



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

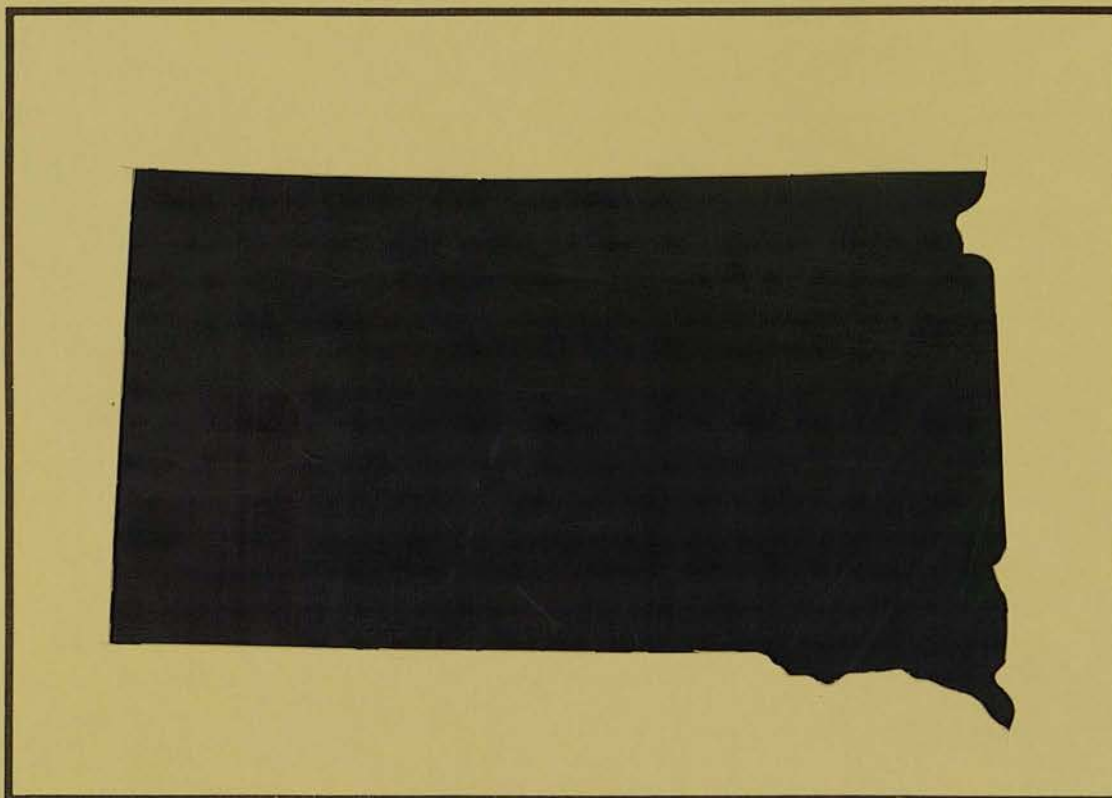
**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

378.783  
E38  
93-13



WAITE MEMORIAL BOOK COLLECTION  
DEPT. OF APPLIED ECONOMICS  
UNIVERSITY OF MINNESOTA  
1994 BUFORD AVE.-232 COB  
ST. PAUL MN 55108 U.S.A.



**ECONOMICS DEPARTMENT**  
South Dakota State University  
Brookings, South Dakota

378.783

E38

93-13

IMPLICATIONS OF TOMORROW'S ENVIRONMENT FOR  
AGRICULTURAL ECONOMICS PROGRAMS IN  
DIFFERENT-SIZED DEPARTMENTS AND FOR  
NON-LAND GRANT UNIVERSITIES

by

Ardelle A. Lundeen

Economic Staff Paper No. 93-13

December 1993

---

Papers in this series are reproduced and distributed to encourage discussion of research, extension, teaching, and economic policy issues. Although available to anyone on request, Economics Department Staff Papers are intended primarily for peers and policy makers. Papers are normally critiqued by some colleagues prior to publication in this series. However, they are not subject to formal review requirements of South Dakota State University's Agricultural Experiment Station and Cooperative Extension Service publications.

