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Realizing Your Potential as an Agricultural Economist in Extension

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FUTURE CONCERNS IN AGRICULTURAL ECONOMICS EXTENSION:

SOME METHODOLOGICAL ISSUES

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Cornell University, Aug. 3-4, 1984

Introduction

Future Concerns in Agricultural Economics Extension, especially those concerns relating to methods, is both a broad topic and not unrelated to the two preceding topics of problems and clientele. What I hope to do is to touch on some general factors that may well affect where we are now, and then relate those to methods. Our methods, whether used in extending economic principles useful in decision making, or research results, will affect, and are affected by, changes in our clientele. Hence, it probably makes little sense to talk about extension methods without also talking about changes in the demands that we face; and what those changes imply--if anything--about our methods. There is the rub: we must speculate on what these changes will look like (and economists' forecasts don't always have small variances!).

An extension economist's "bag of tricks" in some respects is made up of more dimensions than those of our research and teaching counterparts. We have to be concerned with teaching and other delivery methods, training and working relationships with county agents, and research results and methods as well. Putting myself in your place, I quickly decided that I would not want to hear some discussion of specific delivery methods (and neither do I want to talk about them). Instead I will try to concentrate on some fairly general methodological issues and hope that they stimulate some discussion.

Where are we as extension economists? Records maintained by USDA show the following full-time equivalent (FTE) personnel levels for Extension.

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* Comments on an earlier version are appreciated from Marc Johnson and Dan Sumner, Dept. of Econ. and Bus., N. C. State University.

Table 1.
Agriculture & Natural Resources

Year	Total Prog. Area*	Bus. Mgt. & Econ. No.	Bus. Mgt. & Econ. % of Total	Agr. Mkt. & Farm Supplies No.	Agr. Mkt. & Farm Supplies % of Total
1978	7,140.1	849.1	11.9	488.9	6.8
1983	7,418.5	781.0	10.5	403.9	5.4

Extension (All 4 Program Areas)

Year	Total Prog. Area*	Bus. Mgt. & Econ. No.	Bus. Mgt. & Econ. % of Total	Agr. Mkt. & Farm Supplies No.	Agr. Mkt. & Farm Supplies % of Total
1978	17,304.3	957.5	5.5	513.9	3.0
1983	17,318.7	878.5	5.1	435.0	2.5

*Totals across all disciplines

Source: USDA, ES, "National Summary of Extension Level of Efforts for FY 1983," administrative report (March, 1984).

Note that within the agriculture and natural resources program area, total FTE's increased from 1978 to 1983, but FTE's reported by economists dropped. The decrease in FTE's amounts to about 8 percent in business management and economics (which includes most farm management), and about 17 percent in marketing. (Similar declines of economists' FTE's were reported for all four program areas [8 percent in business management; 15 percent in marketing]). The effects on shares of total FTE's are shown in the table.

One might speculate on why these declines in agricultural economist FTE's relative to other disciplines. In addition, the larger decline in FTE's reported in the marketing and farm supplies category relative to business management raises an interesting question. It is possible that there are more private suppliers of information and educational services in the area of marketing than in business management (the latter clientele perhaps being made up of medium to small size farmers).

A few comments seem pertinent on the translation of perceived demand by our administrators for the services of economists. Given fewer dollars and the many demands faced by them, they must make hard choices on where to cut (or where to increase if more funding is available). They must, in effect, make decisions on marginal products of specialists in

different disciplines. Note from Table 1 that the total number of FTE's in agriculture and natural resources went up, but the number of economists went down! Choices were made. Branching out into new areas (eg., consumer economics and CRD) may not offset the declines in traditional agricultural areas if those newer areas are less politically organized than agriculture. And yet we do not want to be so closely aligned with a group that it continually attempts to dictate what we do. In any event, several interpretations might be attached to the relative decline in FTE's of economists:

1) Administrators correctly judged relative marginal products!?

2) Marginal products of economists are more difficult to guesstimate than others

3) Less political heat was applied (or felt) for more economist positions than expertise closer to production

4) Fewer economists are choosing extension, and budgets and/or egalitarian views prevent offering a relative wage sufficient to attract more economists

5) Reporting of numbers: economists may be increasingly assigned to more general, quasi-administrative tasks, hence forced to allocate less time to subject matter areas.(1)

The above items might be thought of as the obvious potential explanations of the declines in FTE's of economists. I would like to delve further into what may be taking place in both the demand and supply sectors of the "market" in which we operate.

