FINANCING AGRICULTURAL ECONOMICS RESEARCH AND EXTENSION IN THE SOUTHERN REGION

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Each year, heads of agricultural economics departments meet to discuss mutual issues related to our teaching, extension, and research programs. A major continuing issue is our portion of research and extension funds—with a natural suspicion that we are not being allocated our "fair share." An additional, and perhaps larger, concern has arisen in the last few years as we recognize the apparent movement toward increasing use of competitive grants for funding agricultural research. It is not the grants idea that concerns us as much as it is the research areas which have been developed and/or may be developed within which we must make our proposals.

Each department in a university draws its sustenance from the same pie. Each is concerned with the size of the pieces devoured by animal science, crop science, and the others. The following comments relate to both share and "pie enlargement."

I cite some of the pertinent literature on this subject, review some federal legislation having a bearing on the topic, discuss some data on historical trends, comment on the possible reasons for the apparent trends, examine the competitive grants issue, and speculate a bit about the future.

SOME PAST WORK

Concern about agricultural economics' apparent decline over time in its share of experiment station and extension service funding is not new. Our friends in CSRS (now CR)—Glenn Smith and Lloyd Halvorson [1, 6, 7]—pointed out this phenomenon. Smith [7] enumerated the many federal acts which were supposed to encourage social science research and went on to show that agricultural economics research as measured by SY's had not grown in a relative sense. For example, he noted [5, p. 5] that the number of agricultural economists receiving station funds was 11.0 percent as large as the number of SY's in the biological and physical sciences in 1940-41, but the proportion was only 10.8 percent in 1970-71.

Halvorson [1, p. 18] summarized his concerns about the funding situation as follows.

> "It is paradoxical that in spite of the growing importance of economic problems in our society, and in spite of research legislation emphasizing the importance of socio-economic problems, budgets of agricultural economics departments have not increased relatively. They have been nevertheless forced by the necessity of the times, to take on new problem areas outside of commercial agriculture.
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> "I should point out that the 20 percent Hatch marketing requirement resulted in some grotesque distortions of research programs of agricultural economics departments. These could largely have been avoided had funds for farm management, land economics, and rural development been increased in line with needs. However, this would have meant a larger share of station funds for economics."

Halvorson's thesis is that funds for increased research in marketing, natural resources, and rural development have been squeezed out of funds which should have been used for research on the economics of commercial agriculture. There seems to be some evidence to support his thesis.

FEDERAL FUNDING

Federal funding for experiment stations and extension services is important. Approximately one-fourth of our research funds are from federal sources and about one-third of our extension funding comes from the federal government. Thus, it is important to consider federal funding in considering our past and future resources.

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A comprehensive review of federal legislation as it relates to economics research and extension is not attempted here. The reader is referred to Smith's [7] paper and to Knoblauch, Law, and Meyer's [2] report for more complete treatments of the subject. A brief summary follows.

1. The Purnell Act of 1925 and the Bankhead-Jones Act of 1935 specifically mentioned the need for expanded socioeconomic research.
2. The Research and Marketing Act of 1946 required that at least 20 percent of annual Hatch appropriations be expended for marketing research. This requirement is no longer in effect with passage of the Agricultural Act of 1977.
3. Beginning in 1970, and formalized with the Rural Development Act of 1972, Congress authorized added expenditures for rural development research and extension.

There is no doubt that marketing research in agricultural economics departments was increased relatively as a result of the Research and Marketing Act. Likewise, there is no doubt that rural development research was increased in agricultural economics departments with passage of the Rural Development Act. What is in question is whether total funding (or share of total funding) going to agricultural economics departments increased as a result of this legislation and whether, given time to adjust, the shares of agricultural economics departments' budgets allocated to marketing and rural development activities were changed appreciably by these acts.

I believe that agricultural economics departments swung back to more farm management work a few years after passage of the Research and Marketing Act. Further, I believe that they have moved back toward more work on commercial agriculture and less on rural development as years have passed since passage of the Rural Development Act. Data for this position are incomplete, but my experience at NCSU and observation at VPI support the contention.

Before further speculation on why agricultural research and extension expenditures have behaved as they have, it is useful to examine a few data.

THE DATA

Background data on what has happened to the share of research and extension expenditures going to agricultural economics departments are sparse. Departments have been split, combined, and split and recombined; new departments have been formed, and different ways of reporting expenditures have been adopted—all in the space of just three decades. In many cases, the data have been discarded.

With only minor adjustments, data were obtained on total expenditures in the 13-state southern region for state experiment stations (SAES) and state extension services (CES). These data are supposed to include all expenditures—federal, state, and grants and contracts. These data also were available by subregions but not for the individual states and for the individual departments.

