CHAPTER V

THE PRODUCTION AND DISTRIBUTION OF INCOME

The last chapter was devoted to the study of changes in the cost structure on two groups of farms as indicated by the data for the years 1956-57 and 1969-70. The present chapter tries to examine, in the first instance, how far production has changed as a result of the use of additional inputs. The second section of this chapter has been devoted to the analysis of functional distribution of income generated on the two categories of farms in the two reference periods.

I  The Return-Input Ratios

For knowing how production has been influenced by the changes in the cost structure, it was decided to study the changes in the ratio between various types of returns and the different types of inputs. It was felt that given the change in the level of inputs used, an analysis of such ratios will throw sufficient light on the overall impact of such a change on production. The returns, considered for the purpose of the present study were the actual values of the three objective functions that we had decided to use for measuring misallocation of resources. These were namely, the 'value of gross output', the 'value added' and the 'profit'. The inputs used to find out the various return-input ratios are the area of the farms, the cost of human labour, mechanical costs and the biochemical costs.

The following table gives the various return-input
Table 5.1

Return-input ratios on two types of farms for the year 1956-57 and 1969-70

<table>
<thead>
<tr>
<th>Value of gross output</th>
<th>Value Added</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small Farms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return per acre</td>
<td>150.69</td>
<td>648.94</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on labour</td>
<td>3.51</td>
<td>3.94</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on mechanical inputs</td>
<td>3.68</td>
<td>4.90</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on biochemical inputs</td>
<td>7.19</td>
<td>9.74</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee of effective cost</td>
<td>1.44</td>
<td>1.78</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td><strong>Large Farms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return per acre</td>
<td>156.70</td>
<td>731.39</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on labour</td>
<td>4.16</td>
<td>4.67</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on mechanical inputs</td>
<td>5.09</td>
<td>4.98</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee spent on biochemical inputs</td>
<td>9.43</td>
<td>8.69</td>
</tr>
<tr>
<td></td>
<td>1956-7</td>
<td>1956-7</td>
</tr>
<tr>
<td>Return per rupee of effective cost</td>
<td>1.84</td>
<td>1.89</td>
</tr>
</tbody>
</table>

N.B. For calculating profit on a farm, we have deducted rent as a cost at the rate of 1/3 of the value of the gross output, i.e. the rate that has been fixed under the Punjab Security of Land Tenure Act, 1953.

*Value of gross output, 'Value added', and 'Profit' for each farm in the samples for the two years have been given in Appendix 5.
The above table can be studied from different angles. In the first instance, we may have a look at the returns per rupee of effective costs for small and large farms in a particular year. We find that in the year 1956-57, returns per rupee of effective costs were lower on small farms from the point of view of every objective function as compared with those on large farms. The shortfall on small farms being 21.7 per cent in case of the value of gross output, 32.8 per cent in the case of value added and 130.0 per cent in case of profit. The same tendency is found with regard to the returns on small and large farms in the year 1969-70, the shortfall in returns on small farms being 5.8 per cent, 4.6 per cent and 19.0 per cent for the value of gross output, value added and profit respectively.

If we look at the returns per acre on small and large farms, we find the same tendency, large farms showing greater return per acre as compared with the small farms in both the years. The shortfall in the earnings of small farms when compared with those of large farms in terms of the above objective functions, respectively was 3.8 per cent, 17.9 per cent and 139.0 per cent for the year 1956-57 and 11.3 per cent, 10.7 per cent and 24.5 per cent for the year 1969-70.

The above findings confirm Sen's conclusion.
as well as that of many others\(^1\) that profits per acre increase when the size of the farm increases. However, our conclusions are at variance with those arrived at through various Farm Management Studies \(^90\), which point out that value of gross output per acre declines when the size of the farm increases.\(^2\) These are rather in line with P.C. Sarkar’s \(^243\) findings.\(^3\)

We may, look now at the increase in various returns overtime. In the first instance, we may study the change in various returns per rupee of total effective cost. All the relevant ratios (except value added for large farms) have shown an increase over time indicating thereby that use of additional inputs in money terms has been economically remunerative on all categories of farms.

A further perusal of the table reveals some interesting trends. Returns in terms of any objective function per acre or per rupee effective costs (except value added, per rupee of effective cost) have increased on both types of

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1 Khursh \(^{135}\), Soni \(^{278}\), Government of India \(^{90}\).

