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CHAPTER TWO: SIZE OF HOLDING= CONCEPTUAL ANALYSIS

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## 2.1 INTRODUCTION

The size of land holding owned by a family unit determines its economic and social position in the society. In our country the terms 'holding' and 'farm' are very often used as synonymous. Technically speaking they are not, because holding is a legal concept indicating parcel or parcels of land held under one lease, engagement or grant as contract or in the absence of any such lease etc. under one tenure. The term 'farm' indicates the actual unit of cultivation. Dimensionally they may or may not coincide and very often they donot. According to Dantwala and Shah<sup>1</sup> "Holding is defined as comprising all plots (fragments, fields) under common ownership or cultivation". Agricultural holding normally implies the management unit, i.e. the area of land held for cultivation as a single unit by an individual, joint family or more than one farmer on a joint basis. The land may be owned, taken on lease or may be partly owned and partly rented.

Farm size is a topic of extreme interest in agriculture. There has been heated debate over what should be appropriate size of the farm because the size of the operational unit, as in the case of manufacturing industries, decisively affects the income from agriculture. In case of manufacturing industry, we have optimum size of unit, a size which in

existing conditions of techniques and organising ability has the lowest average cost of production per unit. Similarly in agriculture too we have a size, which under given conditions would yield the best results to the farmer. The advantages of large and small farms have been debated for atleast a century. There are economists and farmers who advocate large-scale farming for efficient operations, a satisfactory income to the family and food to the consumer at reasonable rate. But on the other hand, some persons strongly advocate small scale farming on the ground of social justice. Poverty in agriculture in most of the Third World countries is as much a problem of farm size as of any other single factor. The great majority of farm families in these developing countries with low income live on under-sized and inadequate units. Since the amount of income is dependent on the size of the farm, preponderance of small and tiny holding is mainly responsible for poor peasantry in these countries. Even where there are no cost advantages or dis-advantages for farms of various sizes, small farms will have under usual price relationships, lower incomes and hence savings than large farms. Thus, size of farm is a vital element in determining the earning capacity of the farmer as well as the efficiency of a farming unit.

India is par excellence a land of small peasants. The unit of holding is every where small and uneconomic. In

India the problem presents two distinct features:

- (1) the holdings tend to be very small and
- (2) the individual holdings are broken up into a number of separate plots, often situated at a considerable distance from each other.

The former tendency is designated as sub-division of holdings and the latter as fragmentation of holdings. These tendencies have reached an intolerable point in the Konkan, Gujarat, West Deccan and other parts of the land where fields measuring less than an acre are to be found sub-divided into more than 20 separately owned plots, many of them less than 1/8th of an acre. Thus this has proved to be very harmful to the work of cultivation, to agriculturists as also to the country as a whole. Naturally it attracted the attention of the national government soon after independence of the country. Much has also been done in raising the size and in the consolidation of these holdings. Yet the problem continues. As a part of land reform, there is an urgent need for solving this problem of small and scattered holdings.

## 2.2 CONCEPTS OF SIZE OF HOLDING

### 2.2.1 Ownership holding

Ownership holding includes all the lands owned by a person or a number of persons jointly. Such lands may or may

not be cultivated as one single unit. It may be that part of it is leased out and the remaining is cultivated as one unit.

#### 2.2.2. Operational holding

An operational holding refers to all the land, used wholly or partially for agricultural production, provided these lands are operated as a single unit by a single individual/household or number of individuals or households jointly.

Agricultural census (1970-71)<sup>2</sup> defined operational holding as "all land which is wholly or partly used for agricultural production and is operated as one technical unit by one person alone or with others without regard to title, legal form, size or location".

#### 2.2.3. Family holding

The planning commission in its First Five Year Plan has introduced the concept of "Family Holding" which is defined as an area equivalent, according to local conditions and under existing conditions of techniques, either to plough unit or to work unit for a family of average size using a pair of bullocks.

