



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

MD

WP 89-17

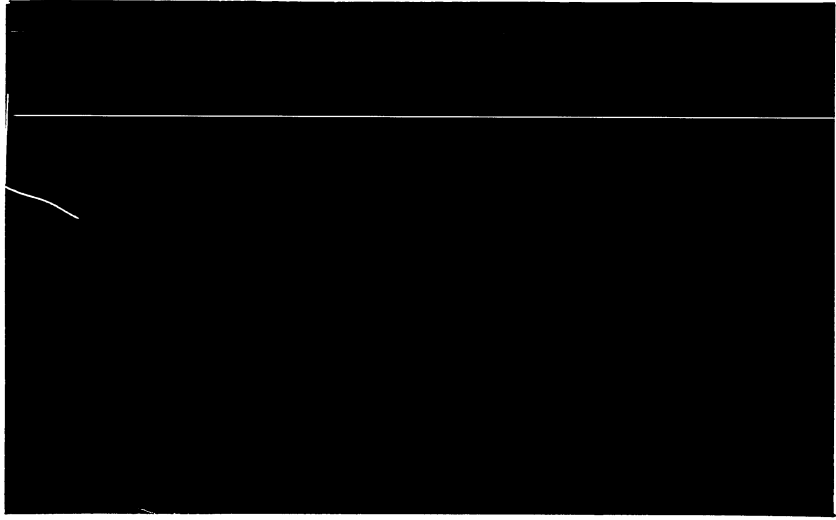


GIANNINI FOUNDATION OF
AGRICULTURAL ECONOMICS
LIBRARY

~~WITHDRAWN~~
JUL 19 1991

WORKING PAPERS

DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS
SYMONS HALL
UNIVERSITY OF MARYLAND
COLLEGE PARK 20742



AN ASSESSMENT OF THE AGRICULTURAL
ECONOMICS PROFESSION

by

Richard E. Just
and
Gordon C. Rausser*

Department of Agricultural and Resource Economics
University of Maryland
College Park, Maryland 20742

Working Paper No. 89-17

July 1989

An Assessment of the Agricultural Economics Profession

Richard E. Just and Gordon C. Rausser*

Introduction

The American Agricultural Economic Association is composed of various groups ranging from industry to government to academia with widely divergent values and interest. This has led to controversy, sometimes healthy and other times destructive, on the appropriate mode for graduate training and methodologies of research. These differences play a major role in the direction and vitality of the agricultural economics profession. Moreover, they imply both benefits and costs for the profession in pursuing the solutions to various problems and issues.

Pressures for day to day decision making in industry have led to reliance on methodologies that are often characterized as unacceptable for journal publications. Similarly, the timeliness of analyses conducted in support of governmental policy making processes sometimes does not lend itself to the use of methodologies that are accepted by professional journals. In contrast to these interests, the research sophistication that has emerged in academic circles has reputedly widened the divergences among various groups within the AAEA.

In this setting a number of personalized views have been expressed by leaders of our profession and other respective analysts. Many have expressed the view that a major historical strength of agricultural economics has been its tolerance for a range of methodological approaches. Early agricultural economist drew on production agriculture, accounting and business, classical, neoclassical, and institutional economics. Some have even argued that the

very parochialism and fragmentation of agricultural economics have been a major source of its strength and the basis for many of its most important contributions (Ruttan, 1970). In contrast, Bonnen (1986 page 1078) argues that:

"Since World War II agricultural economics has been drifting toward an anti-empirical and a disciplinary outlook, away from the great empirical tradition around which the profession was built and upon which its reputation still rests. Today we celebrate theory and statistical methods while ignoring the data collection and problem solving necessary to validate our theory and models. Any profession becomes what it celebrates and rewards."

While some have identified excessive fragmentation along geographic and some subdisciplinary lines as the major factor limiting the effectiveness of agricultural economics (Ruttan 1970) many members of the AAEA have taken refuge in the glowing account expressed by Leontief (1970) in his presidential address to the American Economic Association:

"An exceptional example of a healthy balance between theoretical and empirical analysis and of the readiness of professional economists who cooperate with experts in the neighboring disciplines is offered by agricultural economics as it developed in this country over the last fifty years. A unique combination of social and political forces has secured for this area unusually strong organizational and generous financial support. Official agricultural statistics are more complete, reliable and systematic than those pertaining to any other major sector of our economy. Close collaboration with the agronomists provides agricultural economists with direct access to information of a technological kind. ... They were also among

the first economists to make use of the advanced methods of mathematical statistics. However, in their hands, statistical inference became a complement to, not a substitute for, empirical research."

Few would argue that the observations of Leontief which focus on the period of 1920 through 1970 still hold with equal force today. The diversity that exists within the AAEA could be a major source of its strength or could be divisive and destructive. Does the diversity within agricultural economics enhance or detract from the creation of knowledge? Most all of us would agree that an appropriate degree of diversity creates a cross fertilization of ideas and a healthy tension which quickly exposes inferior applications. However, has the degree of diversity within our profession exceeded the optimal level?

Given the degree of diversity within the AAEA, do the current policies and practices of the association enhance or detract from the creation of useful knowledge? Do the media products of the association promote and encourage new ideas, methods, institutions, theories, data or articulation of important problems? Do they foster scientific inquiry, dialogue and debate and have they become the primary means of advancing the knowledge base of our profession? What are the research values of our collective organization, the AAEA?

