

CHAPTER - EIGHT

CONCLUSIONS AND POLICY IMPLICATIONS

The present study is chiefly concerned with the efficiency with which the farmers utilize the resources at their command. As the study is related to a relatively backward agricultural region it focuses on the rationality of the agricultural producers and more particularly their behaviour as profit maximizers. We have, for this purpose, studied the observed pattern of utilization of resources on different size classes of farms and carried out some sophisticated tests of rationality (in terms of profit maximization). We have mainly distinguished between small and large groups of farms based on the size of cultivated area held as also between the peasant and capitalist groups of farms based on the extent of family labour used on crop cultivation.

Our empirical findings on the problem of allocative efficiency, by and large, support the hypothesis of profit maximization both on the small and large farm sectors. Thus, we conclude that even in the relatively backward region of Ranchi where majority of farmers belong to the tribal community whose rational behaviour with regard to the allocation of resources is often doubted, the farmers do, in fact, act rationally given their existing resource base and low technological backwardness. This is reflected in more or less close correspondence between the marginal productivities of the input resources and their corresponding resource prices (opportunity costs). The policy implication is clear.

If further agricultural growth is to be achieved in this particular region not much can be had by reallocating the existing resources but by effecting technological changes instead of new resources. But compared to other developed regions of our country, this region suffers very much from the basic resources (even the irrigation base is also low) so that with the introduction of any new resource its management has to be taught and spread to all sections of farms.

Our further findings with regard to the technical efficiency aspect, an important component of overall economic efficiency, have an important bearing on the policy of agricultural growth. The technical efficiency, which represents technological factors such as managerial ability, education, knowledge, level of information etc. is observed to be different not only on the different size - groups of farms viz, small and large farms but also on the groups of farms based on the extent of family labour used. Moreover, technical efficiency differs with respect to the crops studied.

As is evident from the empirical findings, the small farms have a higher intercept term in their production functions particularly with regard to paddy which is the most important traditional crop of the region. This suggests that with regard to the crop production of paddy the small farms are more technically efficient. The several factors responsible for this might differ in their relative magnitude. For example, the managerial ability of the small farms might be greater than those of the large farms. The small farms being mostly run by family labour might put in better quality of resources (in terms of labour). The paddy is not only the traditional crop but it happens to be, the chief subsistence crop.

The farmers wish to raise the maximum output of this crop . Most of the farmers under study have grown the traditional variety of the crop . The high yielding varieties of paddy has not made any noticeable impact on the actual cropping pattern of the farmers of this region . The farmers, by their long experience, have learnt the art of cultivating the traditional variety of paddy . Other inputs like irrigation water or higher doses of capital do not figure much in paddy because it is mainly rainfed and the capital investment in the form of purchased inputs is comparatively low . Hence the small farms have acquired higher technical efficiency with regard to paddy . Productive efficiency , in terms of higher per hectare yield of paddy is observed to be higher on small farms . Of course, one possible explanation we have advanced is that the fertility of the soil is higher on small farms . (the percentage of better grades of land of the total land held is higher) . The other important explanation is the form of organisation of the small farms sector . The majority of the small farms can be classed as peasant family farms (according to our classification) which bestow more attention and care and thus prove to be better managers in the raising of crops .

With regard to wheat, however, our findings are somewhat different . The technical efficiency parameter as reflected in the intercept term of the production function is slightly higher on the large farms which implies that in the production of wheat the large farms are more efficient technically . In so far as the allocative efficiency is concerned, both the large as well as small farms appear to be equally efficient . The marginal productivities of resource inputs are not different from the respective opportunity costs both on the small as well as large farms .

though the marginal productivity of labour in particular is slightly lower than the existing wage rate in the crop productions of paddy and wheat. This would imply that labour is being inefficiently allocated in the production of crops. In the small farms sector this is particularly noticeable. Our explanation of this finding is that the agricultural sector (particularly the small farms sector) is characterized by surplus labour in so far as during the off-peak seasons of agricultural activities, the opportunity cost of labour is probably lower than the average year round wage rate. The proportion of peasant family farms is higher in the small farms sector. The labour input per hectare on smaller farms is comparatively higher so that the average productivity of labour is lower and hence marginal productivity of labour is also lower.

A comparison of marginal productivities of labour and capital between wheat and potato reveals that marginal productivities of both labour and capital are higher in potato than in wheat. This suggests that the optimum allocation of these resources would be achieved by transferring these resources to the cultivation of potato. This fact is more glaring on both large farms sector and on the small farms sector. One would find explanation of this observation on the fact that the potato cultivation requires comparatively greater input of labour in its various operations. Greater care and nurturing is also required for this crop. The family labour input, in fact, plays an important part in its better performance. That the large farms depend heavily on the hired labour is a factor which could explain the productivity differences between wheat and potato.