The CRIS system did not begin until 1966, but it was used to run a check on other data from the departments. With the fine cooperation of CRIS personnel in Washington, expenditure data by field of science 2630 (economics) for fiscal 1977 were retrieved in the hope of adjusting and making a comparison with my fiscal 1978 data. Results are in Table 1. Obviously, this procedure did not work. If all economics department research and only economics department research were reported as 2630, the ratios in the third column should be about .90 or slightly higher to account for increases in expenditure from the 1977 fiscal year to fiscal 1978. In only two of 13 states is this the case. In most states, a great amount of research carried out in other departments is coded as 2630. Whether this is as it should be is perhaps a topic for another study.

TABLE 1. AGRICULTURAL ECONOMICS DEPARTMENT RESEARCH EXPENDITURES (1977-78) AND CRIS RETRIEVAL OF EXPENDITURES ON FIELD OF SCIENCE 2630 (1976-77) BY STATES IN THE SOUTHERN REGION

State	Ag. Econ. Dept. expenditures	2630 (Economics)	Ratio 2630/A.E. Dept.
	($)	($)	
1	722,004	1,172,992	1.625
2	585,795	886,420	1.513
3	622,228	561,302	.902
4	665,746	1,468,881	2.206
5	1,759,544	1,262,298	.717
6	590,333	1,115,617	1.890
7	1,794,161	1,690,362	.942
8	543,504	743,225	1.367
9	622,120	832,220	1.257
10	558,575	752,863	1.348
11	1,017,466	2,435,469	2.394
12	549,365	808,760	1.472
13	705,780	1,286,381	1.823

Data in Table 2 and 3 were derived from the regional data and data on department expenditures furnished by department heads. For only seven of the 13 states were complete data for research obtained (Table 2). Taking the simple average of proportions of SAES funds expended in the agricultural economics departments, one can discern a slight downward trend over the 30 years. Most of the other six states seem to exhibit the same trend. Unfortunately, similar data for other departments in schools of agriculture were not available and it may be that the same trend has occurred for, say, animal science and crop science departments. Costs of operating experiment station farms and administration, to name two categories, are included in the total figures for each state, and these costs seem to have risen as a proportion of total expenditures.

TABLE 2. PROPORTION OF STATE AGRICULTURAL EXPERIMENT STATION FUNDS EXPENDED IN AGRICULTURAL ECONOMICS DEPARTMENTS

State	Fiscal Year			
	1947-48	1957-58	1967-68	1977-78
1	NA	NA	NA	NA
2	.067	.078	.072	.063
3	NA	.082	.072	.068
4	.094	.082	.033	.039
5	NA	.081	.067	.068
6	.144	.037	.038	.063
7	.033	.046	.075	.043
8	.051	.088	.082	NA
9	.027	.053	.061	.054
10	.064	.049	.045	.035
11	.040	.054	.049	.027
12	NA	NA	.063	.052
13	NA	.052	.054	NA
Average[a]	.062	.057	.053	.046

[a]Simple average of ratios of seven states with complete data.

Unfortunately, the data on extension expenditures are even less complete (Table 3). No trend can be identified from these limited data. Obviously better and more complete data are needed.

The numbers seem to indicate some decline in agricultural economics' "share" over time. The significance of the decline is difficult to evaluate. But why has the share not increased over time, particularly in view of the apparent trends in legislation and general public feeling that socioeconomic problems are becoming more important?

Many hypotheses can be posited. One could argue that most administrators come from

TABLE 3. PROPORTIONS OF STATE EXTENSION FUNDS EXPENDED IN AGRICULTURAL ECONOMICS DEPARTMENTS

State	Fiscal Year			
	1947-48	1957-58	1967-68	1977-78
1	a	.026	.027	.029
2		.035	.033	.022
3	.033	.038	.027	.024
4			.028	
5			.034	.025
6				.024
7				
8	.017	.008	.016	.034
9		.044		.021
10			.028	.023
11	.010	.008	.013	.015
12	.023	.035	.186	.108
13				

[a]Blanks represent missing data.

technical agricultural disciplines and have relatively little understanding and respect for our research. Perhaps the hypothesis could be tested by looking at all the states. My guess is that it would be rejected.

Another hypothesis strikes me as more valid. Ruttan [5] supports this idea in examining the larger question of support for research. He says [p. 12]:

> "...both consumers and producers tend to support those agricultural research activities with which they have the most direct contact. The relatively sophisticated arguments based on relative shifts in demand and supply functions and on changes in producers' and consumers' surplus have apparently been difficult to translate into a language that generates political support from organized producers or consumers."

Simply stated, Ruttan's notion is that swine producers support swine research, soybean producers support soybean research. To the extent that our research and/or extension programs are closely identified with some of these clientele groups, we may have shared in increased state appropriations for research. As federal funding falls as a proportion of total funding for states, as it almost surely will, this problem becomes increasingly important. If this hypothesis explains a significant proportion of our inability to maintain our share, we may need to reexamine our status with respect to our commercial agriculture clientele.

With respect to research and extension activities in relation to natural resources and

rural development, we may be in a better position. Yet the groups interested in these areas of extension and research do not seem to have reached substantial political effectiveness when it comes to generating funds for research. They have many conflicting interests and are generally held together by only thin threads of common goals.