"Thirty-five copies of this document were printed by the Economics Department at a cost of \$.84 per document."

TABLE OF CONTENTS

	<u>PAGE</u>
Relevant Trends.....	1
Population Trends.....	1
Agriculture.....	1
Information Society/Computer Age.....	2
Work Force Changes.....	2
Higher Education.....	2
Implications for Agricultural Economics Programs.....	3
Implications for Teaching Programs.....	3
Implications for Research Programs.....	5
Implications for Extension Programs.....	6
Other Possible Implications.....	7
Summary.....	8
Bibliography.....	10

**IMPLICATIONS OF TOMORROW'S ENVIRONMENT FOR AGRICULTURAL ECONOMICS  
PROGRAMS IN DIFFERENT-SIZED DEPARTMENTS AND FOR NON-LAND GRANT UNIVERSITIES<sup>1</sup>**

This paper focuses on trends in five areas which appear to have significant implications for the future of agricultural economics departments: population changes, changes in the structure of agriculture, the advent of the information society/computer age, work force changes, and changes in higher education. I believe trends in these areas have already affected agricultural economics departments and will continue to do so.

**Relevant Trends**

Population Trends: The specific trends in population that will affect agricultural economics programs include 1) low birth rate among the white population but higher birth rate among minorities in the United States, 2) high birth rates in developing countries, and 3) longer life span in the United States. These trends have been in existence for some time already. The trends indicate a smaller pool of U.S. students on which to draw for the agricultural economics programs and a larger pool of non-U.S. students -- who could make up the difference in smaller enrollments of our traditional U.S. rural students. A longer life span will affect the composition of the work force in that a larger portion of the population will be older. With the decrease in birth rates, there will be fewer younger people so it will be necessary to utilize older workers.

Agriculture: The structure of agriculture has been changing for some time with the number of small (family) farms decreasing and the remaining farms becoming larger. The farm population went from 23 million in 1950 to about 4 1/2 million in 1991. A larger proportion of the persons involved in agriculture are also involved in off-farm employment. The number of farm wives employed off-farm is increasing -- wives used to contribute to the maintenance of the farm by assisting with farm work, now they are contributing

---

<sup>1</sup>This paper was presented as part of a panel at the Second Annual Workshop for Agricultural Administrators held at Stone Mountain, Georgia on December 2-4, 1993.

through off-farm employment. Production is becoming more specialized with increased technology.

Information Society/Computer Age: The pace of technological change has been increasing at an almost exponential rate. There are at least two aspects to what many call the information age. One is the speed with which information can be transmitted globally and the second is the vast amount of available data. Computers have contributed to both of these developments.

Work Force Changes: Work force composition and job type are both changing. There are fewer job opportunities in agriculture but many more in the service industries. It is anticipated that by the year 2000 almost half of the work force will be involved in some aspect of information service. There will be fewer middle management openings and fewer entry-level positions. Because of the complexity of the jobs remaining, college training will be important.

Women, blacks, and minorities will constitute a larger percentage of the work force and many may work at home because of technological advances. Second and third careers are becoming important for more people which implies additional training will be needed throughout a person's lifetime. It is estimated that up to 4% of the labor force will be in retraining programs at any one time. The work force will be more mobile -- able to live in desired locations and still maintain their job because of computers and other technology.

Higher Education: There will be a reduced pool of domestic students. Increased costs of higher education will call for greater accountability and relevance of programs. Two year associate programs, junior colleges, three year degree programs, and five year co-op programs are all options that may be explored. Interactive TV and off-campus courses will enable universities to reach off-campus clientele. Perhaps one of the most profound changes will be the need to retrain faculty as the need to train students to work with the new

technology and information systems increases. Instructors will need training to use new technologies such as interactive TV.

#### **Implications for Agricultural Economics Programs**

The trends cited above will have implications for agricultural economics programs in all types of universities: land grant, non-land grant, and those of different sizes. I will attempt to examine only those implications peculiar to non-land grant or different sizes but doubtless there will be some spillover.

