MANAGEMENT AND POLICY IMPLICATIONS OF COST AND RETURN BUDGETS: EXTENSION'S ROLE IN FORMULATION AND USE*

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BRIEF HISTORICAL REVIEW

In recent history, many agricultural economists have tended to view work on cost and return budgets as a pretty dull thing. They gave it very low priority. However, the attention given to production costs by the 1973 farm legislation, together with recent acceleration in cost of farm inputs, have somewhat reversed the significance attached to this subject. A casual review of articles in the AAEA Journal over the past three years shows little attention to cost of production per se, but I predict that in the next two years there will be a big increase.

About two years ago, the term "cost of production" was just coming into use as a rallying cry by farm organizations, prior to the big jump in farm prices. This concern probably was a prime reason for the focus on costs in 1973 legislation. However, the issue was temporarily forgotten when farm prices increased sharply during the 1972-73 period. During the past year, however, concern over farm production costs has re-emerged, and is probably greater than at any time since the Depression years. Even then there was probably not a comparable period in which returns to an enterprise failed to cover "cash" costs to the extent as during the past year in cattle feeding. Thus, various developments mentioned above have led to consensus that in years ahead there will be a great emphasis on problems associated with high production costs and how decision-makers might deal with them.

Prior to these more recent events, cost are returns budgets have had a long history as basic working materials for our Extension programs in management, marketing, and policy. They are an essential ingredient for analysis of many micro- and macro-problems of Extension clientele. In farm management work particularly, they have been the backbone of work with individual farmers, designed to assist them in making decisions, and as an aid in teaching basic economic principles. This has been true in a similar fashion for marketing programs where "feasibility analysis" has been the term used for cost and return budgets in providing assistance to marketing firms. Also, Extension recently increased emphasis on encouraging producers to carefully consider their production costs in the process of deciding whether to hedge or use forward contracts.

In working with individual firms or decision-makers, Extension has strongly emphasized that budgets they prepare serve only as a guide. The decision-maker has been encouraged to adjust coefficients and assumptions to his own individual, unique decision-making situation.

I strongly believe that we have made excellent use of budgets for micro-applications in our Extension programs. This applies particularly to helping individuals solve problems within the context of their own personal value systems, as well as within the limitations of their resources and management capabilities. We have been successful in raising managerial competence with the aid of this tool. We have not been without problems, however, in micro-use of budgets. There has been difficulty in determining many key budget coefficients, and much variance between professional colleagues on assumptions and budget format. I shall come back to this later.

The term "cost and return budget" can be considered: (a) Overall firm or farm analysis (in-

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cluding computer applications such as linear programming), (b) individual enterprises within a firm, and (c) analysis of a potential sub-enterprise or partial farm investment. The analysis technique for the latter category is commonly referred to as a partial budget. In general, the term "cost and return budget" has referred to item (b) above; that is to cost and returns of one single enterprise that may be operated within the context of the overall farm or firm. For the rest of this paper, the term "budget" will be used in this sense unless otherwise indicated.

In Extension policy programs, cost and return budgets have served in making macro-analysis connected with educational work on government farm policy. This has been useful in helping farmers and others understand alternative possibilities in farm programs. However, we may have often put too much reliance on the typical budget (along with our research colleagues) as depicting the current farm situation, overall farm problems, and likely cost and returns of alternative farm programs. This approach has not fully appreciated the flexibility of the individual farmer in adjusting his "cost and returns" to new game rules. Thus, we have sometimes obtained some surprising supply responses to farm programs.

BUDGET DEVELOPMENT

In general, Extension budgets have been developed under time pressure, synthesized from a number of data sources. In building budgets, Extension has used available research budgets (often based on data that is several years old); worked with subject-matter colleagues in both research and Extension on coefficient values; used information from record projects; and relied on field experience in working with individuals and groups. Extension specialists, especially at district and area levels, have developed highly localized budgets. This is needed in order to be able to give realistic assistance in the field. In doing this, budgets have also been kept current, reflecting changing production practices and technology as well as cost changes at the local level. This prompt updating seems to be even more important with the market oriented climate of today's agriculture.

