

Structural Change in Higher Education: Implications for Agricultural Economics Academic Programs

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Abstract

Major changes affecting Agricultural Economics include: level and sources of funding, increased accountability, a renewed emphasis on teaching, increasing university and college linkages, an evolving student base, and the continuing adoption of educational technology. Major implications include: broader faculty teaching involvement, agribusiness program development, expanding multidisciplinary majors, Ph.D. program modifications for teacher preparation, expanding professional M.S. degrees, graduate program size and specialization reductions, alternative financing of graduate education, and faculty training in teaching methods. Teaching represents a major growth opportunity for Agricultural Economics, but it remains to be seen whether the discipline takes advantage of this opportunity.

Key words: agribusiness, accountability, funding, environmental, undergraduate, graduate, multidisciplinary, portfolio

Substantial change has occurred in Land Grant Academic Programs over the last 8-10 years. This has affected the number and types of majors, general education requirements, admission and graduation requirements, funding of programs and services, faculty development activities, teaching evaluation, computer technology, etc. The impetus for change has come from diverse sources. They include:

1. General writings such as *The Closing of the American Mind* by Bloom, *Higher Learning* by Bok, *College: The Undergraduate Experience in America* by Boyer, and *Agriculture and the Undergraduate* by the National Research Council;

2. Declining enrollments;
3. Adjustments to declining budgets (in real and nominal terms); and
4. Changing societal values toward education and higher education.

Agricultural Economics (AEC) has been responding to these changes, and probably faces another 5-8 years of major adjustments. Its future, as an applied discipline, will be shaped by its response to these changes. To date, its track record has been mixed. While many AEC faculty and chairs perceive that their academic programs are strengths in formulating future agendas, they have not always capitalized on them.

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Changes in Higher Education Impacting Academic Programs

The following appear to be some of the major changes affecting Academic Programs:

Funding

Funding for Academic Programs declined in recent years at most public institutions because of state budget cuts mandated by a national recession, particularly affecting the public sector; shifts in various federal programs to the state level for funding during the Reagan years; competing demands within the state budget for prisons, social programs, medical programs, environmental protection, economic development; declines in agricultural college enrollments, etc. Budget cuts are not a thing of the past, since the recent recession is still affecting state funding, and colleges are still grappling with personnel cuts and how to restore acceptable operating budgets.

Legislatures tend to value academic programs more during difficult times, and less during expansionary growth periods. Viable teaching programs which maintain student credit hours and enrollments can be expected to fare better in the future than those with declining ones.

Teaching is becoming relatively more important as a source of funding for AEC. As enrollments stabilize and/or expand, AEC teaching programs are becoming increasingly important in agricultural colleges. AEC funding for teaching can be expected to be cut less, or expanded more than other units if faculty respond appropriately.

At the same time, Agricultural Experiment Station (AES) budgets may grow less rapidly or decline relatively more than those for AEC Academic Programs. The biotechnology and environmental areas have stronger support among AES Directors than the rural social sciences. In some experiment stations, AEC departments are perceived as having devoted less attention to multidisciplinary relationships and state applied research needs than desired. Agricultural Economists also appear to believe in SAYS Law (the

supply of AEC research creates its own demand)! However, AES funding will continue to provide the largest "hard money" support for most AEC units.

Unfortunately, the Cooperative Extension Service (CES) is becoming the most vulnerable of all program areas to fund with state legislatures during these trying times. Whether or not AEC captures an increasing part of a less certain CES resource base depends upon how much it wishes to merchandise itself as an applied social science department and work in agricultural *and* nonagricultural areas. Potential growth areas such as youth, community and rural development, leadership development, natural resources, etc., may require a different AEC program emphasis to compete for CES funds. This is not to say that AEC should greatly deemphasize its traditional agriculture areas. However, it will have to be more concerned with achieving balance between its rural social science versus a more narrow economics focus, and its agricultural versus nonagricultural emphasis.

Tuition changes are increasingly scrutinized by legislatures and the general public. As a consequence, selected user fees are being instituted to generate needed revenues (for teaching and extension). They are being used to help defray lab, computer, field trip, and other unit costs.

Finally, one should expect increased designated funds from state legislatures and federal programs. The tendency to micromanage is almost irresistible for public figures during lean financial times. This will limit the programming flexibility of AEC units.