Implications for Teaching Programs: With a decreasing pool of traditional college-age students, there will be more competition for U.S. students. In many respects larger, top-rated schools may have an advantage in competing for the students. Smaller and non-land grant universities could find it to their advantage, however, to develop specialties and not try to be "all things to all people." These niches could include specialization in course work (i.e., marketing, natural resources, etc.), address groups of students (i.e., nontraditional, minorities), or involve special purpose programs (e.g., refresher courses for graduates, co-op programs, three year degree programs, etc.). Already, corporations are using consultants from universities to assist their "retraining" and "research" needs. This trend may continue. Complementary to this, faculty will need to work with industry to keep abreast of changes. Agribusinesses and large corporate farms will likely gravitate to universities that can handle their information and training needs.

The changing structure of agriculture will have similar implications for agricultural economics programs but there is at least one additional possibility to be factored in. The decreasing farm population and specialization imply that fewer students may go back to "their family farm" but many may be engaged in off-farm aspects of agriculture. As farms become larger and more like agribusinesses, business and management courses are going to become more important. Non-land grant universities may have an advantage



if they can cooperate with business schools at their universities. Smaller departments may need to explore the possibility of consolidating with departments of economics to maintain a viable enrollment and to cut accelerating costs. Also, fewer students will be coming with farm backgrounds. Universities must teach fundamentals of agriculture as well as discipline-related courses.

The information society/computer age is already affecting programs as more courses utilize computers. For many experienced faculty this has meant retraining and learning to adopt new methods of teaching old subjects as well as in introducing new subjects. To provide needed new equipment, additional sources of funds are needed by departments or universities. With the more rapid innovation and technological change that is occurring, subsequent faculty changes may be accelerated. If faculty in small departments are resistant to change or unable to change, those departments will find it difficult to keep current. Larger departments may be more able to absorb a few "non-changers."

Perhaps a more profound change resulting from technological innovations will be in the delivery of programs. Interactive television connecting students and faculty across states, the nation, or even globally is already in progress and will probably be accelerated. This may be especially important for those programs which have decided to specialize and thus cannot teach courses in some areas or who may want to bring experts into their classrooms. Small departments gain the benefits of expertise for their students by this means, and faculty in larger departments can enhance their image or that of their university. Again, adopting this technology will necessitate training for existing faculty.

Work force changes may alter the composition of the student body. As persons are engaging in their second or third career, they will be coming back to universities for retraining. More non-traditional students will enroll but

they may not be as interested in four-year degree programs as in shorter periods of training to prepare them for new positions. They will insist that their courses be relevant and work oriented. Nontraditional students may choose to attend schools closer to home which may be an advantage for smaller schools especially if they choose to adapt their programs to nontraditional students' needs. On the other hand, Smith states that 75 percent of new jobs require some college education and 40 percent of job growth in the 1990s will be in areas where higher levels of education are required. If true, more traditional students can also be expected to attend universities. Another author, Martin, emphasizes that students should acquire technical skills if they are to find work in the 90s. These developments may pose serious problems for universities/departments as they present conflicts between the traditional university role of providing broad-based education versus meeting technical employment skills required in a changing society. Junior colleges and high schools will encounter the same type of problem.

Most implications of the trends in higher education have been addressed under the other trends. Increasing costs may lead universities to cut or combine programs and with a decreased number of farm students, agricultural economics may be a target. Departments will have to "sell" their programs to administrators as well as students -- this may be particularly important for smaller departments. Departments will need to make concerted efforts to cut costs or look for outside sources of revenue. More cooperation between universities, even across state lines, may be necessary.

Implications for Research Programs: Research programs will be affected by the population of students and the decreasing number of farms. Research may be less focused toward the family farm and more towards the larger agribusiness type of farms or towards non-production areas (natural resources, rural development, consumer needs, etc.). On the other hand, research on no-till or sustainable agriculture may accelerate. At the same time with fewer students

coming from the farm population, fewer students will be familiar with farm problems and issues. Additional training in basic agriculture may be needed before students can function well in agricultural research. Nontraditional and minority students may comprise a larger share of the human resources for research. Their interests may diverge from the traditional agricultural economics research questions.