Demand Shifters

One obvious potential demand shifter is the reduction in the number of farms, and that trend apparently is expected to continue(2). The increasing average size of farm may also affect the composition of demand for educational services as well as the level of demand. I am referring to effects other than the one we frequently hear, viz., growing farm size implies more complex decisions. Decisions may or may not be more complex, but resource constraints certainly shift out.

If we think in terms of a Beckerian production function with Schultzian arguments, i.e., farmers purchasing market inputs, and combining these with managerial skills, own-time, and family members' time to produce "commodities", then we may have some interesting and potentially opposing economic effects at work on the demand we face. On the one hand,

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(1) This explanation was suggested in the keynote address by Ratchford.

(2) For a discussion of types of farm-firm organization, and effects of changes in that distribution, see Breimyer (1976).

increasing income that is positively correlated with farm size may suggest increased demand for educational services stemming from the pure income or scale effect. On the other hand, if imputed wage rates are also increasing as farm size increases, then the cost of acquiring information and/or improving decision-making skills is also rising. As Becker (1965) argues, there is net substitution away from time inputs to purchased inputs if the substitution effect of a wage increase exceeds the income effect (for educational services). As the "full price" of a commodity consists of expenditures on goods plus the value of time entering its production process, increases in the real wage rate increases the price of time intensive commodities relative to other commodities (treating farmers' production of human capital as one of Becker's commodities)(3). Hence, the full price of acquiring Extension-taught skills and/or information may be rising relative to the prices of other commodities or inputs (including information from non-Extension sources). We would then expect substitution away from production of time intensive commodities (e.g., human capital acquisition from Extension) as well as substitution away from time-intensive inputs (some types of information supplied by Extension which may directly enter production functions).

This "higher price" may especially apply to our traditional delivery method of meetings. Both substitution and income effects may help explain the growing numbers of firms supplying information that once upon a time was pretty much available only from Extension. Firms may be more adept than we are at discovering and supplying information in forms that reduce the "price" to the user.

We might also wonder about the effects of rising schooling levels of farmers and farm families. These levels may be rising at a faster rate than the levels of Extension personnel. In any event, do rising schooling levels increase or decrease the demand for Extension-supplied information? How does it affect composition of information demanded? We might point to a number of potential effects, and we might also point out that individuals themselves are becoming increasingly capable of finding and using information from other sources.

Along with schooling effects on the demand for Extension services, what is likely to be the effect of growing numbers of part-time farmers (many of whom are employed off the farm)? Along with potential wage and schooling effects on the demand for Extension services, this group may comprise a very difficult one to schedule for more traditional delivery methods. Hence we may have to explore more electronic and written delivery methods that individuals may use on their own without "live" instruction.

There really is no reason to expect people to react any differently to changes in relative prices of educational services than to changes in

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(3) What we really want in the production function is a measure of flow from the farmer's stock of human capital. The production of human capital stock, however, might also be viewed as a commodity, but one from which flows will be used in later production. The arguments would follow even if we treated Extension educational programs as a direct input.

relative prices of other goods and services. Sizes of responses, of course, will differ, but economic theory applies. Given the rising price of time, we might think of ways of delivering our output that reduce the recipients' time required to acquire that information. And have Extension economics specialists compared different teaching methods to learn something about effectiveness, as our teaching counterparts have done, and are doing? Too often we give the impression that we already know the best teaching techniques!

Now let's return for a moment to the demand for extension economists. As we know, the demand for our services is derived from the perceived marginal product of our output that enters various ag-related farm or household production functions. To the extent that there are competing suppliers of information and educational services, in aggregate, this may mean that the value of our marginal product is reduced, and will continue to be reduced, by more firms entering this market and/or improving their products. This may be especially true if firms are providing information in forms that require either less time of the "buyer," or if it allows the buyer to choose when he uses the information. This idea would seem to be especially applicable to transfers of information that becomes quickly dated as opposed to the teaching of decision-making principles and use of tools. Would simple-to-read brochures, trade magazine articles, and radio-TV spots on income tax changes, for example, reach more people and/or have a greater total effect than a series of meetings? And with VCR's becoming so common, what about taping principles-oriented sessions before live (hand-picked) audiences and developing a TV cassette library?