Extension will probably continue to use this synthesizing approach in the future. Although this is not the same scientific process that researchers use in building budgets. Extension's synthesized budgets have generally been relatively accurate. It would be very difficult to obtain much better ones for the job Extension has to do.

There may be some question by those with a research orientation about Extension's strong reliance on synthesized budgets. However, we might ask what alternatives are there? It doesn't seem realistic for Extension to do its own research to be able to build budgets on the basis of some random sampling procedure. Extension would be very happy to have research provide with more budgets, particularly ones that are much more current than research budgets have usually been in the past.

The current project of ERS known as FEDS (Firm Enterprise Data System) is being watched by Extension with much interest. Extension will be looking forward to having access to budgets developed by this project on a prompt basis. It is hoped they will be available by a remote terminal system. Also, it seems likely that Extension will be favorably inclined to making available to FEDS their current working budgets. In fact, informal discussions are currently underway concerning a possible cooperative relationship between ERS and Extension regarding the FEDS project.

As indicated earlier, the growing emphasis on using changes in cost of production data as a factor in setting target or support prices has recently added to the need for a statistically accurate method of collecting cost information. Data collected also needs to be highly reflective of current cost and returns. In addition to the FEDS project, ERS is currently taking a national survey of production costs. They have tentative plans for yearly updating surveys if funds are made available. However, surveys of sufficient magnitude to cover all major enterprises may be rather expensive. Also, there may be some question about the accuracy of surveys where respondents are asked to recall information from the past year, unless the farmer has a good recordbook.

Thus, a proposal is made for testing a possible method of obtaining current statistically valid cost and returns information. This involves USDA's testing a computerized national farm record project which would draw on a random sample of farmers. Emphasis is put on the word "testing," since it would likely take some time and debugging to develop a satisfactory national farm record sample and obtain cooperation from farmers. Extension field staff could play a supportive role in such a project, especially in field contact aspects, but primary leadership probably would need to come from the Statistical Reporting Service (SRS). It is hypothesized that, after a few years of testing, such a project could become an efficient way of obtaining much information about the workings of Amer-

ican agriculture, including cost and return data. It seems very possible that this project could be used to collect many data items now being collected by USDA through other separate surveys, as well as much new information. It might be possible to reduce total USDA data gathering costs, and, at the same time, have continuing access to a bigger bank of data for studying relationships in agriculture and marketing agricultural policy decisions.

ISSUES AND IMPLICATIONS

Differences in Coefficients and Assumptions

Budgets developed by different professionals often contain significant differences. I feel there are usually good reasons for the differences. But, they contribute to misunderstanding and confusion. Differing coefficient values for approximately the same enterprise obviously lead to variance in overall "net" return answers suggested by the budgets. Local differences in production practices, soils, climate, etc., can often account for some key differences. However, others tend to be based on differing research results between states. Often there has been considerable time lapse since the research occurred, and results have to be extrapolated to the current point in time. For some coefficients, such as labor, there may be no research available. Synthesized labor coefficients may easily differ between colleagues.

Assumptions tend to differ on the basis of theoretical and philosophical grounds. There may be very logical reasons why two workers would make different assumptions about when a particular cost item falls into a fixed or variable category, or how much overhead labor to charge against one enterprise. How to distribute overhead costs between enterprises may be a growing problem as size of these costs mount. A philosophical difference between workers may occur on an item such as what value and rate of return to give land. We should not necessarily eliminate all differences in assumptions; however, we do need a mechanism that would allow easier communication between professionals and to general public as to what these different assumptions are, and an easier understanding of why they are different. One of the biggest reasons for the difference in coefficients and assumptions, and the difficulty in communication, is the large number of different budget formats that are being used. We have not only had differences in budget formats between State Extension Services and other organizations, but sometimes between individuals at the same location.

