

Commentary

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The thoughts presented and the positions taken by Bruce Gardner on the nature of constraints for policy modeling are indeed refreshing. I believe a very high proportion of all discussions I have encountered on shortcomings or improvements that could be made in modeling have dealt with improved **reliability** of data or data for additional variables. For one who has spent considerable effort over the past three decades trying to supply new or better quality data to answer an ever-increasing number of policy issues, it's nice to see such questions as: Are there limitations on economic theory? Is there a general inefficiency in the mobilization of economic expertise? As well as: Is there a pervasive lack of appropriate data? . . . asked and discussed in this type of forum.

Since I'm not an expert on the limitations of economic theory or an authority on mobilization of economic expertise, I will direct most of my remarks to the questions on data. Gardner, I feel, is again on target when he considers that one of the key data ingredients might be that appropriate data series might be available, but events haven't generated enough experimental data to accurately assess impacts of the policy or program.

In his section on the Farmer Owned Reserve, for example, he points out that one's degrees of freedom are severely restricted because we can observe only one crop and one carryover each year. This prohibits the observation and measurement of changes in stocks until several years of pre- and post-FOR are observed. Although this requirement cannot be totally eliminated, perhaps it would be possible to reduce the number of years needed for evaluation by making fuller use of data that are available. I refer here to production forecasts for crops such as corn that have measures of

variability that can be expressed in terms of probabilities.¹ For the July 1 corn production forecast, chances were two out of three it would be between 6.47 and 7.76 billion bushels, and nine out of ten it would be between 6.00 and 8.23 billion bushels.² Such data clearly give some objective quantities for model testing that require no questionable assumptions. These data could also be provided for states or regions to give additional information or degrees of freedom for evaluation. Such data might also be a measure of the probability of various sized crops within a given crop year.

Part of my thrust here is to nudge my economist friends who were critical for many years about the lack of published measures of variability for crop forecasts. These have now been published monthly for four years and have performed exceedingly well statistically.³ To my knowledge, they have not yet been used to any degree by economists in modeling. Another key role that such information or data reliability could play would be to measure how sensitive model outputs are to improved accuracy for independent data variables used in forecasting.

I read with interest Gardner's review of literature and comments on the support price for milk. Admittedly, we might need 30 to 40 production periods to estimate supply elasticity, and other variables, accurately in strictly economic and statistic terms. However, I observed a recent example of a more pragmatic approach used for determining whether the current price, based on parity, is above or below the market-clearing price or improving the well being of milk producers. Recently, while briefing Secretary Block in lockup on the July cattle report, items such as a 2 percent increase in total inventory and a 1 percent increase in milk cows were taken in stride. When the briefer mentioned a 267,000, or 6 percent, increase in milk replacement heifers, he interrupted to say the dairy industry didn't need a one of those 267,000 new heifers for 1982. The very next day in meeting with dairy operators he used that single number very effectively to defend the Department's proposed program for dairy prices. I think it's easy to discern the policy analysis the

1 U.S. Department of Agriculture, Statistical Reporting Service, Crop Reporting Board, *Crop Production*, June 1977

2. U.S. Department of Agriculture, *Crop Production*, July 1981

3. William E. Kibler, "The Statistical Reporting Service System," annual meeting of the American Agricultural Economics Association, Clemson, S.C., July 1981

secretary did on the spot in this instance. One further example in this area: A dairy operator commented last week to a member of my staff that the 7.94-billion bushels corn crop forecast could be a major factor that could eventually destroy the dairy price support program. I don't have to lay out for you his non-optimal policy analysis on the support program. However, I find it difficult to justify that we as professional analysts don't have sufficient data to determine a price band with a spread of 4 to 6 percent that will achieve a long-run excess supply close to zero. The quality of our dairy statistics on production, consumption, and product use, particularly the historical series, is as good as any SRS produces. The failure here might be desire or will, as was concluded for commodity import policy. My point is that we may never reach theoretical optimality, but it is good to have that as an objective to work toward whether you are the secretary of agriculture, a dairy producer, or an agricultural economist.

I find myself in more disagreement with the author for issues related to regulation of land and agricultural production such as foreign ownership of U.S. farmland, restriction on uses of prime farmland for non-farm uses, or pesticide use. Admittedly, many of the reasons behind these issues may be more emotional than economic, but if that's the situation, we should be able to illustrate this as an emotional issue with some model.