The objective of this paper is to assess the above questions. Vital and progressive professions often subject themselves to critical review and assessment. The critical review of the AAEA's past and its likely future direction now seems timely. Of course, there are many views of the current state of the profession as well as how we arrived at this state. Our purpose here is to make an assessment of the current state which reflects not only our

views but the collective views of the AAEA membership.

In making our assessment and evaluation, the current institutional configuration of the profession is taken as given (e.g., the land grant university system, extension, research, teaching, etc. the design of the AAEA including its various services and products). However, the policies of the current institutions along with their associated impacts or results is scrutinized. The impacts or results are represented in terms of the subjective values of the AAEA membership and the frontiers of useable and implementable knowledge. The major themes of the evaluation are: (i) the self-imposed limitations of the profession; (ii) the solution-rich environment promoted and facilitated by the profession; and (iii) the opportunities for creativity and innovations, especially in the context of institutional design and collective group policy analysis, that have been missed by the profession.

Some of the self imposed limitations include the dominance of historical data analysis and "falsification"; insistence on a false sense of objectivity, available technology for empirical research, the emphasis on linear logic and the presumption that economic understanding is a convergent process. The solution-rich environment depreciates the importance of problem articulation. As Wallas, (p. 84) argued long ago " our mind is not likely to give a clear answer to any particular problem unless we set it a clear question..." In addition, the profession has not moved in the direction of producing institutional innovations in the same fashion as biological and physical scientists produce technological innovations (Rausser, 1982). Instead the profession has largely tinkered at the margins rather than designing, reforming and promoting more effective institutions.

The paper begins with a review of some anecdotal evidence in the next section followed by some data based evidence on the current state of the profession. Some selected problems for which little or no empirical evidence is available are highlighted. The argument is made that the value of the profession and role of data in advancing knowledge has led to a number of serious self imposed limitations. The dimensions of the self imposed limitations are examined. An attempt is then made to document the solution-rich or technique-oriented approach of the profession. The argument is made that this approach along with the self imposed limitations have hindered creativity and placed the professional in a position where it has been unable to take advantage of the opportunities for innovations that have been available. These themes largely reflect our subjective interpretation of the anecdotal evidence. To support or refute this interpretation, results of a survey of the AAEA membership are presented. This survey was conducted in the spring of 1989 and provides the data base for analytically judging the interpretations and perspectives of anecdotal episodes presented herein.

Anecdotal Evidence

As a profession, we have witnessed a number of major shocks in both U.S. and World agriculture over the last few decades. None of these shocks or their impacts were anticipated by publications of the profession. For example, the huge commodity price explosion of the early 1970s surprised all interested observers. No ex ante analysis was conducted prior to 1971 that even weakly suggested that such a price explosion was a non-zero probability event. Many ex post analyses have now been conducted that isolate the Soviet grain deal, the deregulation of the overvalued dollar, trade barriers, and

world wide economic growth as some of the explanations for the events of the early 1970s.

In fact, not until three years after the first devaluation of the dollar and two years after its deregulation did anyone in the profession attempt to evaluate its implications for U.S. agriculture (Schuh 1974). It is important to note that this study was based on personal understanding and experience and involved the heuristic application of basic economic principle. The study did not formally analyze any secondary or primary data. Furthermore, if secondary time series data had been utilized at that time, no significant effect would have been isolated between the exchange rate and any performance measures for the U.S. agricultural sector because of limited data availability following the devaluation.

In the early 1980s those concerned with U.S. and world agriculture were again surprised. Although there were studies in the late 70s of the relationship between the macroeconomic environment and U.S. agriculture the only ex ante analysis that was reported in the literature was widely off the mark (Schuh 1976, 77 or 78 proceedings issue). Perhaps more importantly after the Volcker Federal Reserve Policy Announcement of 1979, no ex ante analysis was reported by the profession on the potential effect of real interest rate increases on U.S. agriculture. It was not until commodity markets plummeted in 1981 that any serious attempt was made to evaluate the potential effects of monetary policy and fiscal policy on U.S. agriculture. Since the macroeconomic environment had been reasonably stable over much of the 1960s and 70s, ex post historical analysis could not identify a significant relationship between nominal or real interest rates and various performance measures of the

U.S. agricultural sector.

To address this difficulty, Freebairn, et al developed a simulation model with some empirically estimated and some hypothetical parameters to explain the events of 1981. Similarly, Just demonstrated that an extended capitalization formula calibrated to pre-Volcker events could have predicted the land price decline beginning in 1982 in terms of interest rate and inflation phenomena. But these types of approaches could have been undertaken as early as late 1979 or early 1980. Given the vulnerability of U.S. agriculture in 1980 to excessively optimistic expectations, huge governmental subsidies and the potential for excess capacity, why did the profession not provide some crisp but qualified warning signals? Conventional wisdom today is that U.S. macroeconomic policy in the early 1980s helped destroy U.S. agricultural export potential while escalating its costs and leaving it in the deepest financial crisis since the great depression. Why was this possible outcome not even remotely entertained in the forums of the profession in the early 1980s? Again, it is important to note that the early studies which began to sort out the role of new phenomena affecting agriculture were based on personal understanding and experience and involved the heuristic application of basic economic principle.

The lesson of these war stories is that when undue weight is placed on ex post data analysis, future events will always present surprises. This is simply because of the non-experimental nature of our science. As a result, the crucial conditioning elements are not controllable. Any attempt to isolate significant impacts of nominal exchange rates and interest rates in the early 1970s would fail. This is also true for all of the 1970s in the

case of nominal interest rates. The failure to recognize these facts can lead to disaster. Of the many disastrous examples of the 1970s, perhaps one of the best known is Stratford of Texas. This agribusiness concern operated a number of feed lots in the early 1970s. To expand, they offered insurance schemes for investors seeking tax shelters. The insurance schemes were based on the variability of corn prices in the 1950s and 60s. As a result of the new instability in agriculture, Stratford of Texas found itself in a state of bankruptcy by the mid 1970s.

