

An Aspect of Indian Agriculture

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The agricultural sector of our economy has recently been subjected to a great deal of empirical investigation and while much of the picture continues to remain obscure, some of it looks a whole lot clearer.

This note is concerned with the interpretation of certain broad relationships that have been observed in Indian agriculture, mainly in the recent Studies in Economics of Farm Management produced by the Ministry of Food and Agriculture, for "six typical regions in the country."

We shall draw two types of conclusions ;

(a) policy implications for Indian agriculture, and

(b) implications about the use of certain concepts in Indian agricultural studies.

A OBSERVATIONS

WE start with three specific results of observation which are found to be broadly valid in Indian agriculture. We formalise them below.

Observation I : *When family labour employed in agriculture is given an "imputed value" in terms of the ruling wage rate, much of Indian agriculture seems unremunerative.* In fact in Bombay for the two districts studied, taken together, "we get a loss in crop production to the tune of Rs 5.50 per acre" (*Bombay Studies*, 1954-55, p 65). This was made up of a loss in Ahmednagar and a profit in Nasik. The loss in the former is reported also in the second study for Bombay. (*Bombay Studies*, 1955-56, p 101). Similar, if less extreme, losses are found in all other States as well, even though they are confined to given areas or given size groups. In Madras, however, there was an overall loss both according to the Cost Accounting Method as well as the Survey Method for 1954-55, though the former showed a profit of Rs 4.9 per acre and the latter a loss of Rs 30.8 per acre for 1955-56. (*Madras Studies*, 1955-56, pp 47-48). To quote a few more results in Punjab, "there has been a loss per cropped acre both in irrigated and unirrigated areas in the Survey Sample though some profits are realised on bigger holdings in irrigated areas in the Cost Accounting Sample" (*Punjab Studies*, 1955-56, p 242) and in West Bengal, "only 60 per cent of the farm' have earned profits and the remaining 40 per cent have incurred losses from farming." (*West Bengal Studies*, 1955-56, p 143). There is no area studied where a substantial number of farms have

not made "losses" after imputing a wage value to family labour.

Observation II : *By and large, the "profitability" of agriculture increases with the size of holding, "profitability" being measured by the surplus (or deficit) of output over costs including the imputed value of labour.* This is not universally valid, but widely found. In some areas the relationship is quite striking, e.g., in U P "the profit per acre is highest on holdings of 20 acres and above- It is correlated directly with the size of holding" U P *Studies*, 1954-55, p 521. Similarly in Punjab, "the losses show a tendency to taper off with every increase' in the size of holding". (*Punjab Studies*, 1955-56, pp 241-2). Similar, though less strong, correlations are seen in most other areas as well.

Observation III : *By and large, productivity per acre decreases with the size of holding.* This trend with gross output per acre is observed, more or less strongly, in practically all the regions studied. "Value added" figures are not available, but a rough calculation indicates a similar trend in most of the areas studied for "value added" per acre as well.

B INTERPRETATION

There are some attempts in the *Studies* to explain these rather remarkable results. In general, observation I is regarded as a sign of poverty of Indian agriculture, though

¹ It must be remembered that the value of "bullock labour" includes the value of human labour in its up-keep, viz, wages of hired labour as well as imputed value of family labour. The same is true of items like manure produced on the farm, or feed cost of bullocks fed on farm byproducts.

in some of the *Studies* the result is just mentioned without any interpretation. Perhaps the greatest concern is expressed in the *Madras Studies*. "This is an alarming situation, for if 50 per cent or more of the farmers are carrying on the business at loss, the farming community cannot be considered to be comfortably placed in any sense of the term". (*Madras Studies*, 1955-56, p 146). In answering the question as to why these 50 per cent or more are carrying on in spite of the loss, the answer that is given is "still they carry on the business for the meagre subsistence it gives, looking at it as a way of living and not as a business proposition at all." (*op cit* p 146).