2 See also Sen \(^{250,251}\), Masumdar \(^{178,179}\), Rao \(^{221,222}\), Bhattacharya and Saini \(^{23}\), Saini \(^{236}\), Khursh \(^{153}\), Bhartwaj \(^{22}\), Bardhan \(^{14}\), Long \(^{168}\), Sen \(^{233}\).

3 Also see Chattopadhyay and Rudra \(^{38}\), Rao \(^{220}\), Usha Rani \(^{297}\), Soni \(^{277}\), Raj Krishan \(^{216}\), Rudra \(^{232,233}\).
farms between the two years of study. However, the performances of small and large farms are different with regard to this increase. Whereas increase in returns per acre is generally greater on large farms as compared with that on small farms, it has been just, the other way round when measured in terms of per rupee of effective costs. The small farms seem to be catching up with the large farms with respect to each type of return. It is to be noted that whereas the average profits on small farms were negative in 1956-57, they became positive in the year 1969-70. This points to an important conclusion. It is that the small farmers have been more cautious in utilising the additional resources used on land. A study of the returns per rupee of each constituent of the total costs makes this result more conspicuous. Each type of comparable return to one unit of each constituent of total costs (except value of gross output, per rupee of labour) has shown a greater increase on small farms as compared with that on the large farms, the increase in all types of returns being the highest in case of bio-chemical inputs followed by the mechanical inputs and labour. In case of large farms, we even find that the return to a rupee spent on mechanical inputs as well as that spent on bio-chemical inputs has in fact shown a decline in case of all objective functions.

Whether this shows an excessive over mechanisation and an

1 Talib and Majid's findings are also similar. See also Bhattacharya and Majid Jr., Ledijfsky.
overdosage of biochemical inputs on large farms cannot be concluded from this finding alone. This, however, does create a doubt of that nature.

II  Changing Pattern of Functional Distribution of Income

So far, we have tried to establish that agricultural production has increased over time. This is not only due to increased investment in agriculture but also due to a favourable change in input-return relations. It will be interesting to know how different agents of agricultural production have benefitted from this increase.

For measuring the relative gains of different agent of production we have examined the change in distribution of 'value added' which represents the income generated out of a productive activity.

Value added is distributed among the farm operator, the land-lord (if he himself is not a farm operator), the person supplying capital (he may be farm operator himself, the land-lord or a person other than the operator or a land-lord), the government (through taxes and the cesses) and the hired labour (casually hired labour, annual servant and the artisan). We would have very much wished

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1 Results of the studies conducted by Raj [214] and Rudra [230] also strengthen our doubt about the excessive use of machinery in agriculture, on large farms.
to examine the changes in the personal distribution of *value added* among all these agents of production. But there was an obvious difficulty. Not only is the categorisation of some agents of production into separate groups, namely, the operator, the landlord and the capitalist very flexible and blurred for various farms, it is also not the same in the two years. However, if we put these three agents of production in one category and the government and the hired labour into the other, the categorisation becomes quite clear. Distribution of value added on the basis of this categorisation can be compared for the two years and this is what we propose to do in the following paragraphs.

The share of the value added going to the hired labour and government was 10.8 per cent on small farms and 20.4 per cent on large farms, in 1956-57. In 1969-70, the share going to the hired labour and the government increased to 16.1 per cent on small farms and to 23.3 per cent on large farms. This is quite a significant change when we notice that the 'cake' itself has become bigger. The change is mainly because of the change in the composition of labour employed on various farms. On both types of farms, ratio of the hired labour to the family labour has increased. Whereas in 1956-57, on small farms, 2.82 days of hired labour and 18.62 days of family labour were used per acre, on large farms, per acre utilisation

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1 The data under study reveal that the share of the Govt. in the value added, in the form of land revenue and cess was 1.1 per cent on small farms and 0.4 per cent on large farms in 1956-57. It was 0.80% and 0.54% on small and large farms respectively, in 1969-70. The share of the Govt. thus did not increase during the period under review.
of hired and family labour was respectively 10.18 days and 8.52 days. In 1969-70 on small farms 11.77 days of hired labour were used as against 18.00 days of labour provided by the operator's family on each acre of land. On large farms, whereas, for each acre, 18.77 man days of labour were supplied by the hired labour, the family labour accounted for 8.86 man days.