These same points arise with great frequency in a number of current topical problems. For example, with respect to GATT negotiations, there have been no serious evaluations of the dynamic path that might result from any proposals that have been tabled by the U.S. Trade Representative. The profession has also not provided a second best set of rules that can lead to an increase in economic growth and welfare that is politically sustainable. In this setting we as a profession have violated Aaron's rule that "good economic advice on major questions ... must necessarily rest on sound political analysis of how government operates..." (1989, p. 11).

Sustainability of reform requires changes in the underlying institutions. Simply put, reforming food and farm policies implies changing the forces conditioning government behavior. The reform of agricultural policies must come through changes in the means of compensating politically influential groups who would otherwise be losers or through institutional changes in the relative costs of political activity by groups bearing the burden of such compensation. As a profession, if we do not witness reform we must not despair for the economic rationality of government. We must, instead, be

Edisons and invent the intellectual and political machinery that will allow the reform to be profitably supplied. The most promising framework for accomplishing this task is new institutional economics.

Our profession has missed many opportunities for significant advancement in the field of institutional economics. As Ruttan and Hayami have argued, the largest payoff to the public interest is to the area of institutional innovation. This includes not only the creation of new institutions but the elimination of some existing institutions. For example, throughout the world there is a serious problem of financing public good and infrastructure investments in agriculture. In the case of the United States, Bonnen (1986) argues "...that responsibility for coordination of agricultural science policy is shifting from a predominantly public function to more of a shared public and private responsibility, making both policy and its coordination more complex." What institutional frameworks have been advanced by our profession to determine sustainable burden sharing arrangements between the public and private sector to finance various quasi-public goods? Does our profession encourage and reward its members for designing such institutions?

On the methodological front, why has so little effort been undertaken to explain collective organizational behavior. Why have no basic propositions been empirically tested that focus on the distribution of power in collective groups. We always find members with unequal influence being compensated by collective organizations. For example, this behavior is observed in water agencies, departments of economics and agricultural economics, and in most all other organizations. It may in fact be the way of maintaining control in a centralized subgroup of leaders or decisionmakers. Why have we not exploited

our traditional relationships with rural sociologists and other disciplines to advance the frontiers of knowledge in this area of inquiry?

At the core of new institutional economics is transaction costs. Such costs explain a host of coordinating mechanisms that arise in commodity systems, sometimes to complement and other times to substitute for spot markets. Even though the transaction costs for these various coordinating mechanisms and their alternatives (e.g., future markets, forward contracts, vertical integration, horizontal integration, etc.) is the dominant factor explaining their emergence and sustainability, our profession has made few if any serious attempts to measure their costs. This is even more surprising in view of the methodology that was developed long ago in our profession by Bressler, French and others on the marketing of agricultural products. The time and motion studies, with some modifications, are an appropriate methodology for transaction cost measurement.

The profession has imposed a number of limitations on what constitutes acceptable research. The emphasis has been on empirical analysis of historical phenomena. The philosophical base for much of this focus is provided by Popper. Popper emphasizes explanation of observable phenomena and introduces the notion of falsification as the rigorous standard for scientific procedure. Kuhn, in his study of scientific progress, found no support for Popper's idealization for science -- falsifying instances seldom lead to the revocation of theory. Still other philosophers, for example Feyerabend, have argued against method in science all together. Among economists, McCloskey has advanced the view that economic research is basically essays in persuasion.

One of the dominant characteristics of the profession is its insistence on objectivity. Objectivity is much like motherhood and apple pie; if it could be achieved we would all warmly welcome its presence. The difficulty, however, is that in principle an infinite number of hypotheses are capable of explaining a given finite body of non-experimental data. Accordingly, the only objectivity that exists emanates from the clash of individual subjectivities. As Keynes argued long ago "it is astonishing what foolish things one can temporarily believe if one thinks to long alone..." Discussion and debate with colleagues provides a useful defense against one's own subjective foolish beliefs.

In the context of falsification and the explanation of observable phenomenon, a number of solution techniques have been developed from mathematical statistics, econometrics, operations research, etc. This technology has been utilized sometimes wisely and sometimes unwisely. In general, the technology imposes a logic which leaves little if any room for intuition. Little if any value has been placed by the profession on the role of intuition. In contrast, for example, it is interesting to observe how many members of the profession that trade in futures markets do so on the basis of formal econometric models as opposed to intuition and heuristic application of economic principles.

The technology that has been partially developed and widely used in the profession is largely computer based. In many research applications, this technology has proved to be a powerful substitute for creativity and serious thought. In fact, the available technology along with the standardized solutions that have been developed over the years often leads to a "have model

will travel" mentality. For some years now, the AJAE and our professional meetings have been dominated by solution-oriented or technique approaches. This professional behavior has severely limited originality. Many of our newly trained Ph.Ds spend most of their time wondering about the applications they can make of standardized solution frameworks rather than finding interesting problems that require the development of customized frameworks. Given the small weight our profession places on case studies and induction, this outcome is not surprising. There are, of course, a few general principles for which there is overwhelming empirical support, e.g., incentives are crucial in motivating entrepreneurial behavior, arbitrage is alive and well so long as transactions costs are not insurmountable, and so on. These general principles, however, provide only guidelines, not solutions. Many of the problems that our profession currently faces require the design and development of customized solution frameworks rather than another application of existing standardized or generic solution frameworks.

