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ECONOMIC STATISTICS FOR AGRICULTURE: REACTIONS AND COMMENTS

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ECONOMIC STATISTICS FOR AGRICULTURE:

REACTIONS AND COMMENTS*

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Since we are reviewing the results of ten years of effort to improve the agricultural data base, let me start with a little ancient history. The Economics Statistics Committee which has managed this process for the AAEA, was created in late 1969 as a result of the concern and persistent efforts of Joe Ackerman of the Farm Foundation and Harry Trelogan, then Administrator of the Statistical Reporting Service. There was also in existence then a joint American Statistical Association-AAEA Committee on Agricultural Statistics which was advisory to Harry Trelogan and the Statistical Reporting Service. It's long time chairman was Joe Ackerman. I followed him in 1969. The Economics Statistics Committee was created in the same year and I was also appointed its chairman. From 1970 to 1975 we struggled with two broad objectives. One was to sort out and define the problem of an apparently deteriorating data base. This we attempted to do in our 1972 report to the AAEA during its annual meetings. Secondly, we tried to get the profession intellectually aware of and involved in the problems of the agricultural data base. From 1972 through 1975 we worked in task forces and workshops, generally with the USDA, on a number of problems. We also organized several sessions for AAEA annual meetings. In 1975 I left the Committee and made the state of the agricultural data base the topic of my presidential address to the American Agricultural Economics Association. Subsequently, Jim Hildreth, Luther Tweeten, Bruce Gardner and now Dick Perrin have chaired the Economics Statistics Committee. In the period since 1976 this committee has sponsored a very productive series of seminars, conferences, AAEA sessions and joint USDA/AAEA conferences and task forces. The profession is today concerned and involved in debate about many aspects of the data base for which it is professionally responsible.

The papers presented in this symposium make it clear that the agenda of research and action established between the 1972 Economics Statistics Committee statement of the agricultural data base problem and the 1976 Brandow task force sponsored by the Economics Statistics Committee have been seriously examined, many acted on and progress made in improving the data base.

A number of goals have not been achieved. The social and demographic statistics, as well as those for rural development, remain in about the state they were in 1970. In fact there is less information available for small rural areas today than there was in 1970. The improvements are concentrated primarily in

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agricultural data. Even here, however, the problem we face, even with the progress that has been made, is that demands on the data system continue to outrun improvements and are still overwhelming the system. There are several reasons for this.

One cause is the changed value of agricultural information. From the 1950s through the early 1970s, we had agricultural programs which, by administrative action, controlled price and often many other conditions of production. From the early 1970s to date, agriculture has operated in a nearly free domestic market. The consequence is a very substantial increase in price variability and other forms of uncertainty. When uncertainty rises, the value of information increases and the expectation as we face the next decade, is one of continued if not higher uncertainty in agriculture. This growing uncertainty arises out of energy and various domestic resource problems and out of the great growth in dependence on exports to foreign markets. The U.S. operates an essentially open market while most of the rest of the world, especially the soviet bloc countries, operate through state trading or some form of socialized purchasing or sales in international trade. As a consequence the worldwide impacts of weather as well as national policies for agriculture are transfered from abroad into the unprotected U.S. market.

The second reason for the increased value of information is that domestically we are moving into an information revolution in agriculture that is proceeding at a very rapid pace. This can be seen in the changes in government and private firm uses of computers and especially software capability and in the construction of interactive capability where none existed previously. Even more profound will be impacts of large commercial farmer's use of computers and computerized information systems. This is growing at a very rapid pace. It used to be said that if you were not a good farm manager, you were not likely to survive. Then in the '60s we began to say that if you were not a good financial manager you would not survive as a commercial farmer. Today it is quite clear that if you are not a good information manager you are not likely to survive. Market uncertainty and the necessity to manage information to control decisions in the context of uncertainty is powering this information revolution.