Some examples for consideration might be an indirect approach, such as how much higher food and fiber costs are we willing to bear to ensure maintenance of prime farmland, avoidance of odors, or more recently enhanced treatment of animals. I'm not confident that a direct data collection approach of asking individuals to quantify the value of avoiding unpleasant odors or increased wildlife populations will ever yield very reliable data on benefits. Nor do I feel that we will ever be able to afford massive resources to establish accurate relationships between pesticide use and the mortality of wildlife. A better conclusion might be that it could be impossible to acquire appropriate basic data for such analysis. The task involves more than mere sampling and experimentation. Some interaction between the statistician and economist is an absolute must to reach some compromise agreement on what types of useful data might be collectable for this type analysis. Once this point is reached, it will be time to begin the sampling and experimentation. This interaction, I feel, is the key Gardner mentions in the ingenious use of data

series to glean more results from the same basic series.

I find it hard to disagree with the thesis advanced by the author that there are no easy ways to relax the constraints discussed. It will not only be a slow process requiring investments in data, accumulation of experience, theory development, and research, but one of developing priorities among other competing and closely related modeling activities such as measuring capacity and productivity.⁴ I feel all of these activities share many of the same problems in shortages of data, conflicting views on the theoretical and conceptual approaches, and lack of effort on the part of both statisticians and economists.

Unfortunately, obtaining funding to acquire data solely for policy analysis is much more difficult than to acquire data that are useful to firms in making production and marketing decisions. Many contend that there are many sources of data for these purposes from administrative records that have not been tapped.

I don't share this view since it has been my experience that data collected for general administrative purposes have many weaknesses in terms of definition, concepts, timing, and detail when they are used for other analysis. I believe its capability to serve as a verification of analysis is where its strength lies. As Rausser and Just suggest, we might have to identify a few vital general purpose series and work to refine these and measure their reliability.

This brings to mind another point that I commend the author for making. I would like to see economists put more emphasis on establishing improved standards of quality for data used in modeling or other analysis. There are entirely too many data series included in modeling and analysis simply because it is the only source available. It will be difficult to establish exact standards that might apply to all series, but numbers based on fewer than 20 degrees of freedom, and sampling errors of 20 percent or larger, present problems for statisticians. I get much more criticism for refusing to publish data that don't meet these standards. I get few compliments for withholding data that fail to meet them.

4. J. B. Penn, "Prospectives on Capacity Concepts, Measures, and Uses for the Food and Fiber System," *Proceedings of Workshop on Agricultural and Rural Data, Series A*, ERS and SRS, USDA, Washington, D.C., May 1977, and John B. Penson, Jr., and William E. Kibler, "A Critical Review of Alternative Approaches to Estimating Capacity and Capacity Utilization for the Food and Fiber System," *Proceedings of Workshop on Agricultural and Rural Data, Series A*, ERS and SRS, USDA, Washington, D.C., May 1977

I concur with the author's point that experimentation has been the chief factor that has had impact on policy development. The only problem we have is the slow learning curve we follow in these areas. As pointed out, the many initiatives implemented provide a multitude of opportunities for both data collection and analysis. However, the data needed for relaxing modeling constraints will not automatically flow from these programs. There must be careful identification of the types of data needed, relevant definition and concepts established and quality standards set. As yet we have not taken many steps to overcome many of these conceptual problems that Bonnen and others⁵ have so effectively articulated.

The administrative separation of ASCS and SRS is really not an obstacle to upgrading data generated by the farm program experience. We have a free flow of data and information policy between the agencies. The more significant constraints are the basic recording units of ASCS records that are still generally based on a historic tract ownership concept, geographically oriented toward townships and counties. They currently carry about 8,000,000 records in their offices for our 2,300,000 farms. There are also problems with uniformity among counties and states in their record systems. I am happy to say the task of upgrading and bringing all department records into a more compatible base is being addressed and given high priority by Secretary Block.⁶ There will be no easy quick answers or solutions. Public Law 96-511, enacted in December 1980, mandating a 25 percent reduction in the response burden for the private sector in providing basic data for public policy and program decisions, could be one of our most severe restrictions.⁷ This even includes data on applications for benefits for such things as farm programs. This, enforced vigorously, coupled with very tight and reduced budgets that agencies will face during the next few years, will make it necessary for us to carefully set priorities and

5. James T. Bonnen, "Our Obsolete Data Systems: New Directions and Opportunities," Presidential Address, Annual American Agricultural Economics Meeting, Columbus, Ohio, August 1975, and Charles H. Riemenschneider, "Economic Structure, Policy Discovery Mechanics and Informational Content and Nature of USDA Prices," Proceedings of Workshop on Agricultural and Rural Data, Series A, ERS and SRS, USDA, Washington, D.C., May 1977

6. U.S. Department of Agriculture, Office of the Secretary, *Information Resource Management Task Force*, Secretary's Memorandum 1044-1, September 1, 1981

7. Public Law 96-511, The Paperwork Reduction Act of 1980, Washington, D.C., December 1980.

standards for data collection that will ensure effective use of the resources available.