We have also analysed the farm efficiency between small and

large groups of farms on the basis of such criteria as the land utilization and land productivity .

Land productivity, as reflected in the intensity of cropping, is higher on the smaller farms . If cropping intensity is to be treated as an index of land use efficiency the small farms prove to be more efficient than the large farms . We have, however, found that cropping intensity appears to be positively related to the intensity of irrigation . Availability of irrigation , thus plays an important role in increasing the cropping intensity .

Our empirical finding with regard to the well trodden debate on the size-productivity relationship shows that in so far as paddy is concerned the inverse relationship holds . We have found our explanation on the two important hypotheses viz., fertility hypothesis and family labour hypothesis . We have also tested these hypotheses with our empirical data and have obtained satisfactory evidence in their favour . Thus, our conclusions in this connection, are (i) the small farms are more fertile (at the point of time of our investigation) such that the percentage of better grades of land are comparatively higher on small farms and (ii) the proportion of family labour spent on crop cultivation is usually higher on small farms, and , this has a significant positive impact on the productivity levels of individual crops . The impact of peasant family cultivation has been found to be positive in terms of the regression coefficient of dummy variable for peasant farms . The policy implications of our findings are thus clear : if agricultural growth is to be accelerated and if agricultural resources are to be better organised and used the small farms and farms based on peasant family labour are to be favoured particularly with

regard to the institutional facilities like credit and education extension.

Our finding with regard to the technical efficiency component is that the small farms are not in a better position in so far as the new crop varieties are concerned. The HYV crops have a larger capital component and the proportion of purchased capital on such crops is higher. The small farms on the one hand are ignorant of the optimum combination of different biological inputs. The recommended doses of seed-fertilizers as also the other cultural treatments required for new crop varieties are possibly, not applied by small farms. On the other hand, even if they are not ignorant, they are somewhat hesitant to apply these inputs due to higher proportion of cash expenditure involved. The other possible explanation is that the extension services rendered by the government agencies are often reaped by the big farmers. The institutional credit agencies are biased towards big landowners. Thus all these factors have contributed towards greater technical efficiency of large farms specially in the cultivation of new varieties of seed-fertilizer based crops. Thus, in the new wheat cultivation, which in our sample, comprised nearly 90 percent of the total wheat area, small farms have suffered in terms of technical efficiency. If, therefore, the objective is to bring about agricultural growth through the spread of technological innovations among all categories of farm households, it is imperative to increase the technical efficiency of small farm sector by educating them the ideal input mix and the proper treatment of such crops on the one hand, and by providing suitable credit facilities so that the resource base of the small farms is strengthened.

While our findings relating to a relatively backward agricultural region lend support to the hypothesis of higher technical efficiency of large farms in the context of changing agricultural structure, it has a serious implication in so far as the diffusion and distribution of gains to different categories of farm households are concerned. The net advantage might be heavily skewed against small farms if the whole policy of agricultural development continues to favour the big farms. If, however, timely and proper measures are taken to improve the technical efficiency of small farms, there is no reason why they will not be able to compete with their large counterparts. This is because, the small farms possess certain inherent advantages (like better management, better skill and better quality of labour use) which are likely to place them in a better position vis - a - vis the large farms.

Relative economic efficiency tests of small and large farms have also important policy implications with regard to land reforms which have been an important plank of governmental policy. In fact, equity vs. productivity issue has made the land reforms policy still more controversial. It is often held that land reforms measures favouring small farms might prove desirable on equity grounds but on productivity grounds, they might be disastrous in as much as large farms happen to be more productive and are able to raise more surplus production. The controversy, would, however, peter out once rigorous tests of economic efficiency go in favour of small farms. Thus, both on grounds of productivity and equity the small farms with a cultivated area not more than 4 or 5 hectares would be desirable for appropriate ceiling on land holdings for overall agricultural growth.

On employment considerations also, the potentials of small farms are immense . The labour absorption capacity of small farms is greater which would go a long way towards solving the rural unemployment problem . On the large farms sector a growing tendency to mechanize the farm operations and thus to substitute capital (in the form of machinery) for labour would aggravate the problem of rural unemployment and under employment .

Thus, on the basis of economic efficiency and particularly its component of technical efficiency , governmental policies with respect to pricing, supply of agricultural inputs , marketing facilities , provision of credit and extension services etc. ought to be so devised as to favour the small farms sector .