Supply Shifters

In this section I make no claim to discuss all possible factors affecting the supply of our output, or even most of those factors. Instead, we pick up again on a Becker-Schultz production function representing our production processes, and see what insights it might offer. Represent that function as the following:

$$Q_{ES} = \phi(K, T, Z_1),$$

where Q_{ES} is our output of educational services, and inputs are flows of capital services from our own stock of human capital (K), time (T), and other "purchased" inputs (Z_i).

If we want to talk about increasing our marginal product, how might we proceed? I will propose the following methods, and then briefly discuss them.

1. Increasing our own stock of human capital
2. Allocating more time to highly productive tasks.
3. Using more complementary inputs in the "Z" category.
4. Improved estimates of our output

Regarding our own stock of human capital as an input, few will argue that this is important: it is what a University is all about. Yet given the nature of our work, our stock may well be susceptible to more rapid depreciation than that of our research and teaching counterparts. Hence I would argue that we should invest more than we currently are in maintaining and building our stock of human capital. We might do so by more frequent study leaves, more self-study, and/or more involvement in applied research. Others in this workshop have addressed investing in our own stock of human capital. The only thing I would add is that if it is costlier (time to rebuild programs after a leave, etc.) for us to take study leaves than for our research/teaching counterparts, then perhaps more financial incentive should be offered the extension economist.

Involvement in applied research may well serve a dual purpose. Applied research results might well be thought of as another of the inputs (one of the "Z's") in our production function. At the same time, involvement in applied research (especially with research staff and graduate students) will keep us closer to more recent developments in both analytical techniques and empirical results. Hence, there is an element of human capital acquisition and/or maintenance accompanying such involvement, and it may generate research results more applicable to the problems that we are addressing in the field. Thus the research output is, or can be, a complementary input to our other inputs. Those are precisely the types of research problems that we should look for, and bring back to campus(3).

I am convinced that the research base of our profession and University appointments is the single most distinguishing characteristic of our position. It is central to the land-grant concept. It is here that we have a comparative advantage over other "information" suppliers, and this comparative advantage may become more important in the future. This is not an argument for all extension economists to "do research," but many of our job descriptions and job demands would not only allow it, but probably benefit from it.

Many departments already encourage extension involvement in applied research work. I think we have found that this encouragement is not only

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(3) The charge is sometimes made that researchers have gotten "less applied," or worse "aren't doing anything useful." I do not buy that, but if there has been movement to a mix that includes less applied research, we as extension economists are perhaps as much to blame as researchers. They probably should not allocate all their time to very specific commodity problems. However, if we bring back an idea, generate some interest, and if necessary write a proposal and it gets funded, then look at the resources we have purchased. The internal research market will work! I have ridden herd on a project worth about $188,000 over a four-year period. We have had ag. research staff release time, a full-time post-doc., partial release time of a biomathematician, release time for a faculty member in our department with a humanities appointment, and two of my Department's best Ph.D. students working on this project. Folks, it didn't just happen; there are no free lunches!

helpful, but may be increasingly necessary to attract bright, well-trained economists into the profession. We may also have to do a better job of convincing our administrators on this point. Short run goals of "visibility" may have assumed too much importance, and too frequently that visibility may be overly narrowly defined. It sometimes appears that the desire simply to have someone out on the road is the goal itself!

The second item above--allocating more time to more productive tasks--is fairly self-explanatory. However, note that how we each allocate our time depends upon both our individual skills and interest mix, and the demands and incentives that we perceive to be operating. If many demands placed upon us are inappropriate and/or unproductive, then we should learn to say "no" occasionally. Perhaps the best way of saying this is that we may need to do a better job of showing clientele and administrators what it is that we do best. This statement does assume that we know what our relative contributions are. We might also avoid very many one-on-one delivery methods.

Extension does, it seems, require a lot of time in reporting and planning--far more than required of research/teaching staffs. That obviously reduces time in our production function that is allocated to other tasks. Finally, if we do not have pretty good ideas about our relative productivity in different tasks, then perhaps some additional evaluation is justified.