Accountability

Academic programs are increasingly accountable for actions, outputs, and use of public monies. Accountability measures range from those for the individual (evaluating, rewarding, and penalizing individual teaching performance), to dropping courses and majors with small enrollments/demands. Some states are considering dropping individual majors if insufficient graduation rates and student credit hours are not maintained (averaging 5 graduates or 500 student credit hours per year over a five year period are most commonly

being mentioned). One state is even considering requiring a certain number of hours in the classroom! Legislatures are basically reflecting public attitudes pertaining to higher education. Whether we like it or not, a university professor is largely viewed by the public as enjoying considerable freedom with minimal demands on his/her time for teaching. Unfortunately, the relationships between professor hours spent in the classroom, hours spent in court by a judge, or hours spent in pulpits by ministers and their other time demands are seldom understood by the general public.

Teaching Emphasis

A renewed emphasis on teaching for college faculty continues to develop. One only has to look at the *Chronicle of Higher Education* to see the latest attempts by some universities to enhance teaching programs and faculty performance. The increasing teaching emphasis does not appear to be coming at the expense of research or public service. Instead, faculty are expected to maintain their other scholarly outputs and do a better job of teaching in the process!

The jury is still out as to whether or not the rewards and incentive structures of universities will be substantially changed to place relatively greater emphasis on teaching productivity. Legislative and public pressures are being brought to bear on University Presidents, Provosts, and Deans to be more efficient and productive in the utilization of teaching resources. A major problem, according to some agriculture college administrators, has been the AEC faculty view of the lower worth of instruction (and extension) versus research.

University and College Linkages

Intracollege and intrauniversity relationships continue to increase. As evidence of the growth in these linkages, one only needs to look at increased agricultural faculty participation in university honors colleges, general education courses, and multidisciplinary majors (environment management, agricultural production systems, or public resource management). General education

requirements have been increasing, university tenure/promotion committees are becoming more assertive, and sponsored research offices are becoming more influential. AEC has historically had great latitude in the independent functioning of its Academic Programs. However, they may be increasingly linked with other programs in the university and in the College of Agriculture, depending on funding incentives and AEC leadership.

Student Base

The AEC student base continues to change. Graduate enrollments draw heavily from international students. Most departments deplore the lack of an adequate number of U. S. students applying for admission to their graduate programs. Of the U. S. agricultural students, an increasing percentage has come from nonagricultural college backgrounds.

At the undergraduate level, the student population base continues to evolve from a historical male, white, rural, and agrarian base, to one which is more nearly approximating the general population. Minority students, females, and students from urban and suburban backgrounds continue to increase in AEC programs. With a declining farm and rural population, this should not be surprising.

With the continuing population growth many states are experiencing, AEC is also somewhat evolving into upper division programs, and depending more on community colleges to handle the lower division education.

Enrollment in the agricultural business and management group, as reported by FAEIS, declined almost 20 percent from 1984 through 1988-1989. Enrollment has rebounded since 1990, both nationally and in the southern region. For the past several years, agribusiness and management enrollment in the southern region has been increasing more than that nationally. AEC related majors continue to be one of the large enrollment areas in most Colleges of Agriculture and Natural Resources.

Undergraduate AEC majors, particularly agribusiness, have the potential to grow because of:

1. Enrollment constraints in other university colleges (particularly the College of Business),
2. The historical accessibility of teaching faculty and advisors to students,
3. The AEC applied orientation,
4. A good scholarship portfolio,
5. Employment markets which are perceived to be relatively stable compared to many other areas of the university, and
6. Improved recruiting techniques at the department and college levels.

At the graduate level, enrollments tend to be remaining somewhat stable. This reflects a declining U. S. graduate student enrollment (probably because of reduced AES funds) and an increased international student base. International students have helped maintain many graduate programs, because students bring their own funding sources to the U. S. A relatively untapped source of domestic graduate students has been the minority population.

With the likely student outlook, are AEC departments prepared to accommodate an upsurge in undergraduate enrollment? How will it be accommodated? How will it change the character of the department?

Technology

Despite limited budgets, new technology continues to be adopted in Academic Programs. Computer laboratories at either the university or college level are increasingly becoming the norm. Multi-media teaching laboratories are beginning to come onto the scene. The National AG SAT program is becoming established, although it is still not well institutionalized in agricultural colleges. Finally, distance learning continues to evolve as AG SAT, fiber optics, and other technology develops. The full implications for off campus teaching are not clear, although it will expand.

Despite the continuing influx of educational technology and innovative technology approaches in teaching, there continues to be differential usage among faculty. Its full potential has not yet been fully realized.