#### 2.2.4. Economic holding

Economic holding has been defined as that holding which provides full employment to the farmer's family and allows him to enjoy a reasonable standard of living.

According to Keatings, a holding which allows a man a chance of producing sufficient to himself and his family in reasonable comfort after paying his necessary expenses, may be termed as economic holding.

#### 2.2.5 Basic holding

The Agrarian Reforms Committee, coined a new term such as 'Basic holding'. The congress Agrarian Committee (1950) while agreeing with the view that an economic holding should afford a reasonable standard of living, provide full employment to a normal sized family and be in relation to the factors of agrarian economy of the region, recommended smaller holdings than an economic holding on sociological rather than economic considerations. The committee gave the name of basic holding to this size of holding. It suggested such a unit for individual cultivation with the assistance of the multi-purpose co-operative organization in all other aspects.

#### 2.2.6 Optimum holding

When the size of farm becomes too large, it becomes inefficient due to diseconomies of scale. On the other hand, a too small-sized farm is also inefficient because it does not permit the use of up to date and modern mechanical power and fails to provide whole time work to the farmer on the

farm for part of the year. One has thus, to find that proper size of the farm which gives the maximum income to the cultivator. Thus the size of farm which ensures minimum cost and maximum profit is the ideal size of the farm. It has been termed as optimum size of the farm. It refers to the maximum size of holding which a family should possess. It may be defined as a holding which permits most efficient use of resources (land, labour and capital) in agriculture. As Taylor puts it "while there is no one proper size of farm for farms in general, there is always a proper size of farm for a given stage of his own development, on a given type of soil, in a given line of production with given labour and market conditions".

Of these various concepts of size of holding, normally the concept of 'operational holding' is used for practical purpose. This work follows this and at the outset brings out the arguments regarding operational size of the farm and its productivity.

### 2.3 SIZE OF HOLDING AND AGRICULTURAL PRODUCTIVITY

#### 2.3.1 Measures of size

Three different measures of 'size' have been explained as follows.

(1) Total cultivated area: It includes all the land cultivated, uncultivated and uncultivable of all types such as

land under wells, nala, trees etc. under the operational control of the farmer irrespective of title or location.

(2) Net cultivated area: It refers to the total occupied area less uncultivated and uncultivable area of all types. Thus it is equal to the 'net sown area'. The area under tree crops, gardens and plantation crops also is included in this category.

(3) Gross cropped area: It is the total area under all crops including the area of land used to grow crop/crops more than once during the year. The latter is counted as many times as it is used during a year.

### 2.3.2 Productivity

Productivity can be defined as the gross value of produce together with the value of by-product per acre, all evaluated at the market price prevailing in the village at the time of harvest.

### 2.3.3 Size-productivity: Inverse relationship

A serious debate has raged in India about the relationship between farm size and productivity for the last two decades. The debate was initiated by A.K. Sen<sup>3</sup> in 1962 and pursued further<sup>4</sup> in 1964. Sen argued that an inverse size-productivity relationship existed in India; i.e. as the size of holding increase, productivity declined.



Productivity was more on small farms as compared to large farms. This conclusion was reached on the basis of the data presented in the Farm Management Surveys. Many other economists also analysed the data and reached conclusions similar to Sen. Deepak Mazumdar<sup>5</sup> wrote, "the data presented by the Farm Management Surveys in India have added another example to the phenomenon observed in many parts of underdeveloped world, viz., that in peasant agriculture, as the size of the farms decreases the output per acre increases". Khusro<sup>6</sup> maintained a similar position and noted that "as farm size (acreage) expands, gross output per acre declines". G.R.Saini<sup>7</sup> writes, "by and large, the inverse relationship between farm size and productivity is a confirmed phenomenon in Indian agriculture and its statistical validity is adequately established by an analysis of the disaggregated data".

