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AGRICULTURAL ECONOMICS AND THE CHANGING STRUCTURE OF HIGHER EDUCATION

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This paper is another of many that looks into a hazy future [3]. The overall purpose is to identify some possible departmental strategies for the agricultural economics profession. These strategies follow from a discussion of the status of higher education, a review of findings from the Carnegie Commission reports, and from a study on alternative organizational structures—particularly institutes and centers.

Strategies for the next decade relate to a serious set of issues particularly crucial to social science departments within universities. The issues seem related to clarifying the role of agricultural economics, to increased linkage of professional and political decision types, to greater balance of theory and empiricism on complex societal problems, and to increased concern for indirect effects of scientific and technological developments.

These issues can be aggregated into a concept of accountability—attempts to define, measure and evaluate educational, research and service outputs.

In agricultural economics, accountability appears a major concern. Research and extension output that guide decisions by commercial agricultural firms represents integration of knowledge from economic and other disciplines—its output is more readily observed and evaluated. Accountability relating to social problems (distributive effects of technology and adjustments in the agricultural industry—classified by some into natural resources and community development concerns) is not as observable or measurable [7]. All agricultural experiment station disciplines focusing on social problems must confront the following characteristics:

- (1) Dominant clientele as political decision makers.
- (2) Significant nonmarket externalities.

- (3) Involvement of different disciplines—perhaps the merging discipline of policy science [6].
- (4) Requirements for difficult conceptualizations essential to understanding, measuring and dealing effectively with individual and societal development aspects.
- (5) Requirement of new and difficult data systems.
- (6) Politicalization concerns suggesting that integration/synthesis of knowledge from various disciplines should be left to other than educational institutions.

Prior to returning to these issues, the present university environment, possible insights from Carnegie Commission reports, and some concerns on institutes and centers need exploration.

DIFFERING UNIVERSITY ENVIRONMENT

During most of the 1960s, higher education in the United States experienced an increase in total resources greater than ever before. The period was characterized by more than a doubling of students, from three to more than six million. Likewise, expenditures as a percent of GNP more than doubled (from 1.1 to 2.5 percent), as did organized research and development expenditures [2]. Between 1960 and 1967, research and development expenditures increased by more than 15 percent per year while GNP rose at a compound rate of 5.3 percent.

However, towards the end of the 1960s, higher education had received a number of shocks: increased political and administrative means to control governance, student shock directed at reconstructing the university, awakening to implications of a leveling off of elementary and secondary school enrollments, declines in public confidence of the educational

system, realignments in public control and declines in real levels of public support for university research, and awareness that employment absorption capacity of society was lagging behind output of higher education. Further, there emerged issues of increased politicalization—increased proportions of university faculties urging positive stands on political issues and increased support for collective bargaining. Only some 15 percent of the institutions had collective bargaining programs in place by 1972 but over 50 percent of U.S. university faculties favored such action [9].

From many efforts to assess these shocks, general consensus appears to be that higher education is no longer a growth industry. Institutions must adjust to enrollment increases of one-third, not one-half over the next decade; adjustments must be made to expenditure levels per student only slightly above cost of living increases, and research and extension components must live within continuing decline of real dollar support levels.

Another type of assessment compares magnitude and/or seriousness of the condition to that in the late Nineteenth Century. The central issue then was to modernize higher education to meet agricultural and industrial expansion. The crucial issue now is humanization of higher education—greater aspirations for higher quality of life, adjustment to social facts of more affluence, incorporation of the rise in creative activities, and requests for more active participation by universities in resolution of priority societal problems.

This latter issue, related to resolving major societal problems, largely explains why agricultural economics of the 1960s moved from emphasis on farm management and marketing to resource and development categories—the shift focused more on problems, less on techniques, and sought linkages with other disciplines and interactions with a different constituency.

CARNEGIE COMMISSION

The Carnegie Commission on Higher Education was established in 1967 by the Carnegie Foundation for the Advancement of Training [2]. The Commission has issued some 22 reports and sponsored many special studies.

There are insights on resource-use strategies to be gleaned from the final report of the Commission, which identifies six priorities for action. This section focuses on a brief description of these priorities and concludes with suggested strategies.

