenon of higher wage rates being offered in anticipation of higher productivity is contested by Krishna Bhardwaj.53 In her exercise on data collected for farm Management Studies, she negates this argument. The other aspect connected with labour utilisation is whether small cultivators are rational allocators of resources. The efficiency of allocation is measured by comparing the marginal productivity of labour with the wage rate per.

References


valuing in the market.\textsuperscript{54} It is observed in the studies with this approach that small farmers not only hire out labour but also hire in labour. This should, therefore, be subject to rules of a capitalist economy where marginal productivity equates the wage rate. The hiring in of labour by small farmers could be necessitated by technological factors. The short period in which harvesting has to be carried or specialised job like paddy sowing etc., make hiring in of labour essential.\textsuperscript{55} Another important aspect of the study on the labour utilisation is the nature of contractual relations existing between the labourer and the employer, mobility and the freedom of decision making etc. All these details about different areas are essential to work out a pattern of property relations.

Some studies have posed the question that if labour utilisation is largely responsible for productivity differentials, why is it that there has not developed wage-based large scale farming. It could be because the gains from usury and tenancy are much more lucrative.

\begin{itemize}
\item \textsuperscript{54} See, among other: 
\begin{itemize}
\item G.R. Saini, \textit{op. cit.}, p. 7
\end{itemize}
\item \textsuperscript{55} Anit Bhaduri, \textit{op. cit.}, p. 137.
\end{itemize}
thus acting as a hinderance for investment in better inputs. Or it could be that large farmers invest in machinery etc. and import labour from other states to be used as attached labour. 56

**Mechanisation**

In labour abundant economies, mechanisation is not the most favoured aspect. However, larger farmers have mechanised a number of agricultural operations. 57 A few hypotheses have been advanced in connection with mechanisation in a labour surplus economy. 56 Due to unequal distribution of land, the cost of draft power per acre is much higher among large farms than would be the case if land was more equitably distributed. Secondly, large farmers need tractors for ensuring timeliness of operation and to ensure against the uncertainties of labour supply. As the agricultural output increases by land-augmenting techniques, large farmers may find mechanised implements less costly. In over-populated economies, the incentive for farm mechanisation is provided by the rise in the

56. It was observed in the following study:


57. Shigoro Ichikawa maintains that for economies like India, intermediate technology is the best alternative. Giving examples from China, he shows how the first stage of agricultural development in China was totally labour absorbing. See, K.P. Kannan, "Agricultural Mechanisation in China", *Economic and Political Weekly*, June 25, 1977, p. 1011.

prices of agricultural commodities as a result of rapid growth of population and the failure of investment in inputs like irrigation to match the growing demand for agricultural commodities.\footnote{Ibid., p. 35.} Highly scale-biased nature of mechanised implements makes it impossible for a wide range of cultivators to adopt these.

**Credit: Sources and Purposes**

The production activity of a cultivator depends upon his resource position. It is the initial resource position of a cultivator that determines his capacity to get credit. Since, traditional rural economies are still dominated by the local moneylender as a source of credit, it is essential to enquire into the extent of their hold on the credit market. A lucid account of the indebtedness of the peasantry was given by M. Darling.\footnote{M. Darling, *The Punjab Peasant in Prosperity and Debt*, Oxford University Press, London, 1922.} The purpose for which a cultivator has to seek credit vary from his

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\footnote{Ibid., p. 35.}


Some of the other earlier works include:

- Dalveer Singh and R. Calvert, *An Enquiry into Mortgages of Agricultural Lands in Amritsar District*, The Board of Economic Inquiry, Punjab, 1925.
productive activities to his consumption needs.\textsuperscript{61} Introduction of the new input packages makes it essential for him to get credit to buy chemical fertilisers, new seeds, etc.

Not only the purpose of seeking credit but also the source of credit entrenches a peasant deeper into the rural market, depending upon his bargaining strength. The usual suppliers of credit are the moneylender, the trader and the landlord. With the introduction of new technology, the pure moneylender is slowly vanishing. He is either taking up the profession of a trader or a landlord along with indulging in usury. Being a zamindar gives him a much greater social status and economic power while as a trader he definitely enjoys much greater economic power (as compared to his previous role as a moneylender). A number of studies have shown that landlords still find usury profitable as compared to the investment in the new inputs.\textsuperscript{62} Besides, big landlords lend money to their permanent servants or other landless labourers to ensure a steady supply of labour on their land.

