NOTES

PROBLEMS IN USING FARM ACCOUNTS FOR DECISION MAKING

Farm accounts have been used for many purposes during the past half century—for determination of efficiency of operations, price fixing, tax reporting, etc. In the U.S.A., a renewed interest was brought about with the use of electronic data processing which processes the accounts quickly and gives a report. In India and other countries, interest continues because of the need for information about farm operations. Often accounts are glamourized without a clear conception of how accounts fit into the requirements for making decisions. Decisions take innumerable forms each with its own data requirements and an accounting system to fit each is difficult to conceive. The particular recommendation or decision depends upon the measurement standards and procedures used, and accounts which are historical facts are unorganized for such purposes.

Purpose

It is the contention of this paper that farm accounts are generally used for various recommendations and decisions without due regard for the inherent weaknesses. Thus, the purpose is to point out some weaknesses and explain why they are important. Farm accounts are extremely useful and necessary for special purposes, especially for codifying for tax administration which requires uniformity. However, the carrying of these exacting requirements into decision making can be misleading and even treacherous. Everyone would like a clear-cut well-defined set of criteria which would indicate the degree of "goodness" of the decisions made. and it is contended here that economic concepts with rough metrical approximations will lead to better decisions than the usual accounting procedures with inaccurate or poor economic content. When used together more can be gained by using economic concepts as arbiters of accounting fashions.

Types of Accounts

Many types of accounts are utilized by farmers and each will serve a particular purpose. A labour account may be desirable to record the hired and/or family labour used. Or, a cash account can be used which merely indicates the sales or cash income and the cash expenses. Perhaps the farmer only wants to know if his cash income exceeded his cash expenses. These accounts serve specific purposes and to the extent they provide the user what he wants to know then perhaps they are useful.

The type of account which is considered here refers to the more complete general purpose account the summary of which presumably indicates how well the farmer did financially and suggests possible resource adjustments.

Measuring Profits

Profit plays a central role in decision making and because of this, profit must not have multiple meanings. The inability of accounting profits to measure the economic concept of profits can distort many decisions, particularly when the conceptual conflicts between accounting conventions and economic analysis are not understood.
There exists no satisfactory accounting measure of farmer’s success. The annual maximum profit goal as usually determined by accounts does not truly reflect the monetary goal and it may be considered at best an arbitrariness. If values are measured in monetary terms and the objective is to maximize cash at the end of an accounting period, then a simple meaning can be given to the “best” thing to do. However, this is not a logical goal. Instead, some more logical measures are used and maximized, such as net return to labour or investment during some defined period of time which is meaningful in terms of personal objectives, family requirements, and the expected productive life span of the farmer himself.

In the under-developed countries particularly, profit in the sense of cash revenue after deduction of all cash as well as imputed expenses has little practical significance. Where cultivation is based on family labour which has practically no opportunity costs, the farm family would tend to push the labour input to the point of zero marginal productivity. Many other farm inputs such as bullock labour and irrigation labour, are likely to be used in large quantities yielding low marginal productivity. But, when a market wage rate is imputed to family labour and all other expenses including the imputed expenses are deducted, the farm may appear to be incurring a loss. The decision to maximize profit by restricting the labour input, and hence output, to the point where marginal productivity of labour is equal to the prevailing wage rate would indeed be misleading.

Cost accounting assumes that each activity on a farm can be costed independently of all other activities, that profit is a gross return minus the costs, and that farmers desire to maximize this difference. Since inputs and products usually have some degree of complementarity, it is very difficult to determine a meaningful cost of production figure. The importance of the quantity and quality of the asset structure on profits raises the question of what is an asset and of assigning a monetary value, particularly when it can be defined in a variety of ways. If it is defined in non-monetary terms, such as any aspect of a farmer’s environment which provides a choice for a group of activities the problem becomes particularly great. An increase in the number and quality of choices available at a given time can be regarded as an increase in assets. The type of asset—a multiple purposed or specialized—contributes also to the vagueness of the accounting concept of profit. Further, the unpredictability of technological change makes the return on under-depreciated book value of assets a misleading measure in determining performance.