In brief, the six priorities are:

- (1) Clarification of purpose: Higher education appears to be changing some of its purposes.

The report questions desire to change the time honored position of political neutrality, creation of highly specialized disciplines, efforts to maximize number of graduates with little regard for specific societal needs, and more generally, acting without adequate explanation to interested publics.

- (2) Preservation and enhancement of quality and diversity: It is argued that the large increase in quantity has not been at the expense of quality as many expected. Thus, the issue is not restoration of quality, but its preservation and improvement. Suggested opportunities to impact quality include new incentives for rewarding effective teaching; curriculum reforms involving interdisciplinary programs and student participation in curriculum development review; expansion of "cluster colleges" along with work-service-study experiences to enhance a more constructive environment; increased faculty service oriented activities; and, greater priority to basic research, particularly in social sciences and humanities. On diversity, suggestions are to preserve black and private liberal arts colleges, maintain elite institutions, and minimize authority of central administrative units on curriculum and individual faculty decision processes.
- (3) Advancement of social justice: It is argued that higher education, along with other segments of society, has an increasing responsibility for realization of equality of opportunity. The emphasis is on means to eliminate inequalities associated with race. However, other priorities are for increased off-campus extension or other means to achieve educational opportunities for all age groups, higher educational units as major components of growth centers, and greater educational institutional inputs into non-market developmental forces.
- (4) Enhancement of constructive change: Increased pressure for change will likely occur because of decline in rate of enrollment increases, central administrative and public accountability concerns, reduced levels of financial support and continued student activism. The report focuses on more options for students and more diversity of programs and program enrichment. A major concern is whether change will come from internal leadership or be imposed from external sources—the hold-the-line or survivalist mentality, particularly among

administrators, suggests a major concern and an invitation to external pressures.

- (5) Achievement of more effective governance: Within this priority area, the central concern is whether a "market model" or a "public utility model" will govern higher education. Emergence of university systems, negative public reaction to student activism and collective bargaining, as well as increasing internal university pressures for greater politicalization favor a public utility model. In a Commission study covering the period 1969 to 1972, about one-fourth of the American professoriate favored taking political positions or favored institutional participation in partisan politics. This important change in political neutrality of the university could be:
 - (a) a response to suggestions of greater linkage with political decision makers,
 - (b) a response to criticism that science is not adequately responding to resolve of important societal problems,
 - (c) a substantial challenge to academic freedom, or
 - (d) a response to increasing public action that details policy and increases administrative control.
- (6) Assurances of resources and their more effective use: Contrary to some evidence, great research universities are in greatest financial difficulty, followed by lesser known private liberal arts colleges and large private comprehensive colleges and universities. During the 1960s, annual outlay per student rose about four percent plus the rise in cost of living, while sample data for 1972 and 1973 suggest only a five percent rise above cost of living. If this condition continues, quality and opportunities for change are severely limited. Remedies are increased accountability, cost reductions, increases in tuition, and increases in levels of public support. Major opportunities for cost reductions relate to eliminating duplication, caution on new programs, shifting to year-around operations, reducing graduation time, encouraging reluctant attenders (5-12 percent) to drop, etc.—estimated cost reductions of 20 percent are possible. In general, higher education must regain the degree of public confidence it has lost by demonstrating that its purposes are essential, its governance is effective, and it allocates resources efficiently.

Carnegie Commission and Concern of Agricultural Economists

There appear to be three priority concerns that relate closely to the agricultural economics profession. They are:

- (1) To further clarify within the profession purposes and commitment to traditional and new clientele—the issue is to improve interactions with natural resource and community development groups while continuing to serve commercial agriculture. To serve all three groups teaching, research and extension activities must be more closely coordinated yet comprehensive enough to confront the issues.
- (2) As related to constructive change, the major concern is for continuing the trend of less emphasis on technique and more attention to conceptualization and analysis of strategies to resolve social problems. To maintain a statewide clientele the profession must relate to natural resource and community development issues at the village, county and regional levels.
- (3) Another type of change is carefully structured curriculum and program adjustments that further integrate social and quantitative disciplines. The challenging task relates to further conceptualization and quantification of equity and security issues equivalent in intensity to past focus on efficiency.