The solution frameworks that have been utilized by the profession also operate under the false presumption that the progress of economic understanding is a convergent process. Since it is not a convergent process, "the progress of economics makes it difficult for political leaders to know when to listen to us, even if they are inclined to do so" (Aaron, p. 12).

Empirical Questions and Hypotheses

From the anecdotal evidence outlined above, a number of questions and hypotheses emerge. Some of these hypotheses relate to the linkages among academic, extension, industry, and government components of the profession. Do the applied components of the AAEA find different approaches effective than

are emphasized by academic components and the media (AJAE, Choices, and AAEA meetings)? How does the importance of formal models and econometric analysis versus heuristic application of economic principles and intuition differ among the various components of the profession? Are the channels of communication among these various groups within the Association highly integrative and interactive, or are they channeled and separate? How well are the problems faced in the applied components of the profession communicated to the academic community and how well do the products of the academic community serve the applied components? In acquiring human capital, what is the best relative emphasis of training on various types of techniques, conceptual frameworks, and case studies and how does that compare with the training that has been received?

Many other questions naturally arise. What empirical evidence is used in the analyses conducted by members of the Association? Are the frameworks of analysis used by the various components of the profession formal or informal? How helpful are the various products that are offered by the Association to the members in performing their responsibilities? Do the types of analyses conducted, the frameworks utilized, and the usefulness of various Association products change with professional maturity? Can the AJAE, Choices, and the AAEA professional meetings be changed to serve the membership more effectively? What role does and might each product of the Association play in enhancing effectiveness of the members?

The Survey -- A Description

The design of the questionnaire used to address these questions attempts to identify professional needs of the AAEA and how the Association might

better serve those needs. The vast majority of questions elicit quantitative rather than qualitative responses (of 24 questions, 19 requested quantitative responses). In terms of an investment and production process for members' activities, the questions attempt to determine the nature and type of graduate training during the human capital investment process, the inputs used (including time spent in the generation of products), and in what forums the products or results are reported. In some instances, the questions attempt to determine how activities change over the course of professional careers. For the services of the AAEA, what each member desires versus receives was requested.

After choosing the initial set of questions, the survey was pretested among a nonrandom sample of respondents. Some had difficulties with the initial set of questions which were then revised slightly. As with all surveys, the trade-off between simplicity and accuracy naturally arose. An attempt was made to remove ambiguities; but as a result of the questions being short and concise, it was impossible to remove all ambiguities. The questions are outlined in Appendix A.

Once the questionnaire was finalized, it was mailed to the complete population of all domestic, nonstudent, nonfamily members of the AAEA as recorded in the AAEA business office. This population was composed of 2,623 potential respondents. The anonymity of each respondent was assured. Initially, 963 questionnaires were returned; thus the response rate was 36.7 percent. This initial response rate was quite acceptable, and we wish to thank all those who took the time to respond to the survey.

To correct for possible sample selection biases, a follow-up survey was mailed to 6.5 percent of nonrespondents. Of these, 12 percent responded to the second request. Conventional Chow tests of differences in the follow-up from the original sample revealed significance at the 5 percent level for only a bit over 5 percent of the questions. Significance for 5 percent of the questions should be expected if there was no statistical difference. Accordingly, all results that are reported here are based on the original 963 returned questionnaires.

Of course, the response rates on individual questions were not always 100 percent. Specifically, for Question 1, there were 943 responses; Questions 2, through 8 had 100 percent response rates; Question 9 had 943 responses; Question 10 had 811; Question 11, 816; Question 12, 820; Question 13, 806; Question 14, 732; Question 15, 806; Question 16, 806; Question 17, 900; Question 18, 801; Question 19, 711; and Question 20 (the last quantitative question), 662.

Quantitative Survey Results

A number of analyses were conducted for the purpose of drawing implications for research, graduate curricula, professional media, and scientific exchange at AAEA professional meetings. The results of these analyses are reported in Tables 1 through 6. Table 1 focuses on members' ideal distribution of the three major forms of professional media sponsored by the AAEA among the following areas of emphasis: applications of an existing model, development of a new model, definition of a problem, discussion and assessment of current events, descriptive analysis of problems, individual viewpoints, and all other categories (the responses to Questions 18, 19, and

20).

The differences in these responses from the perceived present distribution were regressed against the response to Question 1 which identifies the extent to which each members job responsibilities are academic research, extension research, other extension, teaching, industry, government research, and other government activities. These estimated coefficients (multiplied by 100 to convert to percent) are reported in the rows of Table 1 so named. The estimated coefficients give the average desired percentage change among topics for a hypothetical individual whose appointment is 100 percent in the area identified by the various row names in Table 1. The other rows of Table 1 labelled "All Respondents" give the average percentage change from perceived to ideal distributions across the entire sample.

The results for the AJAE suggest that all respondents as a group want more problem definition and descriptive analysis published in the AJAE but less individual viewpoints and assessment of current events. These results are consistent with the views of the anecdotal evidence section which argues for more focus on problems and case studies. As for the results by type of respondent, academic research is the only group that would prefer more individual viewpoint; teaching, industry, and government prefer less. As expected, academic researchers want fewer applications of existing models published in the AJAE while industry would prefer more new model development.