Ratios, such as rate of return on investment, labour return, return per acre, return per unit of feed, etc., have been used to supplement the profit measure as an indication of the level of managerial performance and the advisability of making future adjustments. In an under-developed economy, technical efficiency as measured by the magnitude of the physical input-output ratio seems to be of little value when the significance of opportunity cost of the factors is considered.

The fundamental question of what to do in the future cannot be answered by these measures either in developed or under-developed economies since they are backward rather than forward looking in nature. The return, if that can be ascertained, is a function of many decisions made subsequently to the initial decision. One can never know what the outcome will be from a decision if he must make many more subsequently affecting that return.
The Time Period

The question of the time period arises when any measure of return is adopted, whether it be a crude measure of profit or return to some input. Accepting some measure of return as a criterion the decision whether or not a farmer should choose a particular alternative is to a large extent a function of time. With an uncertain future, the appropriate time span has no clear answer. Also, the degree of flexibility desired and its cost is largely a function of time and the conventional accounting system provides no systematic way of analyzing the problem of the cost involved to obtain a given flexibility. Farmers often choose a more flexible but less profitable alternative in order to cope with risks and uncertainties.

Decisions for one-year intervals, where forecasts are fairly definite and uncertainties are not so great as to obscure the long-run planning objectives, may result in lower returns than if a distant planning horizon were used where flexibility can be incorporated to meet uncertainties. Accounts will not indicate whether the maximum profits for a year would be maximum over a 10 to 15-year period. The planning horizon is in a large part what a farmer wants it to be, i.e., he has the ability to extend it through improvement of his own knowledge. Since product complementarity requires time to be realized, the length of the planning horizon as related to production periods becomes rather fundamental in the profit determination for the accounting year.

The Residual Problem

The use of a residual as the return to a factor, such as management or labour and management, land, etc., assumes that all other factors have been "rewarded" according to their marginal value productivity. What is left and assigned as the factor return is assumed to be equal to the marginal value productivity of that factor. This is hardly true in the real world as the market prices—input and product prices—may be considerably different from what marginal productivity estimates may indicate. However, if the function is a linear homogeneous production function with constant returns to scale throughout, then one can accept the residual method as an appropriate procedure.

Alternative Decisions

Farm accounts provide very little help to increase the managerial skill of farmers. They do not reveal the returns which would have resulted had alternative decisions been made. Even though a return may indicate a decided improvement over the past year, there is no indication in the account itself that a greater increase in returns might have been made. However, farm accounts can provide a memorandum of the activities performed and when this information is integrated with the judgment and imagination of the farmer, he might be able to conclude that the results of another decision would have been different. A farmer pleased with his return relative to an average or some norm may shun some worthwhile adjustments in resource use.

Accounts supposedly provide farmers a scale in terms by which past performances can be evaluated. It is questionable whether accounts provide such a scale. Whether a return is lower than it should be is difficult to ascertain because accounts do not provide any analysis of alternatives in terms of opportunitie
foregone. For example, if a farmer fails to acquire an asset, or if he holds an asset idle, there is no direct cost recorded in the financial record. The wastage arising out of keeping family labour idle because of caste or social reasons is not reflected in the cost.

The attempt to consider the inventory of supplies or the quantity of capital involved is a recognition that costs so incurred are important and since these are a function of time, an arbitrary split of the time dimension can lead to rather crude decisions. Therefore, the profit item in the financial statement may not be necessarily a measure to maximize. A large profit item in a particular year does not necessarily imply that a farmer has done a good job, e.g., the market situation or a very favourable weather conditions may have been the principal factors and a better job may have increased his profit several times.

