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# **Realizing Your Potential as an Agricultural Economist in Extension**

Proceedings of the

American Agricultural Economics Association

Extension Workshop (1st : 1984 : Cornell University)

August 3-4, 1984

Cornell University

Ithaca, New York

Editor: Gerald R. Campbell

Technical Editor: Marsha Cannon

Produced at the University of Wisconsin-Madison

Additional funding provided by Agriculture-Agribusiness Program,  
Wisconsin Cooperative Extension Service, University of Wisconsin-Extension.



RESOURCE ECONOMICS: AN  
EXTENSION PERSPECTIVE

by

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Resource economics is both a sub-discipline of economics and a subject matter area of focus for extension work. Presumably the two are related, though they are distinct. The latter is action-oriented, the communication, packaging, and delivery of information about natural resources used based on the insights inherent in the sub-discipline. The logic framework of economics is a major asset to extension specialists dealing with natural resource matters. It gives us an advantage over other specialists. My purpose here is to suggest the major distinguishing features of the Resource Economics landscape, and discuss how these are used in education. These remarks are my "view of the elephant," which may or may not coincide with your perspectives. But my guess is that we agree on the general shape of the beast. I have tried to be candid and honest in my appraisal, if not inclusive.

Distinguishing Features of Resource Economics

Several principles of economics receive particular emphasis in understanding and analyzing natural resource problems. All of economics is relevant, but some parts are more relevant than others.

Institutions. Maurice Kelso's revelations about our "upsetting discipline" are, I believe, among the most telling for our purpose here today (3). He concluded, among other things, that the primary point of departure for resource economics is that institutions are endogenous to the analysis. They are the focus of attention, not merely external constraints on the market as an arena for choice. Institutions are social devices that define the rights and obligations of participants in a decision process involving natural resources. Institutions produce incentives and disincentives that cause or resolve natural resource "problems." Changes in these rights and obligations change the resource impacts in ways that may be predicted, even engineered. This is true in other areas of economics as well, but is central to resource economics.

Externalities. We all know that externalities are rampant, even ubiquitous, in economic transactions. I do not intend to argue the conceptual validity of externalities, pareto-relevant or otherwise, but merely to suggest that overlapping utility functions or attenuated property rights (or whatever) are a major point of departure for resource economics as a sub-discipline and an area of extension work.

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There is an important distinction to be made here between the richness and diversity of resource economics, and the humdrum work-a-day world of production economics. There are important natural resource commodities that are produced with varying mixes of variable inputs, and sold on a market. They are the renewable natural resource commodities--trees, fish, corn. A colleague at Michigan State argues that if there is "Resource Economics," there must be non-Resource Economics. His point is that natural resources are fundamental to all of economics. Granted. But we must not allow ourselves to be dragged into the mire of mediocrity quite so easily. Our world is the world of natural resource problems that result when a producer has the right and capacity to shift costs to others, or lacks the right or capacity to gain from certain products or services. We get all worked up about natural resources that are indivisible in consumption or are non-exclusive, like clean air, migrating birds, or endangered species. We worry about congestible goods like a fishery, a wilderness area, or a ground water resource. Resource Economics is an area of emphasis, a state of mind, not a totally separate area of inquiry. We should acknowledge what we are not, which clarifies the flexible boundaries of the sub-discipline.

Scarcity/Time. Certain natural resource commodities are exhaustible, fixed in physical supply. The rate of use of that resource over time is of major concern in resource economics. We know that market prices reflect judgments by resource users about the relative value of that resource in production now and in the future. A resource like copper or oil may appreciate in value while staying safely in the ground, a capital asset for the owner. It produces no income until extracted. The "rational" resource user will leave it in the ground so long as its value is increasing at a rate higher than the interest rate. Scarcity of a particular resource is defined in terms of its relative price. A good production economist knows all of this, and much more. The resource economist may enter the discussion by pointing out that markets for non-renewables exist within an institutional framework that may itself be the focus for policy. There is nothing sacrosanct about property rights-- they may become variables in the analysis. We may fuss about the "rights" of future generations, attenuated to those of the present users. Perhaps the consequence of misjudging future importance of an exhaustible resource is a cost not borne by present users. For example, there is much speculation about the future importance by productive soil. Markets suggest that soil is of declining economic importance in food production. But soil scientists point out the limits to that line of reasoning. Eroded soil responds poorly to soil-replacing technology. Some say we have even reached a plateau of new technology. Conservation policies, in soil and other resources, are aimed at extending the role of that resource through time, making it available longer than would be the case without the change in rules. These policies are really risk-shifters. Government absorbs some of the risk of misjudging the future importance of the resource in question. Conservation has a cost, but perhaps the failure to conserve has a higher cost. It is a judgment call, and one to which resource economists want to contribute.

Both externalities and scarcity/time are boundary issues. They involve whose preferences matter in natural resource decisions. Decision and impact boundaries are a key precept of resource economics extension.