ALTERNATIVE ORGANIZATIONAL STRUCTURES

During the 1960s, increased levels of funding were associated with a dramatic increase in institutes, centers and special programs within major universities [1, 8]. A 1969 study by the Office of Science and Technology reported an incredible increase in interdisciplinary institutes, centers and programs at almost all universities [9]. Perhaps the basic reasons for such proliferation relate to concerns for accountability and humanization.

From a survey of the directors of some 45 institutions at the University of North Carolina, reasons for adoption of this new organizational structure were as follows [5]:

- (1) Increasing recognition of societal dependence on products of research.
- (2) Emergence of a relatively new governmental role to guide and control science and technology.
- (3) Changing goals of society—from concern for increased production, economic growth, efficiency and increased income—to emphasis

on stability, equity, quality of life and issues of indirect effects of technology.

- (4) Rising concern over causes and resolution of the crisis of confidence in science.
- (5) Search for resource use efficiencies in conduct of research with increasing indivisibility of equipment and facility.
- (6) Growth in quantitative systems approaches to complex societal problems relating to forecasting and technology assessment.
- (7) Opportunity within The University to challenge nontask oriented structure of academic departments.

Within the University of North Carolina, research-oriented institutes almost tripled from 1963 to 1974. The UNC System experienced growth in numbers in both inter-campus and intra-campus institutes as follows:

	1963	1974
Inter-campus	2	8
Intra-campus	14	37
Total	16	45

Further characterization of the 1974 array of institutes suggested concern for linking research with public service—the numbers classified by function are as follows:

Type	Inter-campus	Intra-campus	Total
Exclusively research	0	5	5
Predominantly research with public service	5	19	24
Predominantly research with resident instruction	2	9	11
Equally divided among research, public service, resident instruction	1	4	5
Total	8	37	45

Some other characteristics of these research-oriented institutes were as follows:

- (1) In fiscal 1973, research institutes accounted for 57 percent of total sponsored research expenditures.
- (2) The majority of such institutes, 44 percent, had annual expenditures of less than \$125,000, 20 percent between \$125,000 and \$500,000, and 36 percent of more than half a million dollars.

- (3) The institutes were supported from federal (56 percent), state (37 percent), and other source (seven percent).
- (4) Administrative structures varied as to the responsible administrative office, project reviews and approvals, criteria for chartering, form and frequency of administrative evaluation, and policies guiding professional rewards.
- (5) Of the total university staff classified as primarily research, institute staffs accounted for more than 85 percent.
- (6) Throughout the last decade, about 20 percent of the institutes' professional staff were without an academic appointment.
- (7) A most disturbing issue was the small percentage of graduate students involved with such institutes—1,100 from a population of 14,600.
- (8) A first approximation at integration of disciplines suggested 17 percent of the projects were wholly within the institute, 78 percent with the institute and one discipline and only five percent involving more than one discipline.
- (9) The only organizational form was that of a multiple disciplinary institute defined as an organization designed to encourage discipline to resolve different aspects of a common problems where output of one is an input to another; typically each specialist will work independently, publish independently and respond to disciplinary peers rather than problem set peers—work in a parallel fashion but not integrated.

Rapid growth and financial significance of the institute organizational structure at UNC has raised a series of concerns:

- (1) How has the output of research been influenced?
- (2) Are external agencies prime evaluators and are criteria largely of a nonacademic nature?
- (3) Have the institutes had impact on political neutrality of the institution?
- (4) Why is there little evidence of truly interdisciplinary structures? This problem involves defining such organizations as those utilizing specialized talents in a joint, coordinated and continuously integrated manner and relating them to a common problem set, with a strongly identified nondiscipline institute, and focusing where deductions from the central framework of a single discipline are inadequate.

- (5) What factors account for the small proportion of graduate student involvement with institutes?
- (6) Are governance problems relating to rewards and promotions being resolved?
- (7) What effect will decline in real levels of research support have on such organizational structures?