In the case of Choices, the results are remarkably uniform across professional groups. Moreover, the results are highly significant relative to the AJAE or the AAEA professional meetings. Specifically, all respondents want more application of both new and existing models, more problem definition

and assessment of current events, and less individual viewpoint and descriptive analysis. The current perception is that Choices devotes only 6 percent of its available space to existing models, 7 percent to new models, 2 percent to problem definition, 3 percent to current events, and 19 percent to descriptive analysis (the balance is individual viewpoints and other categories). Apparently members of the association would prefer Choices to move somewhat in the direction of an academic journal, to wit, the desired increase in model applications, but at a very readable level. It should be noted, however, that the statistical results that are reported in Table 1 must be tempered by the large number of favorable written comments about Choices in response to Question 22. The response to this question reveals strong membership support for Choices.

For the AAEA professional meetings, all respondents would prefer more application of both existing and new models, more problem definition and descriptive analysis, and less individual viewpoints. It should be emphasized that the desire for less individual viewpoints is uniform and significant across almost all professional groups. These results again support the perspective advanced in the anecdotal evidence section on regarding needed emphasis on problem definition and case studies.

For the AJAE and the AAEA professional meetings, the results in Table 1 are mostly insignificant while those for Choices are highly significant. This is expected since the AJAE and AAEA meetings are at a mature stage of development whereas Choices has been instituted recently. With the more mature forms of media, either the distribution of emphasis tends to converge to membership desires or membership perceptions are swayed by what is observed

after a long period of time. Thus, Choices can be regarded as a medium that may not have as yet reached an equilibrium between perception and desire. In any event, the most uniform results across all media is the desire for less individual viewpoints and more problem definition. Moreover, there seems to be a fairly consistent desire for more use of models, except for the AJAE.

Table 2 reports how the type and basis of analysis as well as the perceived quality of the various types of analyses change with professional maturity. In terms of the basis for analysis, all professional groups migrate away from using published secondary data toward relying on understanding and experience over the course of their professional career. This result is taken to be a reflection of what individuals do over their professional careers but it could also reflect differences among educational cohorts. The latter explanation could result from recent graduates being more highly trained in econometrics, statistics and data analysis and, as a result, using these methods with greater frequency throughout their professional careers. Here again, the problem identification and case study appear to receive greater emphasis with professional maturity.

For the types of analyses that are conducted, formal original frameworks tend to receive decreased emphasis with professional maturity. This may be due either to increasing reliance on experience and intuition or to increasing obsolescence of human capital. This trend, of course, is the strongest for academic researchers. Note that industry relies increasingly on formal frameworks developed by others. This change, however, almost balances with a decline in the reliance on original formal frameworks. Heuristic applications of principles increase with maturity, particularly for academic researchers

and teachers. The use of "gut" intuition declines with maturity, especially for teachers and industry members. Note that the importance of problem definition increases significantly for all respondents, especially teachers, industry, and government research members.

Aside from the increasing importance of heuristic application of basic economic principles in government research work and the use of gut intuition in industry there is very little significance among the potential sources of effectiveness with professional maturity. The results are generally consistent. One curious outcome, however, is the increased importance with industry professional maturity of gut intuition as a source of effectiveness but its decreasing role with this same professional group as a type of analysis. In any event, the collective results of Table 2 show that professional maturity leads to declining formal analysis with secondary data and increasing reliance on problem definition and heuristic application of economic principles. Moreover, with professional maturity the type of analysis is increasingly based on personal understanding and experience, particularly for applied professional groups such as teaching, industry, and government research. Again, the increased emphasis on problem definition and case studies supported by the anecdotal evidence section is supported.

Table 3 presents the ideal course work emphasis in graduate training desired for new recruits. In addition, the differences of these desired levels from respondents' actual course work experience are reported. As the results clearly indicate, all respondents would prefer less economic theory, less econometrics and statistics, less applications, and more case studies. The results are surprisingly uniform across all professional groups. The

greatest changes are desired by industry and government followed closely by extension professionals. These results too are consistent with the hypothesis that the major problems we face as a profession require customized rather than standardized or generic solution frameworks.

Determinants of power and influence in both industry and government was evaluated by linking the number of employees supervised or the level of influence in the organization to coursework, basis for analysis, type of analysis and years since the last degree. In the results reported in Table 4, the intercept includes the effect of econometrics and statistics coursework, use of published secondary data, and use of formal original framework on the number supervised and the level of influence. For industry, all types of course work are superior to econometrics and statistics and significantly so for the level of influence. Almost the opposite results are obtained for government but without significance. These results support the view that different types of skills get rewarded in government relative to industry. Replacement of economic theory and econometrics and statistics with case studies as suggested by Table 3 is supported also by the results for the level of influence in both government and industry.

Analysis undertaken with secondary data obtains the least reward in both industry and government. Understanding and experience obtains the highest reward in three of the four cases with greatest significance in all instances. These results also support the hypothesis regarding the importance of customized rather than standardized or generic solution frameworks which, in turn, emphasizes the importance of problem definition and case studies. One surprising result with respect to the determinants of power and influence is

the effect of professional maturity. Years since the last degree has only one positive effect; however, none of the measured effects are significant.

For the types of analysis, industry professionals give the highest weight to "gut" intuition while government professionals are rewarded most for descriptive analysis geared toward problem definition followed by the use of secondary formal frameworks (formal frameworks developed by others). This outcome is consistent with the positive significance of gut intuition as a source of effectiveness with professional maturity for industry professionals. These results can perhaps be best explained by the relative emphasis in government research on ex post deductive evaluation. In contrast, industry professionals are frequently posed with futuristic questions which require ex ante, inductive analysis. In contrast, many government professionals (e.g., in ERS) spend relatively more time explaining what has happened.