Allocation of Overhead

Accounts often penalise many decisions by making them share in overhead or other charges not in proportion to the value of the decision. From a managerial standpoint, problems of allocation of overhead are rather complicated and when a farmer determines the cost of a product, he gets a historical, fully allocated, average unit cost. There appears to be very few decisions for which this kind of cost is relevant. Full unit costs obtained from conventional accounts give the sense of authoritative preciseness that is not present and may lead to serious errors if used in making decisions for which they are not appropriate. In many situations, a better decision can be made if allocations are confined to the overhead that vary with the decision. This would eliminate the traditional equity basis, i.e., each product should bear its “fair” share of the overhead.

Moreover, economists have many misgivings about straight-line, original cost depreciation, and perhaps for most decisions, the opportunity cost concept has more meaning. Depreciation charge based not on the original investment but on the earning power of the investment on the farm may prove far more appropriate in most cases. Replacement cost depreciation is preferable in most cases to original cost but in some cases it does not go far enough.

Accounting practice treats all non-traceable costs alike in that no distinction is made between competitive and joint products, i.e., those products with variable proportions depending upon the choice indicator and those that must be produced in fixed proportions regardless of the choice indicator. The costs are generally allocated on some traditional and arbitrary basis, such as sales value without regard to a more logical basis, variable and fixed overhead or a variable and fixed product mix. When overhead costs are large in relation to the value of product output, economic errors due to accounting allocations can indeed be large.

1. See Neelkantha Rath, “On Fixation of Prices in Agriculture on Basis of Cost of Production,” *Artha Vijñāna*, Vol. 7, No. 4, December, 1965, for a vivid discussion on limitations of using cost data for fixing prices of agricultural commodities. It was shown that different cost concepts will give different prices and the choice among these will be largely arbitrary. Also, costs per unit of produce vary from farm to farm and the choice of any particular cost would be not only arbitrary but lead to a very significant change in the relative price structure of the same crop over regions, as well as among various crops. He concluded that cost of production data by themselves cannot provide any basis for fixation of prices of farm products.
Summary and Conclusions

From the above, it may be concluded that the usual farm accounting procedures have several severe limitations for decision making purposes. (1) Farm accounting provides no satisfactory scale of values or goals of the farm business. (2) The accounting period of one year and decisions thus made based on past performances, are not in harmony with long-run planning objectives, resulting probably in lower returns. (3) The residual method does not provide a true measurement of managerial efficiency or return to a factor. (4) Overhead costs that are not variable with the decision, thus, not pertinent (i.e., costs) to the problem are allocated to the individual products on an illogical basis. (5) No distinction is made as to the degree of jointness of the product. (6) No recognition is given to the significance of the controllability of the product mix in determining the incremental and opportunity costs relevant to specific decisions.

A careful analysis of the economic characteristics of the managerial problems and the production processes involved must be used in enhancing the possible contribution of farm accounts to decision making. Otherwise, they will serve primarily as records for tax reporting. Perhaps, accounts can be useful in the beginning but they must be drastically adopted utilizing a mixture of economic and statistical analysis, judgment and imagination. Also, much attention must be given to the role that subjective values play in the management of farms. Increased attention is also needed on the ways and means by which farm accounts can be used to increase the skill with which managerial tasks are performed. Farm accounts should be designed not only to meet the needs for tax reporting purposes but oriented toward solving the managerial problems rather than toward a historical description of the transactions which transpired during a year and analysed in an arbitrary fashion.

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IMPACT OF CROPPING PATTERN ON AGRICULTURAL OUTPUT: A MEASUREMENT†

At present there is no known technique by which the effect of changes in cropping pattern on agricultural output can be measured. Some attempts, however, have been made in this respect. For instance, in a study entitled “Changes in Cropping Pattern: Study of U.P.,” S. S. Bhatia tries to indicate the changes due to cropping pattern between two periods of time in the following way.

In the first instance, the area under each of the crops in the first and second points of time is expressed as a percentage of the total cropped area in the corresponding period. Then the percentage at the first point of time is deducted from that at the second point in order to arrive at the changes in a particular crop due to

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