Valuation. A final distinguishing feature of our sub-discipline is that of inferred human value for different natural resource configurations. We begin with the notion that product and service markets miss some things in trying to judge utility. The assumption has to be that natural resources matter because people think they do. The endangered Kirtland Warbler nesting in the jack pine of northern Michigan is important only because people get some utility from knowing it is there. That is an assertion I would avoid in front of many audiences, and I do not wish to get metaphysical or philosophical about it. But policies and institutions are human creations responding to human values, even if that value happens to include the idea that human beings occupy a modest position in the natural ecosystem. The importance of all of this for resource economics extension is that public decision makers need useable information on the degree of importance people place on various natural resource systems. Further, in a world of limits, we need to know what people would be willing to forego on behalf of those natural systems. Decision makers, public and private, need help in choosing among services for which consumption is indivisible and rights are non-exclusive. Should the Great Lakes be sold to Texas? If not, why not? What are the implications of mining for oil in a remote wilderness area; what difference does clean water make to the economic climate of a state or region? The resource economist is expected to help in these matters.

Beyond these distinguishing features of the conceptual landscape, resource economics is undeniably a "point of view." Resource economists, practically by definition, care about different things than other economists care about (at least to a different degree). Economists are resource economists largely because of a personal interest in, even commitment to, certain natural resource values. Their interests are defined in selection of economic problems to study and clientele to assist. Conceptual content of our sub-discipline emerges in the effort by resource economists as people to be helpful about problems they care about. Other economists do the same thing, of course, but many won't admit it. There is no unity of thought or values in resource economics--policy prescriptions run the gamut from full public takeover, to emphasis on sharpening property rights and letting the market solve all problems. But there is general agreement that allocation questions affecting use of natural resources are more important than other questions.

#### Extension Programming in Resource Economics

The simplest and perhaps most accurate definition of resource economics extension is "extension work done by resource economists." But there seems to be an important distinction between those for whom extension is the key and others who are closer to the sub-discipline. That is, are you first and foremost an extension specialist, drawing upon any aspect of your disciplinary background to help a clientele solve a problem? Resource economics then is the instrument for successful extension work. Or, are you a resource economist who just wants to be useful? Perhaps the performance consequence of this distinction is negligible. I suspect, however, that programming priorities of the individual specialist depends in part on this distinction. Perhaps the mix is a function of where one is in a career. A new extension resource economist may be most concerned with feeding the disciplinary gods, and has little feel for the client-field staff-specialist system. I would hope,



however, that even the jaded old-timer who has satiated the gods of promotion, tenure, and fame will retain some loyalty to the sub-discipline. I can think of some who haven't, and some new specialists who never will. Alternatively, the mix may depend on your entry-point into resource economics. If you have a Ph.D. in forest economics or fishery economics, you will place greater emphasis on choice of the user than would be true if you come through a department of economics, agricultural economics, or resource economics.

Audience. Economics is the science of choice. The users of applied natural resource economics are primarily, I feel, public decision makers. They may be elected, appointed, or civil service bureaucrats. Their responsibility, though, is to render or facilitate judgments on conflicting uses of natural resources. Private decisions by farmers and other resource owners are involved as well. But resource economists concentrate on choices other than those of the firm managers. We usually leave those clientele to farm management specialists and other commodity or client-oriented extension educators. The major difference is that the manager of a private firm usually has a clearer vision of direction and purpose than does a public manager seeking choices responsive to a wide range of preferences. This distinction between private and public managers as the clientele for resource economics extension is not a sharp distinction, or an attempt to protect turf, but only to suggest emphasis. These public decisions may be made at the local, sub-state regional, state, multi-state regional, national, or international level. Their basic concern is--what are my choices, and what difference will one option make over another.

Content. Resource economics offers three major components for extension work with decision makers: a system of logic for understanding and organizing the choices; behavioral observations that will help predict how people will respond to changes in rights or obligations, and therefore how policy options perform; analytical tools to generate more precise answers to "so what" questions. Many in policy assume economists contribute only the latter--economics as the measurement of everything in monetary terms. This is the economist as "technician" in resource choices. My feeling is that the conceptual apparatus of economics is the more important contribution. Extension resource economists can help develop a pattern of thought in a public decision process that produces defensible decisions. The technician role of the extension economist can be accomplished with the familiar delivery techniques--publications and speeches. It is not easy. It requires doing the measurement research or digesting the research of others sufficiently to render it usable. The more conceptual stuff may require the resource economist to actually participate in policy decisions, to be there on a continuous basis to interact with decision makers. The ultimate goal is insidious--to get that decision maker to think like an economist. Alternatively, and perhaps more frightening, the resource economist might become a decision maker. Some have--the record is mixed.

Current soil conservation policy provides many examples of both technical and conceptual input by resource economists. The Soil and Water Resource Conservation Act (RCA) itself resulted in large measure from demands by budget people in OMB, GAO, Congress, and even the USDA for better



performance information on soil conservation investments. These were economic questions, requiring thought about opportunities foregone by investing in conservation at all, and how to generate more of this "good" called soil conservation from the budget available. The technical part is coming in the form of a sophisticated model to help measure the consequences of policy options. Both require extension skills to render the information useable in a decision process.