Structure of the Profession

The linkages among the various professional groups are reported in Table 5 in terms of the sources of conceptual thinking, sources of reports and forecasts and outlets for completed analyses. The results of this Table along with the corresponding empirical structural representation in Figure 1 show that the profession is not fragmented as is sometimes claimed. To the extent that results reflect reality rather than desire, the degree of interaction is suggestive of a well integrated profession.

For sources of conceptual thinking, professional meetings (AAEA and ASSA) are the primary input media for all professional groups. Although academic researchers rely most heavily on basic economic journals, all professional groups make substantial use of them. Academic researchers also rely

substantially on trade journals and lay interchange -- almost as much as any other group except extension. Except for academic researchers, Choices has become the second most important input media. Within a very short period of time Choices has gained a significant position within the input space.

The results for the categories of personal experience and discussion with colleagues, especially in comparison to the results for this same category reported in Tables 2 and 4, suggest that the profession is not making the best use of its resources. There may be too much formalism in the profession, too. All of these results for sources of conceptual thinking are basically equivalent to those obtained for sources of reports and forecasts. There are of course, a few minor exceptions, e.g., trade journals become much more important for teaching.

Many of the results on outlets for completed analysis are consistent with most of our expectations. There are a few surprises, e.g., trade journals as an outlet for academic research is surprisingly high and basic economic journals serve as a major outlet for industry and government. The latter outcome may reflect desire rather than actual experience. The AJAE serves as a major outlet for all professional groups except industry. The professional AAEA and ASSA meetings are an outlet only for academic research, teaching and government research. Other professional groups do not view the professional meetings as a forum for reporting the results of their efforts even though they use them as an input. In the case of extension, most results are reported to their colleagues and to other lay individuals as we would expect.

The results in Table 5 for Choices reject the view that it is not a medium for academics. Most articles are prepared by academic researchers who

are simply altering their communications style for this particular medium. This, of course, suggests that the AAEA can influence the type of research products generated by the profession. For example, if the profession decided that the case study or problem definition approaches need greater emphasis, the experience of Choices suggests that this can be achieved by the media policies that the AAEA implements for its products.

In Table 6, the changes in professional linkages with maturity are reported; specifically, the changes in the percentage of activity associated with each form of media per year are reported. For sources of conceptual thinking, the most striking results here are that almost all professional groups increase their reliance on trade journals and AAEA and ASSA meetings as they become more mature. On the other hand, almost all professional groups decrease their reliance on basic academic journals and on lay interchange. The latter results are highly significant and a sad indictment of the profession. Note also that there is a tendency to replace reliance on the AJAE with reliance on regional agricultural economics journals and activities, especially for extension, industry, and government groups.

Once again the results for report and forecast sources are very similar to those results for sources of conceptual thinking. A few exceptions to this similarity are the role of trade journals (relatively constant with respect to professional maturity) and the decreasing reliance on personal experience and discussion with colleagues.

For completed analyses outlets, all groups reduce their publication rate in basic economic journals and increase publication in the AJAE. With few exceptions, most groups reduce discussion with colleagues and increase their

presentations to lay groups. The latter exceptions are, however, mostly insignificant. With professional maturity, the publication rate in trade journals increases for all groups except academic research but remarkably so for teaching. Most of these results are not surprising.

Qualitative Survey Results

In addition to the quantitative survey results, some additional results were also generated for the AJAE, Choices and the AAEA meetings. For each of these media the respondents were asked to list those problems they thought should be but are not addressed. As expected, a few respondents were not constructive but for the most part the responses were meaningful. In general, the qualitative responses to problems that should be addressed support the view that the profession has become too technique oriented, to solution rich, and too risk averse in analyzing possible future scenarios. Moreover, there is too little problem solving knowledge generation for which there is value added, and there are a host of specific issues for which problems have not been well articulated.

The common thread that runs through many of these responses is that there are too few conceptual and empirical pieces that address important problems that exist currently or may emerge at some future date. Instead most of the conceptual and empirical pieces focus on some construct in the literature or are dictated by the standardized solution frameworks that have been previously developed. The call seems to be for more creative, unstructured publications that can be the basis for valuable professional exchange. Many of the responses cover a broad range of concerns that focus on opportunities for innovations in institutional design and collective group policy analysis.

In the case of the AJAE, the membership as represented by our sample of respondents want more emphasis on defining problems, more futuristic analysis, e.g., what is the future of the land grant system, less emphasis on methodology and formal rigour, more interdisciplinary treatment of social behavior, more socioeconomic and political analysis in agriculture, more research on ethics and values, more research on broad seminal issues such as the ability of agriculture to adjust to disequilibria, more political economic analysis of all shapes, forms and types, more applications of neoinstitutional economics to agriculture, less focus on trivial modifications of existing theory, more "new" industrial organization research, more studies on value added of any economic analysis that might have been conducted for users of that analysis, more collective organizational analyses on administrative structures and policies in agricultural colleges, development of criteria for assessing institutional performance, development of methods for evaluating efficiencies of institutions and implications for informal markets, etc. The analysis of institutions and the political economy of agricultural policies, and the supply of nonprivate goods emerges again and again in the responses to the problems that ought to be addressed by AJAE articles.