E.J.Long<sup>8</sup>, after having observed data from Farm Management Research Centres in India from certain selected areas of West Bengal, U.P., Punjab, Orrisa, A.P., Bihar and Madras, used a different size range from each state for computing the frequency distribution and a composite tabulation using four size groups into which all the data could be fitted, indicated the following relationship (Table 2.1) between size of farms and productivity per acre as measured in value of output.

Table - 2.1Average gross output per acre by size of farm

Size of Farm (acres)	Gross output (Rs. per acre)
0 - 4.9	240
5 - 9.9	213
10 - 19.9	171
20 - above	103

Source : Long, E.J., The Economic Basis of Land Reforms in Underdeveloped Agriculture (ed.) Shukle, Bombay, 1969.

This relationship hold true not only in an underdeveloped country but also in some of the more advanced agricultural countries. In this connection Schiller<sup>9</sup> observed, " ..... that the countries with the highest intensity of land utilisation, i.e. the highest yields per acre an not characterised by prevailing large scale farm but also countries where small and middle sized farms prevail. One of the countries with the high yields per acre and a small percentage of large scale farms is the Federal Republic of Germany". The experience of Japan and Taiwan also supports the generalization that owner-cultivated small-sized farms can

be viable, reasonably effecient and capable of sustaining rapid increase in the agricultural productivity and output.

Supporters of the inverse relationship between farms size and productivity have offered diverse explanations of this phenomenon. Ashok Rudra<sup>10</sup> has divided these explanations into two categories: intensity based and quality based. The latter would explain why yield on a piece of land cultivated once with a crop might be higher in smaller farm than in a larger farm. The former involves factors which may not affect differentially big farms and small farms in the production of a given crop on a piece of land planted only once with that crop, but which would lead to the use of higher quantities of inputs and yield of higher volumes of output through the piece of land being used more intensely that is, its being planted with more than one crop during the year.

#### 2.3.3.1 Quality-based explanations<sup>11</sup>

(i) Explanation arguing that fertility is higher on small farms as compared to large farms : (List of supporters includes A.M.Khusro, A.K.Sen, C.H.Hanumantha Rao, Jagdish Bhagwati and S.Chakravarthy). According to A.M.Khusro,<sup>12</sup> "one of the most plausible hypothesis of a negative response of gross output per acre and farm business income per acre to changes in acreage seems to us to be that as farm-size expands the proportion of bad and indifferent land to total

land increases, this in turn accounting for the decrease in per acre output and farm income".

(ii) Explanation contending that small-farms use relatively

superior technique and are more efficiently managed :

(put forward by C.H.Hanumanth Rao and A.K.Sen). This argument is based on the need of the small farmer to put in his best efforts to survive. It is only to be expected that the poor peasant family dependent on a small piece of land for subsistence will be forced to exert itself to the utmost or else it will be wiped out. It will also try to improve the quality of land, leave fallow as little land as possible and try to cultivate as many crops as possible.

(iii) Explanation arguing that the indivisible factors have

a higher impact on small farms as compared to larger

farms : (Supported by A.M.Khusro and C.H.Hanumanth Rao).

According to Khusro,<sup>13</sup> "..... there is the further possibility that in the case of indivisibilities like a pair of bullocks, while a comparatively larger farm will have optimum intensity of bullock use per acre, a small farm with surplus bullock power, under circumstances of an all-round surfeit of bullocks and very low opportunity cost for them will intensify bullock use and hence obtain a large per acre output".

- (iv) Explanation suggesting that as a result of fragmentation small farmers are left with better quality lands :

When the relatively small farmers are forced by circumstances to resort to distress sales to bigger land-holders, it is the poorer quality of land that is sold, the farmer retaining the better quality land. This argument was put forward by Jagdish Bhagwati and S.Chakravarthy.<sup>14</sup>

- (v) Explanations based on disincentives of tenancy and absentee landlordship : These have been advanced by

A.M.Khusro, Hanumantha Rao, Krishna Bharadwaj, Jagdish Bhagwati and S.Chakravarthy etc. Krishna Bharadwaj<sup>15</sup> writes, "a possible explanation is in terms of tenant-landlord relation. .... It may be argued that when a tenant, due to financial stringency, can afford to lease in only a small piece of land, he may look for better quality land, less prone to risks of crop failure. Although land values and/or rents may capitalise the productivity differentials (possibly more than capitalise considering the tenant's weak bargaining position), for the tenant the risk of a poor crop may work out much higher than the additional cost of tenancy at the bare subsistence level. An even more likely situation would be that the landlord himself prefers to parcel out his land into small tenant holdings, especially when they are of a better quality.