Coming to Observation II, we find a great variety of explanations. Punjab gets a technical answer. "This fall in the losses on higher holdings may be attributed to proportionately more area under American cotton than on smaller holdings. American cotton is a very remunerative crop and yields positive net returns". (*Punjab Studies*, 1955-56 p 60). This treats the phenomenon as a special feature of Punjab agriculture and explains it in terms of a consideration that is quite regional, viz. American cotton which is grown in Punjab land which, we also gather, is so "very remunerative" that it yields "positive" net returns!). The U P Report takes a broader line, and refers to the indivisibility of certain capital goods and the consequent economy of large scale, in trying to explain the high cost of production per acre of smaller farms. "The reason may be that the smaller sized holdings have to maintain at least a pair of bullocks and a set of imple-

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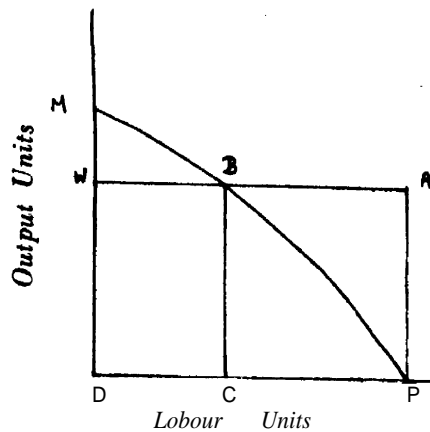
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menta necessary for farm operations and hence the expenses per acre are highest in this group." (*U P Studies*, 1954-55, p 51). Madras, however, gets a different explanation. "There is a persistent tendency to raise the quantum of inputs, especially in the smaller holdings and in the irrigated holdings in the hope that output also will increase, if not proportionately, at least absolutely, so that production on which cultivators in general will concentrate in a system of subsistence farming, may be the maximum. But the response of output is hardly within their control, depending as it does largely on favourable natural conditions." (*Madras Studies*, 1955-56 p 56, p 146; italics mine). Or in other words, the farmers misjudge what they can achieve by putting more and more inputs and end up in losses and this tendency to misjudge is stronger for smaller holdings.

Observation III does not seem to puzzle anybody, particularly since it is seen that increased output is related to increased inputs including human labour. The smaller farms get more inputs per acre (at imputed market value) and therefore get more output as well. This answers the question by postponing it, and the question why input per acre falls as the size of the farm increases, remains. Of course, there are some special explanations, e.g. the UP argument about indivisibility of bullocks, etc, making for a larger input of such goods per acre for smaller farms. But this does not explain why other inputs per acre also rise when the size falls, particularly the amount of human labour applied. The total amount of family labour applied per acre goes up remarkably as the size falls, so that in spite of the fact that in some areas the amount of wage labour applied falls as the size gets smaller, the total amount of labour per acre is inversely correlated with the size of the farm.

Before it is attempted to provide an interrelated set of explanations to all the three observations, it might be useful to consider an extremely simple economic picture. In the Diagram curve MP represents the schedule of net marginal product of labour applied to a given acre of land. If cultivation is family-based, and if the per

acre supply of labour in the family equals or exceeds OP, we can expect that OP amount of labour will be applied, provided labour has no outside opportunity of employment and provided there is no significant disutility of work in the relevant range of effort. Next imagine that the wage rate ruling in the area is OW. If we impute OW wage to each unit of OP labour, OWAP is the total "cost" of labour.



Now let us look at the observations needing interpretation. The area O M P (net output) could be more or less than area OWAP (labour cost). If it is more, there is a profit; if less, a loss. There is no particular reason why it should be more, and so there is nothing in the least surprising in Observation I. It is a natural result of an economy with surplus labour which has family based non-wage cultivation. There is nothing particularly "alarming" in this, and in fact, if production were restricted to OC, where a profit must necessarily be earned, the overall position would have been much worse.

Next, it should be noted that in practically all the areas studied, the proportion of family labour to hired labour falls with the size of farms, as indeed one would expect. The tables on this field in all the *Studies* indicate a weak or a strong tendency towards this relationship. Incidentally, the *U P Studies* for 1954-55 states, rather curiously, that "the use of family labour in various size groups differs widely and does not follow any pattern in relation to size". (*U P Studies*, 1954-55 p 51). It is stated elsewhere that "the contribution of family labour to the total farm labour is the highest in the lower size groups", (*op cit* p 37).