Finally, we should note the large differences in ratios of agricultural economics to station research among the states. Perhaps we could examine differences among these departments with respect to involvement with production disciplines, international activities, and the like to explain some of the variation. This may be a useful undertaking (but a very complex one) for some other investigation.[1]

WHERE DO WE GO?

Agricultural research in general has come under heavy criticism in recent years. The criticism has ranged from the blasts of *Hard Tomatoes: Hard Times* to the more scientifically persuasive arguments of the Pound Committee appointed by the prestigious National Academy of Sciences [4]. Their report contains many recommendations that have generated much dispute. At least two trends appear to be developing, in part, from this report. One is an increasing emphasis on "basic" research on the part of the national funding agencies. The second is a definite move toward use of competitive grants in allocating research monies of the USDA. These trends seem to be a little worrisome, if not downright menacing, with respect to research in our discipline.

Without engaging in argument over the correct meaning of "basic" research, I think it is fairly clear what was meant by the term in the "Pound Report." The committee means research on photosynthesis, nitrogen fixation, animal nutrition, genetics, and the like. I doubt that they meant research on better econometric modeling. To the extent the committee would consider basic research in the socio-economic areas, I suspect they would be more interested in the psychological roots of human behavior.

My interpretation is, of course, based on the topics chosen for emphasis in the Competitive Grants program of the USDA. Proposals have been requested in the following areas.

1. Biological nitrogen fixation.
2. Photosynthesis.
3. Genetic mechanisms for crop improvement.
4. Biological stress on plants.
5. Human requirements for nutrients.
6. Behavioral factors affecting food preferences and buying habits.

The imaginative economist might, with effort, develop proposals in the first five of these areas. The sixth area does provide some opportunity for proposal submission for our profession.

Apparently our discipline has been unsuccessful in getting its topics on the research agenda. I have no ready answer for how to do so. We must give more thought to what topics are important and to how to get these topics in front of persons who set the priorities.

The move toward competitive grants as a vehicle for allocating research resources means that these funds can be directed to scientists in any department or any university. Theoretically, this approach does allow the utilization of the best available human resources on these important topics. However, most of us familiar with and impressed by the Land Grant College system of research are fearful that the continuity of research under the present system could be lost with competitive grants.

The trend toward emphasis on "basic" research may be reversed later, just as it has been in the past. In the meantime, "basic" research holds sway, and this fact cannot be to our advantage. It also seems likely that the trend toward "basic" research at the national level will be detrimental to funding for all extension work—not just agricultural economics extension.

IMPLICATIONS

Three implications can be drawn from the preceding discussion.

First, federal funding as a source of our research and extension dollars surely will decrease—at least as a proportion of our total resources. General pressures on the federal budget and increased use of competitive grants both will tend to bring this about. Perhaps we can adjust to this situation by adapting somewhat to the topics and procedures of competitive grants. In the main, however, I believe less reliance will be placed on the federal government (at least USDA) as a source of our funds.

Second, state funding for our research and extension programs probably will not grow as

[1]Another hypothesis as to why our share has decreased is that agricultural economics departments have had many vacant positions. Perhaps they could not expect to receive new positions with that many vacancies. I believe there is validity in this idea, but I do not have the data on relative numbers of vacancies by discipline over time from which to draw conclusions on this point.

fast as the cost of doing business. This possibility is particularly troublesome if the first implication holds. The Proposition 13 mentality is dominant at the present. Also, there are many competing uses of our states' resources, and new competing uses seem to develop each year.

There are notable exceptions in some states, but, as a profession, we have not been very successful in generating new state funds for our departments. We may be able to generate more state funds through closer involvement with some of the important commodity groups in our states and by demonstrating our abilities to make contributions in solving their problems.

Third, we must sharpen our skills in grantsmanship if we expect to maintain or expand our programs. Some departments have been reasonably successful in this regard, at least in terms of quantities of money. However, trying to expand monies and programs by this route involved two major problems. The first is that we may not be choosy enough in picking our projects and our fund sources. Grants are useful if they complement existing programs or if they let us embark on new programs—new programs that fit the long-term objectives of our departments. There are many sources of funds for grants and contracts but, if we are not selective, these funds can direct our programs.

A second point to consider is the costs associated with obtaining funds.[2] Some grants of $5,000 take a month of effort to obtain, and reporting results also is time consuming. Other small grants take a few hours to write up, and reporting is simple. Generally, I prefer to ignore the smaller grants and concentrate on those of $20,000 or more, but that generalization does make me a little uneasy.

I conclude by suggesting that prospects for growth in real funding by states and the federal government are dim. We must exert extra efforts to do good research and extension and to let the right people know of this work if we are to keep from losing even more of the probably smaller pie. Outside funding will become even more important to all of us, so we must learn how to live with this trend and how to capitalize on it.

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[2]An interesting commentary by Leopold [3] on the total costs of grantsmanship appeared in the February 1979 issue of *Science.* He attempts to quantify these costs, and his ideas are in line with my concerns.