..... The landlord's strategy may be to exploit the quality

advantage to the maximum by controlling the size of the leased-out parcel. A small enough parcel would compel the tenant to put in a high amount of his own labour and other inputs in an effort towards providing subsistence for himself and his family after paying out the landlord's share".

### 2.3.3.2 Intensity-based explanations<sup>16</sup>

(i) Explanation arguing that family labour is cheaper than hired labour and it is family labour that is used predominantly on small farms : This argument was put forward by A.K.Sen. According to him, the small farmers use family labour which is cheap while large farmers use hired labour (in addition to the labour contributed by the family members). Accordingly, wage-labour enters as a specific cost of production. A large farmer will employ labour only till the point where marginal productivity becomes equal to the wages paid to the labour. He cannot proceed beyond this point since marginal productivity will become less than the wages paid and he will have to suffer a loss. Against this, small farmers employing only family labour will keep on using labour till the point where marginal productivity reduces to zero. Accordingly, the labour-land ratio is higher for small farms and this keeps their productivity more as compared to large farms.

This explanation of Sen<sup>17</sup> is based on the assumption that there are no outside opportunities for family labour, and accordingly, its opportunity cost is zero. If members of the family can find alternative employment at the ruling wage rate, they will not extend the application of their labour beyond the point where the marginal productivity of their labour is equal to the ruling wage rate. In this context, Sen examines a number of possibilities.

According to him, in the event of large-scale persistence of unemployment, the marginal opportunity cost of labour will be zero and the farmer will continue to employ his labour (and labour of his family members) to the point where its marginal productivity is reduced to zero. However, generally unemployment is not found to the extent to render the marginal productivity zero. There is always some possibilities of finding employment elsewhere. Therefore, marginal opportunity cost is never zero though it is always less than one (and in some cases substantially less than one). In such situations, it becomes necessary to look at the possibility of finding employment elsewhere in conjunction with the prevailing wage rate to calculate the opportunity cost of labour. Let us assume that the probability of getting employment elsewhere is  $P$ . Sen has argued that in normal circumstances,  $p < 1$  and therefore productivity per acre on large farms will be

less than the productivity on small farms. Large farmers will not employ wage-labour beyond the point where marginal productivity is equal to wage rate. Against this, small farmers using mostly family labour will keep on using it to a considerably more extent. In fact, they will keep on employing to the point where marginal productivity becomes equal to the opportunity cost.

(ii) Explanations arguing that there is more intense application of agricultural inputs on small farms :

Deepak Mazumdar, A.M.Khusro, Krishna Bharadwaj and Usha Rani have put forward the argument that small farmers make a more intensive use of their inputs as compared to large farmers because they are faced with the compulsion of providing for themselves and their families from whatever small holdings they possess. As against this the large farmers are not faced with any such intensity as small farmers.

(iii) Explanation suggesting that there is higher intensity of irrigation in smaller farms :

This argument has been put forward by C.H.Hanumantha Rao and Krishna Bharadwaj. The greater irrigation facilities on smaller holdings could be on account of two reasons :

- (a) better irrigated land getting divided into smaller holdings and
- (b) smaller operators creating and maintaining better irrigational facilities on their farms.