The third dimension which has increased the value of information is the changing context of public policy decisions. There has been a very substantial increase in the use of statistics to allocate public resources. In the fiscal 1980 federal budget, conservatively 30 percent of the expenditures were indexed and 20 percent were allocated through the use of statistical formulas of various sorts (DeMilner, Emery et.al.). In short, over half of the federal budget (by some measures over 70%) is now allocated by statistical measures. This forces statistical policy and public policy into an interdependent embrace from which neither can escape. The danger of politicizing statistics and statistical policy is obvious.

Compounding this is the increased degree of interdependence and interaction between various policy areas which once were quite separate. I usually describe this by saying that the issues which dominate various public policy sets today are increasingly cross-cutting. In agriculture we used to make domestic agricultural policy decisions without a thought for either international trade or international political or financial implications, environmental degradation, health or safety policies. Yet all of these today in some degree interact with the various farm policy decisions that are supposedly made within the purview of the Secretary of Agriculture. When issues interact in this manner, it often requires new and

complex combinations of data. These data were usually designed initially to support specific and separate areas of policy. Since the issues and decisions now interact, the data are expected to be integrated. But by and large they are not. The need for integrated data increases with interdependence and decision complexity. This is the same as saying the value of information increases with such complexity.

The other dimension of the changing policy context was referred to in Worden and Barry's paper. This is the increased specialization of agriculture which fragments economic and political interests in agriculture, including the interest in data. This now constitutes a major threat to the coherence and comprehensiveness of the agricultural data base as a system. Current budget pressures will undoubtedly call forth a major effort on the part of various interests in agriculture to defend those data that they use, without any concern for the coherence and totality of the system and the social values generated by the fact that we do have in some degree an integrated and partially coherent system today. Indeed, the basic complaint of the Economics Statistics Committee has consistently been that agricultural data is not adequately integrated and coherent. It is not possible for example, today, to describe in a consistent manner the total food and fiber system; while there are detailed statistics for farms, we have very inadequate descriptors for the marketing subsectors and no integrating paradigm. The interaction of tight budgets, inflation and the fragmented interests in agricultural data is likely to push us backward over the next few years as far as the coherence of the data system is concerned.

The papers by Kibler and Kalleck do a fine job of reviewing briefly the structure and methodology of the major data sets produced by the Statistical Reporting Service and by the Census of Agriculture. The first thing that must be recognized is that there have been major changes in methods over the last decade, not only in statistical design but also in the collection and information processing technologies, organization and design. Sample design and census methods clearly have been improved. However, in the process we have traded one set of problems for another. High rates of change in methodology tend to destroy the continuity of time series and to create new sources of error in data. Today, given the shift toward the use of list frames, mail out and mail back collections, new computerized processing methods, automatic editing and other matters, I worry a lot more about nonsampling sources of error and much less about sample error. I am increasingly concerned about the necessity to improve the construction and maintenance of list frames. With the greater necessity to integrate data bases, we also have substantial problems with confidentiality statutes that get in the way of the cooperation of the Census and the USDA, especially in the construction of list frames. For example, the Tax Reform Act excludes the USDA from access to IRS address lists to which the Census does have access.

The other reaction I have to these papers is one I have had many times before. Statisticians do a far better job of providing a description of their methodologies than economists do. Economists not only do not usually provide clear descriptions of their analytical methodologies, but they are prone to use statistical data without reviewing the methodological base or the analysis of the limitations of the data which are normally provided by statisticians.

The paper by Nelson and Gardner reviews a number of ERS statistical series focused primarily on the 1976 Brandow Task Force recommendations concerning farm retail price spreads, marketing bill information needs, farm inputs and farm

income and output measures. This is an excellent assessment of a number of specific data series. There are many quite interesting matters that could usefully be discussed but I will limit my comment to one minor aspect of the paper. Gardner points out that ERS has designed a new format for much of its income and balance sheet data (now published in the Economic Indicators of the Farm Sector). I should like to extend this point. Information system theory tells us that the informational content of data lies not only in its conceptual and measurement structures but in its coding and formating for communication purposes. I consider these format changes to be improvements. There are several examples of format changes in reporting ERS data which reflect improved conceptual integration and revision that is laudable.

