DISCUSSION: VALUATION OF CROP AND LIVESTOCK REPORTS: METHODOLOGICAL ISSUES AND QUESTIONS

Ken Schneeberger

Little theoretical research on the gains and losses from statistical forecasts has been conducted, and the authors are to be commended for their thought-provoking paper on this topic. The literature from the past decade includes an article by Hayami and Peterson, two articles by Bullock, and a survey article by Mann. Hayami and Peterson attempted to measure the marginal social returns of reducing the sampling error of crop and livestock statistics reported by USDA. Bullock (1976) examined the social cost resulting from production changes generated by forecasts.

Hayami and Peterson concluded that the social return from collecting and reporting production information easily exceeded the cost of such research. Their results, although very aggregative, suggested there is an underinvestment in the provision of agricultural information services.

Bullock concluded that, while accurate forecasts are preferable to inaccurate forecasts, large forecast errors are not sufficient grounds to argue for additional expenditures to improve the accuracy of USDA forecasts. He found that reducing the average forecast error will not always generate social benefits.

RESEARCH QUESTIONS

Bullock et al. pose two main research questions: Does the release of production estimates work to the detriment of producers? and Is it in producers' interest falsely to report planned production levels? The paper addressed the questions in a "within production cycle" context. It assumed that crops are planted or livestock is in the feedlot, and then a USDA report or forecast is made. The authors further assume that producers will make rational economic adjustments to the reports. The adjustments are possible, because demand is known with certainty and the supply situation is known once the report is provided.

The paper attempts to show (using graphic analysis) the benefits or losses that accrue to producers as a result of their adjustment to the forecast that was made. With respect to research question two, Bullock et al. examine cases in which they assume that producers, collectively, either under-report or over-report planned production in an attempt to bias the USDA forecasts.

The authors admit at the outset that only a partial analysis is intended, that of changes in producer welfare. If producers gain, consumers may lose. However, they say nothing about net societal gains or losses from the forecasts. The gainer-loser issue must wait for a future paper.

FINDINGS

I found the paper convincing on four conclusions, although I disagree with minor points in interpretation and will discuss them below. The four most important conclusions, in my opinion, are:

1. Accurate forecasts reduce producer net income *only* if farmers produce less of a commodity than would clear the market under long term, equilibrium supply-demand conditions. The authors appropriately point out that the occurrence of shortages has been far less prevalent than surpluses.
2. Forecasts do not have to be accurate to help producers improve their net incomes in an excess production situation. This adds significantly to the findings of Hayami and Peterson. Hayami-Peterson concluded that benefits of improving report accuracy generally exceeded costs, even when errors were quite small. The Bullock et al. analysis suggested that two reports with "acceptable" error may be preferred to one report with high accuracy, but costs equal to the two reports. This tentative conclusion needs further testing, but has sufficiently imposing implications to cause public decision makers to weigh their decisions carefully.
3. Producers have little to gain from falsely reporting planned production, unless they are capable of controlling production at

Ken Schneeberger is Associate Professor, Department of Agricultural Economics, University of Missouri, Columbia, on leave to the U.S. Department of Agriculture, Agricultural Cooperative Service, Washington, D.C.

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levels that will allow them to take advantage of the inelastic portion of the demand curve. The atomistic nature of production agriculture probably precludes such control in the foreseeable future.

4. Planting intentions reports are likely to have much higher social value than a report on estimated crop size late in the growing season. This conclusion is drawn more from inference than as a direct result of analysis. However, it is particularly relevant for crop producers. Before the production process begins, crop producers can change crop mix, acreages, and production practices. The number of options is greatly reduced once the crop is in the ground (the situation assumed in the Bullock et al. paper). Livestock producers, too, can affect production more by changing the breeding herd (e.g., increasing culling rates, sending gilts to market) than at some later stage of production.

Given the last conclusion, I am hopeful the authors will pursue the more fruitful area of gains/losses from intentions reports. I believe many of the conclusions will parallel those of their paper, but one cannot be sure until the hypotheses have been subjected to rigorous analysis.

OTHER CONSIDERATIONS

The theoretical analysis presented by Bullock et al. is based in welfare economics. However, the application of welfare economics to some cases that they examine is not without its problems. That is probably why their interpretations are judiciously presented in terms of changes in producer revenues or incomes, rather than gains or losses in producer surplus.

Further, the knowledge situation assumed in their analysis and the constraints imposed by static analysis demand a cautious interpretation of the findings. They make a half dozen assumptions in order to simplify the analysis, and most seem to be rational and defensible. However, the assumption that producers receive the price that is established after the USDA forecast is issued abstracts from the major marketing revolution via contracting and hedging that has been occurring in production agriculture.

Although the Bullock, et al. paper is based on welfare economics, one wonders if statistical decision theory might also provide a useful method for assessing the value of USDA forecasts and reports. Research into the value of additional information (even imprecise information) on producers' decisions could provide other measures of the benefits or costs of USDA crop and livestock reports. Baquet, et al. used statistical decision theory to measure the economic value of frost forecasts to pear producers in Oregon.

Finally, I would emphasize the timeliness of this research. The current administration is evaluating the cost and effectiveness of publicly financed information at all levels of government and in all agencies. Many reports have already been eliminated, and more are scheduled to be terminated. Research such as reported by Bullock, et al. is needed so that welfare considerations are incorporated in the process of making decisions about the future of various crop and livestock forecasts.

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