Standard Budget Format

There have been a few previous efforts to develop and obtain use of homogenous budget formats in previous years. However, the current FEDS effort, which involves using the Oklahoma Budget Generator program, has probably brought consideration of standard format more into the limelight than has ever occurred previously. If Extension and research and the Land Grant system will unite and cooperate with ERS, we might make by far the most significant progress ever made in this area.

If the format used by FEDS or some agreed-on approximation is accepted, it would greatly enhance communication between professionals. It would provide a tremendous basis for reducing differences between coefficients and assumptions, and to more clearly understand reasons for those differences that remain. On the other hand, a standard format does involve some costs. In particular, it would be necessary to compromise on format features. In some cases, individuals would have to forego features about which they feel strongly.

General acceptance of a standard format, such as the one that FEDS is starting to use, would not mean workers would have to use that format entirely. Extension or research workers may want to use others designated for specific uses and/or adapted to some problem situation of a clientele group. Also, it might be possible to sidestep the inflexibility of a standard format and still achieve much of its advantages by using standarized input and coefficient definitions. This would facilitate the job of reorganizing budget data, from the format which a worker may be using, back into the basic standard format when desirable for comparison or other purposes.

Interest in being able to quickly and easily compare budgets prepared by different workers, organizations, and for different geographic locations seems likely to accelerate. Reasons for this relate to the recent steep rise in production costs and the emphasis on considering costs in setting government price supports. A standard format will make it much easier to compare budgets. In fact, Lagrone[1] in a recent ERS memo, was able to present such an analysis of 1973 wheat budgets. He com-

[1] Memorandum from William F. Langrone, ERS, to Ronald E. Krenz, ERS, dated December 17, 1974, on the subject "Evaluation of 1973 Cost of Production Data for Wheat."

pared some ERS (mostly FEDS budgets) and a group of State Extension budgets. Since Extension budgets followed essentially the budget generator format used by FEDS, it appeared relatively easy to specify the extent that coefficients and assumptions were in variance. This easy ability to compare budgets will be quite useful to the USDA-Land Grant College System in communicating with farm organizations, administrators, and Congress about cost and returns data. Common budget formats will enable agricultural economists to stand together much better than when each used his own format. This should result in less confusion among economists, and greater ability to communicate with others in relation to cost and returns budgets. It should improve our appearance to outside groups.

Use of Budgets and Aggregate Production Implications

In connection with growing interest in using cost of production data for farm policy consideration, the commonly expressed idea is that support prices need to be high enough to cover all costs, including land charge. This contention is made along with the statement that, otherwise, farmers will go out of business and there will be a shortage of food and fiber production. This argument has problems from two aspects.

First, production would drop severly if farm prices failed to cover all costs. Assume prices drop sharply but still remain high enough to cover all costs, including some minimum acceptable return to family labor except for any return to land (i.e. for land now being used in agricultural production). It might be true than some farmers would go out of business, and it would be especially disastrous for those with heavy debt loads on farm land. However, this would not seem likely to cause very much reduction in overall production or change the location of production. It is hypothesized that practically all land that was being farmed would continue to be farmed by someone. Land per se does not basically require a return in order for it to be put to use, or for it to be used in its most comparative advantage. Surely, there would be much confusion and unrest, and much more land would probably be rented, as was the case in the 1930s. Some land would be farmed less intensively, and marginal land would start to drop out of use when prices received dropped to (or below) the point where all costs except land were covered. But it does not seem likely that prices would drop to the point where any significant amount below on price inelasticity.

The second problem with the above argument is failure to realize the effect of inelasticity of farm prices in causing a rebound if production were to drop by very much. Of course, this would only be true as long as we did not have huge government stocks overhanging the market at the time a drop in production occurred. We have certainly seen in the past two or three years how prices have moved sharply up and down with any relatively small change in the supply and demand picture. Therefore, some producers may be hard hit when a big price drop occurs. But if this results in any sizeable cutback in production, prices seem likely to rise to a level which will stimulate production before any large food shortage develops.[2]

Thus, the above analysis and hypotheses suggest that we, as agricultural economists, need to be quite cautious about how cost of production data is used in connection with government farm programs. This includes its use in models predicting aggregate results that may happen in agriculture. This is especially true in connection with that part of the budget coefficients dealing with land which is discussed more in the next section.