Implications for Agricultural Economics

The proceeding changes have major implications for AEC academic programs. The likely outcomes are dependent on the responses of AEC chairs and faculties. The following list details some of the most provocative courses of action which AEC should consider.

Broader Faculty Involvement in Undergraduate Education

The demand for AEC teaching services likely will grow faster than those for research or extension. Teaching programs constitute a growth area for many departments. In order to accommodate this growth, there will have to be increased research faculty participation in the undergraduate programs. Program growth cannot be handled through placing additional burdens on undergraduate teachers, involving more extension faculty, or through hiring new faculty. Alternatively, research faculty should not necessarily be dismissed from undergraduate teaching when they become full professors! This does not mean that research faculty have to greatly curtail their current grants programs, which are financially important to the department. Indeed, teaching one undergraduate course per year should not be a major sacrifice for research faculty!

By making short run commitments to teaching, additional faculty positions will be generated in the longer run. The departments will also occupy a more prominent position in the college and on the campus.

Agribusiness Emphasis

AEC needs to finish getting its act together on agribusiness programs. This is the major teaching area in the department, and the major growth area. Serious consideration needs to be given to the following:

1. Colleges of Agriculture can no longer depend on Business Colleges for all business courses. Some primary business courses should be added to the agribusiness program! This might include such courses as agrisales, labor and personnel management, and strategic market planning. The national reputation enjoyed by Dave Downey at Purdue for his agrisales course needs to be noted.
2. A significant food distribution component should be included in many agribusiness programs, in addition to the emphasis upon production agriculture, input supply sectors, and agricultural marketing. The success of the Cornell and Michigan State food distribution undergraduate programs should be noted.
3. Appropriate service courses and minors should be provided for other College of Agriculture majors. The service courses need to have minimum prerequisites. If not provided, business options will continue to proliferate other college programs, and AEC will be blamed for their inadequacies by employers! If AEC doesn't take care of business, other units will.
4. More linkages between undergraduate agribusiness programs and graduate AEC programs need to be developed in such areas as courses taught, thesis research, external courses, etc.

Multidisciplinary Majors

A recent paradigm survey of agricultural economists, chairs, and deans revealed some issues with respect to the appropriate focus of undergraduate majors. Major issues pertain to whether majors should emphasize agribusiness, applied economics, applied social science (community development, public policy, etc.), multidisciplinary majors (environmental management or agricultural production systems) or some combination for an individual department. It

appears that the profession supports the paradigm of programs with a broader definition rather than historical programs.

The survey on undergraduate paradigms indicated a significant willingness on the part of AEC to devote teaching resources for participating in multidisciplinary majors such as environmental management, public resource management, agriculture production systems, etc. The national number of interdepartmental majors to date does not appear to be large. However, this represents a target of opportunity for AEC. In most instances, limited faculty will be involved in efforts which may generate significant credit hours and/favorable images for the department.

Content of Ph.D. Programs

An AAEA survey conducted several years ago indicated that graduate programs are emphasizing greater economic theory, mathematics, and econometrics requirements. It is doubtful that many AEC faculties want to reverse the directions these programs have taken. However marginal changes can be made to strengthen the capabilities of future AEC undergraduate teaching faculty:

1. Include some graduate courses, such as in agribusiness, which better link undergraduate and graduate programs.
2. Facilitate some thesis research opportunities in applied areas relating to undergraduate emphasis areas (agribusiness, environmental policy or management, etc).
3. Encourage some course work related to undergraduate programs to be taken outside of AEC and economics, such as in the Business, Political Science, etc.
4. Develop and encourage some form of teacher preparation. This will be a bonus for graduates competing for undergraduate teaching positions. The preparation should include planning, implementing and evaluating teaching, and instructional materials development.

Without some broadening of the graduate program, AEC departments may have to go to Colleges of Business or other units to get qualified teaching faculty. This should not have to be done if departments make some slight reorientations.

Professional M.S. Degrees

In response to the National Agribusiness Commission, AEC departments are now moving in the direction of developing a professional M.S. in agribusiness. This is usually a joint program between the College of Business and the College of Agriculture. The major commitment of AEC departments is teaching and advising of students. The thesis option is usually foregone, which is not particularly appealing to AEC research oriented faculty.

Obviously, not every department can afford professional masters degrees in these times. However, they provide significant educational opportunities for some AEC departments. The cost of these programs may also be low, in that they are multidisciplinary and depend upon inputs from several departments.