The third method that we might examine for increasing our output is the use of more complementary resources, especially those that free up time for more productive uses. Compare the capital and staff per specialist in many production departments with the ratio in your own. Increasing staff positions relative to specialists, or Master's to Ph.D.'s, is worth considering. Many of us perform tasks (e.g. budget preparation and some meetings) that do not require a Ph.D. As an example, North Carolina's very active youth economics training program--started years ago by John Ikerd and Bob Dahle--does not require a Ph.D.-trained individual to operate, but it does require an individual trained in economics and willing to travel. The program has been operated and expanded by Bob Usry, who is doing an excellent job. Bob has a Master's from our Department and is a specialist. Data and computer programming assistance are other examples where staff support is of a complementary nature.

We should perhaps look at areas in our departments where a Master's is more appropriate training than a Ph.D. However, these are not costless activities as there are budget and other restrictions on positions. A longer-run possibility is to request an occasional new nontenured position from state and local funds for staff support.

We would also include in the category of using more complementary inputs the hiring and/or training of agents in economics. A well-trained agent who can conduct his own meeting frees up a lot of specialists' time for producing output available to a much larger group of people than just those at a given series of meetings. That training and confidence of an agent would quite likely have a very positive effect on his (or her) rapport in the local community. We (including our administrators) should both encourage and expect more subject matter involvement of agents.

This past spring I presented a cash flow analysis of a relatively new seafood enterprise in North Carolina--shedding hard crabs for the soft-shell market. Over 250 people showed up on the Saturday of the ACC basketball Tournament semi-finals, and stayed there all day. One of our Sea Grant agents, who has an MBA, took my computations (for which he supplied input) and has since included the cash flow analysis in every workshop run since that original one. However, if we are to attract agents to work with economic concepts, financial incentives may well have to be adjusted.

The final method that we might use to enhance our output (and perhaps numbers) is to improve the estimates of that output (Easley, 1983). Each of us has a pretty good idea of how to best spend our time, but do we really have much of an idea of the effects on, for example, farmers' income or costs from a particular program that we run? While I am not advocating that each of us do more evaluation, some improved measures could be very helpful. A few studies might be designed to try to isolate Extension's effect on farmers' income and/or cost streams. However, these effects are both difficult to measure and costly. The effort required might be on the order of that required earlier in isolating labor force participation and work-time effects of a negative income tax. These are not the types of evaluations that should be expected of specialists and agents. Beyond better accounting of inputs and outputs, it is not clear to me that more evaluation by specialists and agents will have a positive payoff.

Concluding Remarks

I sometimes think that what has been happening to Extension and public schools have much in common: declining real wages, more "teacher" training in general education (or process) than in basic skills, and falling "output" as measured by various achievement tests and SAT's. These have all been given much press as part of the problem with our public schools. Some of them apply to Extension, especially perhaps the earlier trend toward general education training for advanced degrees pursued by agents. We now seem to be moving toward attracting brighter teachers who are better trained in basic skills for our public schools. This is what I have always argued that public schools should be about, and I suppose I am now arguing similarly for Extension: let's improve our skills, stick to those activities in which we have a comparative advantage, and see if "output" doesn't improve.

I would also argue that we should act more like economists and less like the teacher who has presented the same material for years. I believe that we should be fully integrated into the University, especially with our research colleagues. That line of reasoning extends to professional activities as well: I for one am uncomfortable with what amounts to arguments for our own journal, too many separate sections within AAEA, and the like. An occasional meeting such as this one may well be a good idea, but I hope that it does not become an annual affair. We might instead look at potential applications of research results and models developed in the papers presented in the upcoming sessions, and then how those might be used in our own work. We might, in fact, argue for some

"research" sessions in the AAEA meetings to include discussion of applications where they do not already do so. Research results are, after all, one of those "other" inputs in our own production function, and the scientific foundation of our profession. R. J. Hildreth (1976) said it very eloquently:

> "Certain Extension professionals have a rare combination of gifts. They reach a high standard in several different directions and combine talents not often found together. They understand the details and symbols of their scientific field and speak in terms of the general--they touch the abstract and concrete in the same flight of thought. They understand the present in the light of the past for the purpose of the future. They perform with scholarship, a scholarship useful to citizens and respected on the university campus."

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