A look at Table 4.10 on page 55 dealing with this data confirms the latter statement completely, and also shows that the proportion of family labour falls *monotonically* (with one small exception in the Cost Accounting Sample and none in the Survey Sample) with the increase in size.

Given this relationship, Observations II and III are the obvious ones to expect. If the wage rate is O W, a wage-based farm will restrict labour input to O C, and have more profit (area M W B as opposed to area M W B minus area B A P) compared with family-based farming. Size is positively correlated with wage-based farming, Observations II and III are immediately explained.

This is not to say that the one feature we have been discussing is the only relevant one. American cotton in Punjab is relevant, indivisibility of bullocks is important, and so are a lot of other factors that are found in Indian agriculture. But what can be claimed is that even if these other special features were not there, the broad qualitative observations made earlier can be expected, given the mode of production of Indian agriculture and its variation with the size of the farms. This is, of course, not to deny that the other special features must be brought in to explain the exact quantitative observations. No agricultural study, however, can go very far in India, if it does not focus attention on the systems of production underlying Indian agriculture.

C IMPLICATIONS

An obvious implication of all this is that the fact that smaller farms

² It should be noted that while the amount of family labour applied per acre is much greater for smaller farms, the amount of wage labour applied per acre is not, in many cases. The increase in the application of other inputs per acre partly reflects complementarity between labour and other inputs. The greater value of investment per acre for smaller farms can be expected partly for this reason, and partly for the reason that much of the investment for smaller farms is done through the direct application of family labour, where a pattern similar to the use of recurring labour can be expected. Naturally this one phenomenon does not explain everything, and a lot of other considerations must be brought in to explain the input pattern satisfactorily.

have greater "losses" (or smaller "profits") in the sense discussed, is no sign of inefficiency of small-scale farming. As an indicator of efficiency, the surplus of output over all "cost", including the imputed wage of family labour, is worth very little.

In view of the fact that smaller farms have higher output per acre, can we argue that the reverse is true, viz. that small-scale farming is more productive? But that too does not seem to follow necessarily. If the explanation chosen here is correct, the factor that makes the crucial difference is not size as such, which is incidental, but the system of farming, viz. whether it is wage-based or family based. For example, if a large cooperative farm operates on a non-wage family labour basis, there is nothing in our observations to indicate that it will have a lower output per acre. In fact in Indian private-enterprise agriculture, a whole lot of subsidiary operations are wage-based, e.g. building canals,

dams, etc. A cooperative farm might be able to include some of these activities within the non-wage sphere, at least upto a point with a corresponding gain in efficiency.

On a similar trend of thought, the growth of wage-based capitalist farming, as is noted in some parts of India, should not be necessarily viewed as a progressive trend, because in an economy with structural unemployment, non-wage family-based farming has some efficiency advantages that capitalist farming does not have, as we have seen above.

Barren Economic Concepts

Finally- a remark on the implications for the concepts used in the study of Indian agriculture. What is the point of imputing to family labour a wage equal to the market one? What does the wage rate represent in this context? It does not represent the marginal social opportunity cost of labour, for there may be no alternative employment opportunities at the margin. Nor can it

be justified in terms of extra consumption involved that is relevant for long-run growth (cf, Dobb, Galenson and Leibenstein), because no extra consumption is induced merely by the application of a marginal unit of extra family labour, except perhaps in the shape of extra requirement of calories for extra effort, which in any case is not measured by the ruling wage rate in the labour market. With positive propensities to save of the peasants, a policy that maximises income also maximises savings. So the use of the wage rate in this context is not at all easy to understand. As economic concepts, "profits" and "losses" over total costs including the cost of family labour valued at the market wage rate, seem to be quite barren. This is just an example of how ideas relevant to one economic system when indiscriminately applied to another, produce quite absurd results.

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