The above mentioned wide-swinging financial conditions that individual farmers may experience (and already have experienced in some cases) points to the need to increase use of our budgets in financial management education and to help plot strategies against risk and uncertainty. Many State Extension Services have already stepped up work in these areas. However, there may be a need for a much greater increase in educational work dealing with risk and financial management, in which cost and returns data is used to assist farmers in analyzing a range of alternatives.

Land Charge Question

A big issue shaping up regarding use of production cost data in price support considerations is how to handle land charges. This is especially true given the past spiraling price of land. Many feel that, if going interest rates on current market value

[2] As an aside, the above analysis leads to a slightly counteracting hypothesis to the effect that conditions of fluctuating prices such as in the past two years, together with higher production costs and capital investment, increases aggregate risk to all producers. This results in less aggregate production over a period of years and, thus, higher average farm prices and farm income. This tends to be supported by Richard Just in an AJAE article, February 1974, entitled, "An Investigation of the Importance of Risk in Farmers' Decisions."

of land is included in cost of production data, it would have a spiraling effect on price supports and consequently contribute to still higher land prices. We know that agricultural land values are strongly related to the amount of residual income left after payment for all other costs. Also, in recent history, non-farm influences have had increasing effect in pushing up land prices. Past history tends to indicate that the personal value system of a large majority of land owners is such that they will be anxious to hold ownership of land even if income prospects, including land value appreciation, may be lower than opportunity cost on the land's market value. This seems to be even more true if a reasonable rate is charged for the farmers' labor and management. Land owners with this kind of preference are willing to accept a rate of return on land that is below market interest rates. However, the extent that such a preference is held may be declining slightly and farmers may be more inclined to insist on long-run income prospects showing a feasibility of rate of return somewhat near going market rates on capital, as well as labor. However, as long as this fails to be fully the case, and if support prices were to incorporate a fixed return to cover land charges using current market rates of return to capital, it would tend to be a guaranteed return to land rather than a residual. It would also tend to contribute to a spiraling effect on land values as long as support prices used a higher rate of return on land than the rate landowners in aggregate were willing to accept. In fact, the spiraling effect could be accentuated if land owners felt that a support price system were to continue indefinitely, thus tending to reduce fears of a decline in land value.

Some understanding on how we handle the land charge question in cost and return budgets seems apparent. We need an educational program to help obtain understanding of just how it affects cost data and the way it is considered in making management decisions, as well as the way it might have macro-impact. The original Oklahoma Budget Generator format did not show a land charge, but a residual to land, overhead, risk, and management. There may be much to be said for use of that particular format, considering the political climate in which use of cost and returns data exists.

Other Future Considerations

This appraisal indicates a growing interest use of cost and returns budgets. It would appear that increasing attention might be given to development, refinement, and use of our budgets for other reasons. It seems likely that cost planning and control will steadily become a greater key to successful business management. We have heard stories of how a few beef feeders have managed (or locked in) cost and returns during the past year and avoided monetary loses in cattle feeding operations.

We are going to use more and more computer problem-solving models to aid farmers. Cost data which are not only current but unique to the individual farm are vital for solutions to be useful instead of harmful.

How do we get farmers (and other managers) to keep well-informed about their own enterprise and sub-enterprise costs? Our traditional record-keeping systems haven't really succeeded. This is partly the fault of the farmer or manager, as he is seldom willing to give priority to cost monitoring and detailed recordkeeping. It is a challenge for us to find ways of obtaining accurate cost data and to assist farmers and marketing firms in controlling costs. This may be one of the biggest factors affecting whether agriculture in the future maintains its record of increasing efficiency.