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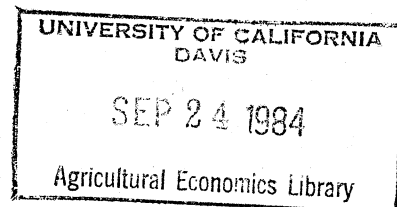
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Data Use by Agricultural Economists:
Opportunities for Automated Data Retrieval

by

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Statistics

Introduction

Questions of data availability and accuracy have long been the concern of agricultural economists. Upchurch notes that agricultural economists pioneered the application of quantitative analysis in the social sciences, and we were singled out by Leontief for special comment on the empirical validity of our work in his presidential address to the American Economics Association.

Volume 2 of, A Survey of Agricultural Economics Literature, devotes four articles and a review to the subject of data and information systems (Upchurch, Trelogan, et. al., Bonnen, Bryant), and the subject of data has received considerable attention at the national meetings of the Association in recent years. At the 1972 meetings, a seminar session organized by the AAEA Committee on Economic Statistics was devoted to a discussion of obsolete data systems, new concepts and statistical systems was the subject of a session at the 1974 meetings (Carlin and Handy, Weeks, Schluter and Southland, and Mayer and Ahalt), and improving information on agriculture and rural life was addressed by Bonnen in a general session at the 1975 meetings. The economics of information was subject to further discussion at the 1978 AAEA meetings (Eisgruber, Harsh, Infanger, Robbins and Debertin) and the reduction in publicly supplied data was the subject of a general session at the most recent 1983 meetings (Just, Gardner).

Thus, it is within the context of an historical awareness of and concern by the profession for data and related problems that we come to this session today. Our purpose here is to discuss the prospect of increasing the accessibility of data to agricultural economists, specifically, through computerized retrieval systems with the support of the AAEA Information Retrieval Committee. To set the stage for specific discussions

of data availability and implementation problems, this paper will attempt to briefly accomplish three things. First, the matter of raw data will be placed within an information context, and some comments will be offered on the use of data by agricultural economists and potential problems with data. Finally, some points will be made regarding the potential use of computerized data systems by agricultural economists. Emphasis will be on what we can (and cannot) expect from automated data retrieval systems.

Data Use by Agricultural Economists

As noted, automated retrieval systems potentially increase access to data by agricultural economists. However, as Bonnen points out, demand for data is derived from the need to make decisions about problems, and he further points out that decision makers rarely use raw data. To be useful, data must first be processed through some sort of analytic process to relate them to the decision at hand. Viewing the role of the agricultural economist in this process of converting raw data to useful information will help in understanding the potential impact of automated data retrieval on agricultural economics programs and on the social decision systems of which they are a part.

Data, as Upchurch notes, provide the raw material for economic analysis, and they are used by agricultural economists in a variety of ways ranging from simple descriptive applications to complex forecasting or structural models. Such manipulations of data are, hopefully, not designed as empty exercises or solely to satisfy the intellectual curiosity of the analyst. Rather, these analysis are intended to provide insight into some social phenomenon of interest to decision makers at the firm,

industry or government level. Thus, the agricultural economist is providing an analytical/interpretation link in an information system such as the one outlined by Bonnen. The system includes a data base, an analytical system and the decision makers. For agriculture and rural areas the system consists of several federal agencies, the land grant system and various other public and private insitutions. Most importantly, it is within the context of this system and our role as analysts that we must discuss the potential for automated data retrieval.

Within this information context, the role (or potential role) of automated data systems can be precisely pinpointed. In short, we are addressing increasing access to existing data sets. To the extent that problems of conceptual obsolescence inaccuracies, or inadequate coverage exist with these data, they will continue to exist. Automated retrieval will simply provide greater access to bad data.

Potential Advantages of Automated Retrieval

The above considerations aside, the establishment of automated data retrieval systems offers several potential advantages. These are treated here as a series of questions posed for your consideration during the discussion to follow. Answers to these questions should provide insight into whether or not the profession should continue and increase its support for the creation of data retrieval systems. Also the answers should provide insight into the extent to which agricultural economists will use such data systems if they exist.

1. Can automated data retrieval systems provide access to data not readily available otherwise? If the system is established and maintained

as a cooperative venture of the AAEA, the Land Grant system, and USDA (especially ERS and SRS), the answer would seem to be yes. Both Just and Gardner note that technology can at least partially offset the problems of increased cost of data (charges for reports once provided free) and the reduced availability of data due to budget cuts in the reporting agencies. This seems to be especially true for those data other than current market data which are not readily available from private sources.

Also, a further area for exploration made possible by automated data systems is the possibility that users of such a system (agricultural economists) might also contribute to the system. That is, research projects (especially regional projects) which generate data for larger areas, might report their data as a part of the final project report. This data could then be made available to other researchers.

2. Can automated data retrieval systems reduce the time lags often involved for data provided in printed sources? Again, simply by eliminating some of the steps involved in the data delivery process the answer seems to be yes. However, if these lags exist due to collection and editing delays, they will remain with automated retrieval systems.

3. Are there significant economies of scale in providing automated access to a centralized data system? That is, are there a sufficient number of agricultural economists who use similar data. Gardner notes, based on a sample of AJAE articles, that about 30 percent of the work published in our leading professional journal makes use of federally generated statistics. Further, when considering that the AJAE represents a fairly small part of our published output, the 30 percent estimate appears conservative. When one considers the number of agricultural economics departments and the numerous state and federal agencies that

employ agricultural economists and that many of these economists are addressing similar problems, the potential use of (and savings from) a central data base seems large.

4. Finally, and perhaps most importantly, can the costs of acquiring and handling data be reduced through the use of automated retrieval systems? We all know that data acquisition and processing is costly and that, in most cases, even so called "free" data are not costless. Such data are often provided in a printed form and must be transferred to a machine useable format prior to use, a labor intensive and expensive process. Labor savings alone can partially justify the cost of using an electronic retrieval system. Also, given the flexibility of automated retrieval systems and the ability to quickly locate and retrieve only the data items needed, cost savings may exist over conventional means of acquiring and storing data.

One point with respect to costs, however, is that current costs of data acquisition, handling and storage are diffused across the many parts of the system. In contrast, funds to establish and maintain a centralized system are going to appear as a relatively large and visible item in the budget of one agency. It may then be necessary to document the cost savings involved in order to justify such an expenditure.

Concluding Comments

In conclusion, automated data retrieval systems can increase access to data and potentially do so at less cost. Thus, as agricultural economists who proudly point to our use of the latest analytical techniques, there seems little reason not to pursue the application of

electronic technology to data acquisition problems. However, we should do so with the caution that many serious data problems do not hinge on access and will not be solved by automated retrieval systems.

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