The Worden and Barry paper is a very good overview of many of the larger problems of agricultural statistics of which agricultural economists are not usually aware. They point out we are entering a period in which not only the dollar budgets but the paperwork burden budgets (a new control concept) are going to place considerable pressure on statistics. I quite agree with them that the government-wide average reduction in paperwork budgets should not fall on the statistical data base, since it is not the source of the great increase in paperwork burden that has occurred over the last decade or decade and a half. Most of this growth has been in regulatory and tax forms, yet the administration appears to be using an across the board budget reduction technique in implementing the new paperwork act.

The Senate prohibition to taking the follow-up surveys on agricultural services and on farm finance for the 1978 Census of Agriculture has great significance. Increasingly, censuses worldwide are multiple frame vehicles providing complete enumeration for a limited data field combined with surveys of other fields with sampling rates tailored to useage and accuracy requirements. Censuses now commonly combine list frame and area frame universes. When done well this can result both in lower costs as well as improved accuracy. It will not do simply to take a Census of Agriculture. One must combine the complete census enumeration with various kinds of simultaneous and follow-up surveys to do an adequate job today. The fact that one intellectual Luddite in the Senate can create so much damage for so little gain is testimony to the fragmentation and disorder in our political processes today.

After reading these papers and thinking about where we stand today, several thoughts occur to me about the future agenda of the Economics Statistics Committee. It seems appropriate at this point to review the past decade of activities for at least two purposes. One, is to revise and develop a more comprehensive definition of the problem. We should now have a better understanding of the heterogeneous set of problems which we face. These are not adequately described by saying, as we did in 1972, that there is a problem of statistical obsolescence. While this is still true, there are other major difficulties which need to be understood and acted on. In addition, the Committee probably needs to review the past decade of experience for the purpose of developing a specific agenda for action over the 1980's. The AAEA must establish priorities for its commitments to work with government agencies. I would also find useful a complete bibliography of the Committee's many published efforts. For all I know the Committee may well have already started on all of these tasks.

In thinking about where we stand today, my strongest single reaction is a belief that we need an immediate comprehensive evaluation of the agricultural

data base as a system, if we are to protect its coherence against the pressures of single interest data users who are now reacting to budget pressures. If nothing is done, the public good dimensions of the system will soon be riddled with more anomalies and failures to maintain data or to develop the data base adequately. In other words, the question that must be asked is not only, "what do individual users need," but "what are the essential elements and uses of the system?" I believe Worden and Barry's concern in this area is valid. There are several dimensions that perhaps should be elaborated. This task involves not just data base design, but the design of the entire information system, which includes research and analysis. One cannot specify the data base as a system without also specifying the analytical modes through which that data is to be processed. We need an evaluation of the type of analysis and research and that is currently in place and in prospect over the next decade in agriculture. It is possible to anticipate some data needs by examining the new analytical techniques and ideas and their implications for required data. Changes in the nature and power of analysis drives a substantial part of the need for new data or the modification of old data.

The structure of agriculture has changed drastically and continues to change. These changes have many clear implications for the policy agenda and thus for the changing nature of the data base which supports public and private decision making in agriculture. If, as I suggested earlier, we are moving into an information revolution in the management of agriculture, what constitutes a coherent data base for the next decade is a relatively high priority matter. There are many gaps in our knowledge which must be identified for research and which must be resolved before researchers can expect government to take any action. One of the primary reasons why there has been so little improvement over the last decade in the data base for rural development policy is that there has been little intellectual investment in developing an adequate conceptual framework. There are also substantial institutional deficiencies (Rural Society). Before data needs can be specified, one has to have either a clear analytical framework through which you intend to process that data or a comprehensive programmatic decision structure which requires administrative and other data, or both. We need to look at the activities and the structure of agriculture and of rural life and begin to reason about what our data needs are.

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