In the information society/computer age the sources of information and the amount of data which researchers will be able to access and analyze will be greater. Cooperation and coordination with researchers around the globe will be possible without the delays which may have characterized previous attempts to collaborate. There may be a further push for sophisticated modeling. If so, we need to insure that it doesn't completely overwhelm other more qualitative approaches in research. Costs of research and decreased sources of funding may be the largest differentiation between different sized schools. As higher education costs escalate, small schools may find it more difficult to obtain public funding and must rely more on grants and private funding. If they have previously positioned themselves well in this respect (as many small, non-land grant universities have), they may have an advantage. If not, research may be negatively affected. Information will become less expensive as more technology is utilized which should benefit small departments. With the rapid technological changes, research is going to be even more important.

Implications for Extension Programs: Extension programs may be directly affected by the changing structure of agriculture. With a smaller number of family farms, the traditional clientele base will contract, and traditional programs may be less relevant. Marketing, business, and management programs will gain importance as larger farms become the norm. The "agribusiness" farms may place less reliance on the traditional extension programs as they rely more on in-house personnel or consulting firms. Extension programs may

need to diversify into nontraditional areas such as environmental issues, urban problems, or consumer affairs if they wish to maintain their viability and clientele.

The composition of the clientele will change also as population changes. Extension programs may have to address the needs of minorities or older workers which will differ from those of the owner-operator of a traditional family farm or the larger farms which are expected to evolve. The composition of the extension faculty will need to reflect, in at least some respect, the composition of their clientele. At the very least, extension personnel will need training in working with a diverse population.

Information society/computer age technology and increase in higher education costs may allow (force) extension to revise its methods of delivery. Fax machines, E-mail, interactive TV will speed up communication with clientele while at the same time, distant learning will be facilitated by this technology and hastened by the lack of funding for extensive travel. In addition, universities may be able to "borrow" expertise if they are not able to fund specialists in all areas. Sharing of personnel between universities will become more common. These technologies are already being adopted by smaller departments which are experiencing cutbacks in their programs. While non-land grant universities may not have formal extension programs, they may benefit from the technology that is available by borrowing expertise from other universities. As with the teaching faculty, extension personnel may need periodic retraining to keep pace, not only with the technology that is available to dispense their information, but also the technological advances which are available to the clientele.

Other Possible Implications: A few general, tenuous implications have come to mind. If enrollments decline due to lower student population and programs are cut back because of funding cuts or the inability to fund the higher cost programs, faculty positions may be reduced. If so, faculty may need to find

other employment such as in secondary schools, business-based education programs, or in producing educational electronic software. Doubtless, other possibilities also exist.

It is anticipated by some that persons will have more leisure time. If so, workers may be willing to take "fun" classes and classes to upgrade skills which could provide employment for some faculty.

Universities in rural areas may find their location to be an advantage as more persons become disillusioned with violence in the urban areas and prefer not to stay or to send their students there. Generally, rural universities tend to be smaller. However, as all faculty members are equipped with computers and connect to other researchers and data bases, opportunities for research may be as significant as in larger schools.

Change and the need to respond to change may work to the advantage of smaller departments who can make changes more quickly and can develop "niches."

#### Summary

Most of the implications discussed above result from observation of a continuum from past trends to forecasts of future trends. Many of the implied changes are already in progress but can be expected to accelerate over time; others may change completely as circumstances change. Some changes may impact different sized departments very differently; some may affect all equally. Some departments may be able to adjust and come out stronger while others fare much worse. It is quite likely that most of the trends will affect all three functions of the traditional agricultural economics departments -- teaching, research, and extension -- to some degree.

Technology changes and population trends are probably the two main forces impacting agricultural economics departments. The other trends mentioned -- structure of agriculture, work force changes, and higher

education changes -- are highly dependent upon technology changes and population.

An anonymous author has made some suggestions for managing change. Three of his comments may be particularly appropo for agricultural economics departments: 1) take some ownership of change, 2) don't let your strengths become your weaknesses, and 3) invent the future instead of trying to redesign the past.

### Bibliography

Smith, Stephen M. Anatomy of a Rust Belt State. Rural Development Views.

Dept. of Ag. Econ. The Pennsylvania State Univ. Summer 1993.

Martin, David. The Whiny Generation. Newsweek. Nov. 1, 1993. p. 10.