The role of government agencies like the banks, co-operative societies is also expanding. Land-mortgage

\textsuperscript{61} Reserve Bank of India have carried out detailed surveys on the extent of indebtedness and the purpose of credit. See, Reserve Bank of India, Report of the All-India Rural Credit Review Committee, Bombay, 1969

\textsuperscript{62} Amit Bhaduri, \textit{op. cit.}, p. 140.
banks provide large sums as loans for the purchase of 
tractors, tube-wells. Co-operative societies issue loans 
for the purchase of inputs like seeds, fertilisers and 
also for fodder etc. These agencies have not been able 
to realise their full potential because of the emphasis 
on credit worthiness and payment of loans in time. As a 
result of this private money-lending institutions still 
control the rural credit market.

Marketed Surplus

The study of marketed surplus has mostly been related 
to the changes in prices to establish a positive or nega-
tive elasticity between the two. The arguments that 
emerge out of this formulation are of two types, firstly, 
the farmers will retain more and hence sell less out of 
their produce, if market price is lower while the other 
set of arguments has a contrary view. The inelastic 
demand for cash makes small farmers sell more if prices 
fall and vice-versa. Dandkar has worked out the 
price elasticity for separate size classes. He maintains:

63. A.S. Khurmi, "The Pricing of Food in India", Quarterly 

64. D.R. Khatkhate, "Some Notes on the Real Effects of 
Foreign Surplus Disposal in Underdeveloped Economies", 

P.N. Mathur and E. Ezekiel, "Marketable Surplus of 
Food and Price Fluctuations in a Developing Economy", 
Kyklos, 1961, pp. 396-408
that cultivators in the small farm size category do not
sell any foodgrains in the market but depend on remittances
received from family members working outside.\textsuperscript{65}

Krishnan\textsuperscript{65a} and Raj Krishna\textsuperscript{66} have also attempted to
establish the price elasticity of all the foodgrains and
of a single subsistence crop respectively. Krishnan
arrived at a constant elasticity demand function while
Raj Krishna observed that it was not possible to rule out
negative price elasticity of the marketed surplus of
foodgrains in the Indian context.

Another aspect that has been studied is the extent
of marketed surplus by different size classes of holdings.
It has been done in relation to a single subsistence crop
and also for overall foodgrains crops. The difference in
their conclusions arise over the extent of surplus marketed
by cultivators with less than five acres of land.

\textsuperscript{65} This argument implies that small farmers do not
market any foodgrains, is not conclusive. Small far-
mers sell part of their foodgrains to meet their other
demands. Some-time, sale of more paying crops such
as wheat is undertaken for the purchase of cheaper
crops like bajra etc. See, V.H. Dandekar, "Prices,
Production and Marketed Supply of Foodgrains", \textit{Indian
Journal of Agricultural Economics}, July-September
1964, pp. 196-199.

\textsuperscript{65a} T.N. Krishnan, "The Marketable Surplus of Foodgrains:
Is It Inversely Related to Price?" \textit{The Economic
Weekly}, February 1965, pp. 325-326.

\textsuperscript{66} Raj Krishna, "A Note on the Elasticity of the Marketable
Surplus", \textit{Indian Journal of Agricultural Economics},
July-September 1962, pp. 79-84.
The important issues raised in Indian agriculture, therefore, pertain to the ownership and operation of land. This leads to a study of the aspects related to the tenurial conditions. A large amount of leasing in and out of land still takes place but it is always done in a concealed form. With the introduction of new technology, the form of tenancy is undergoing a change in some cases. Sharing of inputs also takes place in some areas.

Relationship between the yield per unit of land and farm size has also been debated with no final conclusions. Viewpoints justifying inverse or direct relationship between the two have often been put forward. The study of the issues relating to labour utilisation have attained greater importance due to the increased use of improved methods of cultivation and also due to a process of mechanisation taking place in Indian agriculture. Increased use of tractors, mechanised threshers and in some cases, combine harvesters have tended to lower the demand for hired labour. However, greater intensive cultivation has generally tended to offset the effect of the declining demand for labour.

A study of marketable surplus gives an idea of the extent to which an Indian farmer involves himself in the transaction taking place in the rural markets. It has been put forward that smaller farmers have very small
quantities to sell in the market. 67

The foregoing analysis of the studies done of various aspects of agriculture shows the magnitude of complex situation prevailing in the agricultural production. An overall study of all the aspects is essential to get an integrated approach to the situation. In the present study, however, only a few of the aspects have been looked into to arrive at some conclusions in terms of agricultural situation in Haryana.


Dharam Serain, Distribution of the Marketed Surplus of Agricultural Produce by Size Level of Holdings in India, 1950-51, Bombay 1962


V.N. Dandekar, op. cit., p. 194.