The gap between what is currently published in the AJAE and what would best serve the membership is obviously not only due to the policies that are implemented by the editor, the association or the peer review process. As one thoughtful respondent argued:

"After over thirty years of observing the academic process it appears that most scholarly societies have become agents to establish professional credentials for tenure, promotion or a job offer. This is probably as much

the fault of the administrators looking for someone else to make their decisions as anything. It puts the pressure on the young member. The product of the endeavor probably has limited social impact, if any. As you sit doing your work, turn around to your bookcase and at random pull a journal from the 1960s off the shelf and try to estimate the social impacts of the articles. If that issue had not been published, how much would society have lost? However, the administrative pressure has brought a proliferation of journals."

Other respondents have suggested that the way of dealing with this problem is to revise the academic rewards system so as to encourage more problem solving and applied analysis. Positive rewards should be given for well articulated problems and useful results and insights with penalties imposed for just another technical, standardized application. The institutional changes that are required for such a reward and penalty policy structure to naturally emerge is itself a serious area of social science inquiry.

Turning to Choices, the qualitative responses are overwhelmingly favorable. Among the vast array of favorable comments, however, there are some constructive suggestions. Since the subject matter and problem solving knowledge of the profession is multidisciplinary, Choices should expand its disciplinary base beyond agricultural economics and political science. The articulation of important problems has been one of the most positive features of Choices but too much space is given to personal opinions without any supporting analysis or empirical justification. Choices does not devote sufficient space to the large payoff areas of analysis, namely, the design of new institutions or the reform of existing institutions. More lay

articulation of market failures as well as government failures would dramatically improve the societal contributions of the magazine.

For the AAEA meetings, both summer and winter, the same desires that emerge for the AJAE and Choices appear once again. However, there is less (more) dissatisfaction with the professional meetings than with the AJAE (Choices). The responses suggest that the membership would prefer more sessions on feedback from users of economic analysis conducted by members of the profession. This could help structure and focus future analysis where the largest payoffs might exist.

More case studies are strongly recommended. Correspondingly many of the suggestions for problems that should be addressed at professional meetings include the use of "event analysis." The view was frequently expressed that more sessions should be devoted to problem articulation with little if any discussion about solution methods and techniques. Sessions which focus on the design of new institutions or the reform of existing institutions are strongly encouraged. For those areas of inquiry where the payoffs are potentially very large but limited time series and cross section data exist, why has more experimental economic analysis not been conducted by members of the profession and reported in meetings? In fact "brainstorming" sessions on the design of experimental economic analysis as well as other types of analysis that might be conducted would be a welcome addition to the professional meetings.

As one respondent noted "some good controversial sessions need to be put together, ones that raise ideas and blood pressures." Less ex post analysis sessions which cast each and every problem into the neoclassical microeconomic

framework are needed. More visionary sessions requiring ex ante analysis are desired. Specifically, what major problems are likely to emerge down the road that will require fundamental economic analysis? What institutional innovations could be made that likely will improve the performance of the agricultural and natural resource sector. Again and again, the recommendations of the membership focus on the third theme of this paper regarding the need for serious institutional analysis in lieu of continued tinkering at the margins.

Concluding Remarks

After reviewing the survey responses, we cannot help but think that the Leontief observations made in 1970 for our profession no longer hold. Leontief was referring to the period of 1920 through 1970. The respondents to this survey focus mostly on the last two decades. In fact, the collective view of the respondents is more consistent with Leontief's observation on general economics as of 1970 (Leontief p. 3):

"In no other field of empirical inquiry has so massive and sophisticated statistical machinery been used with such indifferent results. Nevertheless, theorists continue to turn out model after model and mathematical statisticians to devise complicated procedures one after another. Most of these are relegated to the stockpile with out any practical application or after only a perfunctory demonstration exercise."

Appendix A

Professional Needs Survey

1. What percentage of your time is devoted to each of the following: basic research in academia; applied research in academia; applied research in direct support of an extension program; all other extension activities; teaching; industry, banking, agribusiness; applied research in/for government or international organizations; and other government activities?
2. Are you currently a member of the AAEA?
3. How many people do you directly supervise?
4. How many individuals or organizational levels are between you and the head of your organization?
5. On a scale from 0 to 100 (100 highest), what is your level of influence in your organization relative to all other individuals?
6. What is your last degree?
7. From which institution?
8. How many years since your last degree?
9. In course work for your last degree, what percentage of your time did you spend on each of the following: economic theory; econometrics and statistics; operations research and linear programming; application of the above (e.g., in production, marketing, trade, policy, development); case studies; and other?
10. In working on various issues during your professional career, what percentage of your analyses was based on each of the following: published secondary data sources, collected and internal primary data

sources, and personal understanding and experience during the first 5 years of your professional career, the next 5 years (if applicable) and beyond 10 years (if applicable)?

11. In working on various issues during your professional career, what percentage of your analyses consisted of: a formal framework you or your colleagues developed, a formal framework developed otherwise, heuristic application of basic economic principles, "seat of the pants" reasoning and "gut" intuition, and descriptive analysis geared toward problem definition during the first 5 years of your professional career, the next 5 years, and beyond 10 years?
12. In working on various issues during your professional career, what percentage of your analyses was based on: no more than 2 hours to complete an analysis, 2 hours to 2 days, 2 days to 2 weeks, 2 weeks to 2 months, more than 2 months during the first 5 years of your professional career, the next 5 years, and beyond 10 years?
13. For sources of conceptual thinking in your work, in what percentage have you relied on: trade journals, the Wall Street Journal, and trade association meetings: Choices; AAEA meetings; ASSA meetings; the American Journal of Agricultural Economics; basic economic journals; other agricultural economics and agribusiness journals, reports and meetings; personal experience and discussion with colleagues; meetings and discussions with farmers and other lay individuals; and other during the first 5 years of your professional career, the next 5 years, and beyond 10 years?