The former tendency may be attributed to the fact that "better irrigated lands are more prone to sub-division as the feasibility of producing a certain minimum produce on a smaller plot may permit families to sub-divide their common possessions". The latter is due to the fact that "the small cultivators can deploy their family labour in creation and maintenance of irrigational facilities".<sup>18</sup>

(iv) Explanation suggesting that large farmers give more preference to leisure vis-<sup>a</sup>-vis the small farmers :

C.H. Hanumantha Rao has argued that large farmers give more preference to leisure as compared to small farmers because their needs are more easily met and there is no economic compulsion for them to work. On the other hand, because of their poverty and need to raise a minimum level of subsistence from their small holdings, small farmers are compelled to work hard. This raises the productivity per acre on the small farms to a higher level as compared to the large farms.

This description of the reasons of the alleged inverse relationship between farms size and productivity shows that one can distinguish between forces that drive small farmers to intensive efforts and forces that permit them to undertake such efforts.

#### 2.3.4 Size-productivity : Positive relationship

Though the hypothesis of inverse relationship between size of holding and productivity has been supported by many studies, yet it cannot be taken as granted. The conclusions of these studies in majority of cases were based on the data collected prior to the introduction of New Agricultural Strategy. Some recent studies on the hypothesis of inverse relationship between farm size and productivity in the context of recent technological developments taking place in agricultural sector, however, have come out with the results that show contrary to above hypothesis.

Rajvir Singh and R.K.Patel<sup>19</sup> conducted a study in Meerut district of U.P. The authors concluded from their regression analysis that "in the context of new technology there is no indication of decrease in output per hectare with an increase in farm size and therefore the hypothesis of inverse relationship is rejected in the area under study". One possible explanation for this trend is that, as farm technology undergoes a change, large farmers take greater interest in using land more intensively with modern inputs at proper time in the wake of higher profitability offered by the new technology.

Based on the data derived from different sources, C.H.Hanumanth Rao<sup>20</sup> reached the following observation, "Despite better access to resources, output per acre among large farms

under traditional labour intensive, technology was lower than among small farms, as the cost of (hired) labour was higher for them than for small family farms. Also, managerial and supervisory diseconomies of large-size under labour intensive methods accounted for lower labour input per acre among large farms. Technological changes created new production possibilities for large farms who could now increasingly substitute capital for labour by adopting biological as well as mechanical techniques and produce output at a faster rate than small farms. The latest evidence shows that the inverse relationship between farm size and output per acre found under traditional technology no longer holds true with the adoption of new technology".

Ashok Rudra<sup>21</sup> argued that such an inverse relationship may hold in certain areas; it is not an universal phenomenon and cannot be said to operate in all parts of the country. He said, "we may emphasize that we never expressed the view that the inverse relationship was not to be observed in any circumstances in Indian agriculture. Our view was that such a relationship could not be regarded as an universally valid law operating in Indian agriculture and that there were indications in the Farm Management Survey data themselves that in certain areas yield per acre, instead of declining with increasing size might actually be increasing. Also that

in certain cases where an inverse relationship could be recognized to hold, it might do so among the smallest size-class of farmers but not among others. It was also our view that in many areas, one could not possibly observe any systematic pattern of dependence between yield per acre and farm size".

#### 2.3.5 Perspective of the controversy

The outcome of this controversy can be summed up in the following words of A.K.Sen and Ashok Rudra<sup>22</sup>.

"The totality of empirical research on the relationship between farm size and productivity has yielded a far from uniform picture. Even those who have emphasised confirmation of the inverse relation on the basis of individual household data have noted failure to see such a pattern in several regions. The general conclusion to emerge in the diversity of Indian agriculture regarding the existence of the negative relation between size and productivity is : 'the negative relation may hold in certain parts of the country at certain times but not everywhere and not at all times.' It also appears that even when the inverse relationship holds, it may hold in certain ranges but not in others, and in many cases it is particularly noticeable 'only for small size classes'. While counting the different regions one would find that the

inverse relation is more frequently confirmed than rejected; it would be a mistake to take it to be an empirical generalisation for Indian agriculture as a whole".

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