Research and evaluation is continuing on the assessment of these difficult issues, but some general insight on future possibilities might be drawn. With the relatively transitory nature of the problem set of such institutes and the decline in research support, it is reasonable to expect a dechartering of many of these multiple disciplinary structures and a decline in new charterings. Limited success at structuring independent administrative institute structures, given financial restraints, will likely see a resurgence of departmental authority. Limited success of institutes in linking researchers with political decision makers, combined with changes in attitudes towards political neutrality, will likely suggest relative decline in support levels and a search for alternatives. The dominant multiple disciplinary character of these institutes suggests only partial forms of integration, particularly as related to priority social problems—perhaps the central concern is lack of a conceptual and theoretical framework that cannot be deduced from single disciplines which may require efforts at truly interdisciplinary forms. Another implication is that a real, viable university organizational structure must consider research and graduate training as truly joint products; to maintain the basic character of these interlinked societal establishments in truly interdisciplinary organizational units will be a major undertaking.

SOME POSSIBLE STRATEGIES

To summarize current structure of higher education, I would emphasize the state of a no-growth industry, increased financial pressures, increased requirements for accountability and some evidence of the end of the institute as a panacea. Within this setting, there are numerous concerns facing the agricultural economics profession.

Some concerns and strategies have been noted which can be summarized as follows:

- (1) The trend will likely continue away from a technique emphasis with a firm orientation in marketing and farm management towards a societal problem focus on natural resources and community development. Such changes

will likely require further clarification of purpose, new initiatives to link with a community clientele as well as political decision makers, and reassessment of relationships with regional educational institutions. Some essential strategy components relate to balancing of applied research resources among commercial farm, natural resource and community development activities, a search for truly interdisciplinary teaching and research program structure and purposeful experimentation on means of linking with political and public administrators.

- (2) Concern for constructive change being imposed from external sources or emerging from internal leadership relates closely to agricultural economics. This concern depends on how the profession reacts to new pressures on trade and policy issues that impact commercial farmers—also on how well the profession builds a continuum of research-extension-constituency in the areas of natural resources and community development.
- (3) Agricultural economists working within agricultural experiment stations have a long history of multiple disciplinary involvement, a limited set of experiences with other multiple disciplinary institutes (water resources, sea grants, rural/urban centers, etc.) and almost no experience with truly interdisciplinary institutes. A major concern over the next decade will be development of distinctive interdisciplinary activities—a major strategy should be to actively support such an organizational structure. Some essential elements of a truly interdisciplinary structure are:
 - (a) Commitment to research/graduate training where hypotheses are designed, programmed and tested with colleagues from other disciplines.
 - (b) Continuing capacity to interface with political and public administrators perhaps at the expense of political neutrality.
 - (c) A capacity to synthesize and integrate results from the interdisciplinary group in acceptable forms for public action.
 - (d) A reward and promotion structure independent of the disciplinary departmental structure.
 - (e) A structuring of graduate programs to train people committed to the concept

of holism—integration of science and politics and a new art form relating to technocratic decision making.¹

- (4) A form of an interdisciplinary organizational structure relating to subsector teaching and research programs. Subsector efforts can be structured by commodities but preferably along functional lines such as rural development, regional trade, regional planning, etc. Such organizational experiments should include personnel from physical, biological, social and humanitarian disciplines both

within an institution and between institutions—specific to the problem and regionally.

All these strategies focus on enhanced accountability. The suggested solution is experimentation on truly interdisciplinary forms that coordinate research, teaching and public service components. Some essential requirements are administrative support, concern for researchers being linked with political decision makers, and an organizational entity that provides incentives to individuals.

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¹In some minds the theory of holism argues that a problem set is correctly viewed in terms of interacting wholes where extraneousities account for the whole as more than the sum of separate parts and attempts to prevent the reduction of complex phenomena to simple components that can be distributed among disciplinarians. Complex phenomena must continuously be viewed as a whole and not reduced to simple terms and with the resolve of individual terms then aggregated. The reduction to simple terms avoids the complex economic, moral, behavioral and political effects and the management problem of blending such specialized talents.