14. For reports and forecasts of current and future economic events, in what percentage have you relied on: trade journals, the Wall Street Journal, and trade association meetings; Choices; AAEA meetings; ASSA meetings; the American Journal of Agricultural Economics; basic economic journals; other agricultural economics and agribusiness journals, reports, and meetings; personal experience and discussion with colleagues; meetings and discussions with farmers and other lay individuals; and other during the first 5 years of your professional career, the next 5 years, and beyond 10 years?
15. What percentage of your completed analyses have been reported in/to the following trade journals, the Wall Street Journal, and trade association meetings, Choices; AAEA meetings; ASSA meetings; the American Journal of Agricultural Economics; basic economics journals; other agricultural economics and agribusiness journals, reports, and meetings; personal experience and discussion with colleagues; meetings and discussions with farmers and other lay individuals; and other during the first 5 years of your professional career, the next 5 years, and beyond 10 years?
16. In your recruitment activities, what is the ideal percentage weighting on formal preparation in the following subject matter areas: Economic Theory; Econometrics and Statistics; Operations Research and Linear Programming; Applications of the above (e.g., Production, Marketing, Trade, Policy, Development); Case Studies (descriptive analyses geared toward problem definition); and others?
17. In carrying out your professional responsibilities, what percentage of your effectiveness is: use of a formal framework you of your colleagues

developed: use of a formal framework developed otherwise; heuristic application of basic economic principles; use of "seat of the pants" and "gut" intuition; your ability to define the actual problem; and other?

18. What do you perceive to be the current allocation of emphasis by the AJAE and what would be the ideal distribution among the following topics, given your professional responsibilities: application of an existing model; development of a new model; definition of a problem; discussion and assessment of current events; descriptive analyses of problems; individuals viewpoint; and other?
19. What do you perceive to be the current allocation of emphasis by Choices and what would be the ideal distribution among the following topics, given your professional responsibilities: application of an existing model; development of a new model; definition of a problem; discussion and assessment of current events; descriptive analyses of problems; individual viewpoint; and others?
20. What do you perceive to be the current allocation of emphasis by the AAEA meetings and what would be the ideal distribution among the following topics, given your professional responsibilities: application of an existing model; development of a new model; definition of a problem; discussion and assessment of current events; descriptive analyses of problems; individual viewpoint; and other?
21. What are some problems you think should be addressed in the AJAE that are not being addressed?
22. What are some problems you think should be addressed in Choices that are not being addressed?

23. What are some problems you think should be addresses in the AAEA meetings that are not being addresses?
24. If you have terminated your membership in the AAEA, why have you done so?

Footnotes

* Note that senior authorship is not assigned; both authors shared equally in developing the views expressed in this paper, but they do not agree with all views that are expressed. Richard E. Just is Professor, University of Maryland and Gordon C. Rausser is the Robert Gordon Sproul Distinguished Professor, University of California, Berkeley.

References

- Aaron, Henry J. "Politics and the Professors Revisited." Richard T, Elie
Lecture to the American Economic Association, December, 1989; published
in the American Economic Review Proceedings (May, 1989):1-15.
- Bonnen, James T. "A Century of Science in Agriculture: lessons for Science
Policy." American Journal of Agricultural Economics 68 (December,
1986):1065-1080.
- Feyerabend (to be supplied later)
- Fischer, Stanley. "Recent Developments in Macroeconomics." Economic Journal,
98 (June 1988):294-339.
- Freebairn, John W., Gordon C. Rausser and Harry deGorter. "Food and
Agricultural Sector Linkages to the International and Domestic
Macroeconomies." New Directions in Econometric Modeling and Forecasting
in U.S. Agriculture, Gordon C. Rausser (ed.), New York Elsevier, North
Holland Inc., 1982, Chapter 17.
- Just, Richard E. "The Role of Monetary, Fiscal, and Agricultural Variables in
Farmland Prices," Working Paper, University of Maryland, 1988.
- Keynes, John Maynard. The General Theory of Employment Interest in Money.
London: McMillan and Company 1936.
- Kuhn, T, The Structure of Scientific Revolutions. 2nd ed. Chicago: The
University of Chicago Press, 1970.
- Leontief, Vassily. "Theoretical Assumptions and Nonobserved Facts."
Presidential Address delivered at the 83rd meeting of the American
Economic Association, Detroit, Michigan, December 29, 1970; published in
the American Economic Review Proceedings (May, 1971):1-7.

- McCloskey, P. The Rhetoric of Economics. The University of Wisconsin, Madison. 1985.
- Popper, K.R. The Logic of Scientific Discovery. New York: Basic Book, 1959.
- Rausser, G.C. "Political Economic Markets: PESTs and PERTs in Food and Agriculture," American Journal of Agricultural Economics 64 (1982):821-833.
- Ruttan, Vernon W. "Agriculture Economics," in Economics, edited by Nancy D. Ruggles. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970:144-151.
- Ruttan, Vernon W. and Y. Hayami. "Toward a Theory of Induced Institutional Innovations." The Journal of Development Studies 20 (July 1984):203-223.
- Schuh, G. Edward. "The Exchange Rate and U.S. Agriculture," American Journal of Agricultural Economics 56 (February 1974):1-13.
- Schuh, G. Edward. "The New Macroeconomics of Agriculture," American Journal of Agricultural Economics 12 (1976):802-811.
- Wallas, Graham. "The Art of Thought." New York Harcourt Brace and Company 1926.

aaeaass.chi/crlt/7-13-89