Similar examples may be drawn from policy processes for public lands, minerals, water allocation, and farmland retention at every level of government. The key point for this discussion is that the economic principles of resource valuation, scarcity, resource allocation in time and space, and, most importantly, institutions which define the options and guide choice among them are the essential substance of communication between the extension specialist and client.

Delivery. Beyond the why and the what of resource economics extension is the how. Techniques of delivery are similar to those of other areas of extension, with some differences in emphasis.

- (a) Writing. The pamphlet, brochure, or article works better for conveying technical results or for stating a position, than for influencing the structure and approach of the policy process. Written materials are essential, though, to build and sustain credibility. The client needs something to look at when you've left the room. The written stuff can be duplicated, distributed, and scrutinized. It can be a benchmark, or a point of departure for further educational work on a particular problem. It is difficult to move forward in a certain area when the only communication is verbal. There is even utility in occasional writing that is too turgid or obscure to be understood. We have to retain an air of mystery about economics or we may be ignored altogether. The AJAE is Exhibit A.
- (b) Consultation. There is probably no substitute for "being there" on a regular basis when the extension educator is assisting with policy design or implementation. I would recommend extended periods of immersion in a policy process--it facilitates natural resource economics education, and can generate all sorts of insights relevant to improving one's command of the discipline. To be really helpful, the educator must know the political environment relevant to the natural resource issue, be aware of where he or she fits in that environment and have the confidence and respect of the major participants. It is inevitable that the educator/analyst in such a position will be asked to give advice and even (perish the thought) take positions. In my opinion, the resource economist can and must do so while remaining professionally honest. The general role may be that of house skeptic, to inquire as to opportunity cost of a particular option, to ask how many units of that "good" are really worthwhile, what the distributional consequences might be, or what implicit logic underlies a particular proposal or line of argument.



What is Success? The flippant response is "survival." Extension specialists are acutely aware of the supply/demand relationship for educational material and the person delivering it. Unlike the classroom where demand is forced, extension education can be slow when only the educator shows up. The philosophical issue--is the message spoken, but not heard, written, but not read, really a message? While I recognize that process is not product, demand for services is a first-line indicator that either the content or the style is doing someone some good. What good, or how much is another matter. There is virtually no way to separate the educational component from other influences on a particular set of natural resource decisions. There are occasional indicators of impact--as when a decision maker cites research results or lines of argument produced by the educator in decision processes. Those impacts may not always be positive, as the educator defines the term.

In the absence of control groups to hold other decision influents constant, the best strategy for describing, if not measuring, success may be case studies. In the development of public land policy, for example, one might look for evidence of an understanding of comparative advantage, non-market valuation of resource services, distributional consequences of the options. That is, did resource economics, as a sub-discipline, contribute to understanding the questions and weighing the options? One could likely detect the absence of such insight.

### Conclusions

At the risk of repetition, or overkill, I offer the following conclusions about resource economics extension:

- (1) Resource economists have truly substantial contributions to make to natural resource decisions. I would even assert that decisions are "better" when resource economists contribute. Our discipline is robust, versatile, intuitively appealing, and mysterious enough to be credible. The rest is up to the educator.
- (2) Extension specialists in this or other areas of subject matter must take their discipline seriously. The professional extension educator should continuously reinvest in the sub-discipline of resource economics. The hazard of prolonged direct participation in a particular policy process or with a particular client is that one disinvests in human capital--cashes it in. Intellectual capital is presumably a renewable resource, within the exhaustible limits of a professional lifetime. It takes constant additions of other variable inputs like time for thought, reading, writing.
- (3) While I realize that the option may not be available to all extension resource economists, I suggest that every specialist carry an active teaching and/or research program to complement extension. I would suggest the same for teachers or researchers. There is real wisdom in the land grant model if allowed to flourish, even within a single individual.



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This workshop was organized by Professor Roy L. Carriger of the Cooperative Extension Service of the University of Florida (and the Extension Service of the U. S. Department of Agriculture). Professor Carriger provided the basic Resource Economics and posed questions for the workshop; then, by using the first three questions the participants natural to wildlife resources, he cleverly captured the scope. Each question is discussed in turn.

"Extension Economics—Public Policy, Department of Agricultural Economics, Virginia Cooperative Extension Service, Virginia Tech., Blacksburg, Va. 24061. Prepared for presentation at the 1984 Extension Workshop on Resource Economics held at Cornell University on August 1, 1984, as part of the 1984 Annual Meetings of the American Agricultural Economics Association. After the workshop, the author edited and made some additions to this paper.



(1) Journal of Agricultural Economics, Vol. 1, No. 1, 1930, pp. 1-10.  
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In the following list of references, the titles of the articles are given in full, and the volume and page numbers are given in parentheses.

(1) Journal of Agricultural Economics, Vol. 1, No. 1, 1930, pp. 1-10.  
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