This development points to the fact that agriculture in this part of the country is shedding off its characteristics as being solely a family concern. Extra labour requirements and more than that, the need for applying more labour in the peak seasons, necessitated by the introduction of new variety of crops has made the association of hired labour with the cultivation process rather necessary. A greater part of the surplus over the cost of intermediate inputs and the depreciation is, as a result, going to the agents of production other than the operator group when we compare the situation in 1969-70 with that of 1956-57.

There is however, a need for caution for giving any further interpretation to this conclusion. We should

1 See in this connection, Billing and Arjan Singh (25). According to them introduction of new varieties of crops have added to the scarcity of labour in agriculture during the peak season. See Also Bhalla (21) and Swenson (287). They also confirm through some other studies that the position of labour has improved after green revolution.
not be tempted to infer that the personal distribution of income generated by agriculture has also become more fair. Such a conclusion will be valid only on the assumption that during the intervening period, no factor, that could disturb the *inter-se* distribution of income of the members of each group, has been in operation. Moreover, there should have been no inter-crossing between the members of the two groups during this period. But such changes had taken place. For example, *inter-se* personal distribution among the members of the operators group has changed because they have been changing their role as agents of production even when they have remained in the same group. Some operators who were working as tenants in 1956-57 had become owners in 1969-70 through the grant of ownership rights under the land reforms introduced in the State. Similarly, some rentiers of 1956-57 had become self cultivators in 1969-70 in order to evade land reforms.

Sources of supply of capital had also undergone a change. Some operators had been able to replace the external source of finance by ploughing back their own savings in agriculture. In some other cases, due to ambitious schemes of investment in agriculture, the operators had come to depend upon outside financial agencies, especially the commercial banks. We must take into consideration all these changes in order to know how the
Personal distribution among the members of the operator's group has changed. Again, even when the inter-se distribution of income between the members of this group had remained unchanged, in both the years, it would still be difficult to know what had happened to the personal distribution of income. This is because, even when we find that the share going to hired labour has increased, the share going to each individual labour in that group might have gone down or increased only insignificantly if the number of workers in the group has considerably increased. The available data do not throw any light on both types of problems raised in this paragraph.

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1 Many studies have been conducted in India in recent years about changes in the functional distribution of income in the agricultural sector. See for example Bhalla [217], Rao [223], Chap. 19; 224, Wills [305,306], Frankel [175, PP. 197-8], Bardhan [157, Saini [133], Sharma [244], Lal [161], Ledentzsky [163], Mathia [193], Parthasarthy [207, Chap. 4], Shah [257], Shah and Agrawal [260], N.C.A.K.R. [198, P. 33], Soni [279]. Most of these studies conclude that relative share of labour has fallen after the green revolution. Our finding is at variance with conclusions of these studies mainly because our base period lies far back in the fifties when agriculture was basically a family concern. However, in the light of above discussion, we still refrain from giving a firm judgement about the personal distribution of income. We shall be content to say that there is now a greater association of workers other than the farm operator and the members of his family, with the agricultural operations.
Conclusion

The above review of agriculture in the year 1956-57 and 1969-70 brings out clearly the change that has taken place during the intervening period. Not only has the value of inputs used increased, the input structure itself has significantly moved in favour of the non-traditional inputs. Inputs like improved seeds, fertilizers, insecticides and improved implements and machinery have become quite popular. The art of cultivation too, is no longer static.

The result is obvious. The returns to the total value of inputs used have increased. Returns per acre have also considerably increased for all types of farms. Though, by western standards, agriculture in this region still needs vast improvements, there is no denying the fact that it has come out of the traditional rut. We can safely say, to use Mellor's terminology, that the agriculture in this region has entered the second phase of development, if not the third. If the year 1956-57 could represent an era of traditional agriculture, 1969-70 stands for a non-traditional and progressive agriculture, though not completely modern, when judged by the western standards.

1 See I.C.S.S.R. 129, P.257. The upward trend in crop production over a long period from 1921 was found mainly to be the result of steep rise in production after 1952. Punjab emerged as a progressive region.
This comparative analysis of the performance of agriculture in the two years does not throw any light on whether there were any lapses in the decision making process on the part of the farmers in the two years or not. Were resources used most judiciously? Was the choice of crop pattern most remunerative or not? How far, if at all, were the farmers away from the optimum? These questions need thorough probe. This is what will be done in the chapters that follow.