Graduate Program Size and Specialization

The number of AEC graduate programs in the U. S. expanded considerably during the 1960's and 70's. Many of these programs are now maintained through the influx of a rather significant number of international students. As we look to the next decade, how many Ph.D. programs, what size, and what degree of specialization should AEC graduate programs have?

Unless some minimum number of students can be maintained (20-30?), a Ph.D. degree program should be discontinued. Some minimum student number must be maintained in order to provide adequate course offerings for a good graduate program.

On the other end of the spectrum, the maximum size of the graduate program needs to be considered in the context of future job opportunities for domestic graduates. Great expansions in U. S. AEC departments over the next decade are not likely. While business opportunities may expand, university and government employment will not be

like the expansions enjoyed during the 1960's and 70's.

The demand for U. S. graduate training of international students will continue. U. S. institutions should not back away from this responsibility. The major issue with international graduate students in AEC graduate programs is not necessarily just their number; instead, it is also the relative balance between domestic and international students.

Finally, AEC departments need to deal with graduate program "specialization, regionalization, and consortia". Increasingly, individual departments no longer have the resources to provide adequate graduate training in all areas and must specialize to some extent. Regionalization and consortiums also need to be more seriously thought through. In this context, recent efforts by Colleges of Veterinary Medicine need to be noted. A national consortium of selected Veterinary Medicine Colleges has been established to provide specific regional and species training. For example, Florida specializes in southern dairies, Michigan in northern dairies, Kansas State in beef cattle, etc. Regionalization and consortia approaches could also jointly involve 1862 and 1892 Land Grants. This could provide a more effective means of introducing more minorities into AEC faculty ranks.

Financing Graduate Education

A common complaint in many AEC departments is that they have an inadequate number of U. S. graduate students. A contributing factor to this inadequate number is the reduction in AES assistantships over time. Increasingly, U. S. domestic students have to be financed with grant funds, whereas international students are financed through their own sources of funding. How will graduate programs be financed in the future? The following are some options to consider:

1. "Hard" AES monies should be used for seed; contracts and grants for fertilizer with respect to funding U. S. students.
2. The tradeoffs in support staff and graduate students needs to be carefully analyzed.

With the continuing adoption of personal computers by AEC faculty, can some reductions be made in secretarial and computer support staffs with savings reallocated to graduate support?

3. With the growth in large classes in undergraduate programs, chairs should request some teaching assistantships (don't give up after the first request!).
4. Increasing industry support should be sought for graduate students. The traditional agricultural groups have not historically supported AEC units, like the agricultural biological disciplines. It is time to lean on industry groups!
5. Careful selection of the international students may enhance research and teaching programs. Instead of indiscriminately accepting students from around the world, departments may be more selective in accepting students consistent with faculty specialization and need, and from parts of the world where faculty have international expertise for contract and grant competition.
6. Imposing selected user fees for computers, supplies, etc.

Faculty Development

Faculty come from specialized graduate programs emphasizing research with little training in teaching methods, including planning, instruction, teaching and evaluation of student learning. As a consequence, few faculty understand what's involved in teaching across the levels of cognition. Most evaluations of teaching are for administrative purposes (promotion, tenure, and salaries) as

opposed to improving the quality of teaching. Although teaching award winners may be rewarded, teaching faculty (particularly undergraduate) often complain about not receiving the same rewards as their research counterparts. The problem is complicated by the fact that teaching is a minority shareholder in typical faculty appointments.

Faculty teaching development opportunities need to be continually stressed, along with better evaluation systems. Accountability pressures will demand this. Faculty participation in teaching improvement workshops at the college of university levels needs to be encouraged. A new development deserving some note is the use of portfolio analysis with peer reviews in the evaluation process for teachers. Portfolio analysis means just what it says: the presentation of a teaching portfolio in terms of courses taught, number of students, students advised, computer programs, course syllabi, sample exams, and student, peer and self evaluation. Several institutions (Kentucky and Nebraska) are already moving in this direction.

Summary

Experienced extension economists have long stressed demand and supply when educating clientele on industry and public policy issues. The profession cannot take just a supply side economics view of its services. The demand side (including who will pay) will have to be considered in setting future agendas.

Structural change in higher education has major implications for AEC academic programs. Teaching represents a growth opportunity for the discipline over the next decade. Whether or not AEC departments seize upon this opportunity remains to be seen.

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