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ORIGIN AND MIGRATION PATTERNS
OF AGRICULTURAL ECONOMICS PH.D. RECIPIENTS
IN THE U.S.

by

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This paper presents some information about educational mobility of individuals who received Ph.D. degrees in agricultural economics in one of the following three periods: 1961-63; 1968-70; and 1975-77. This study contributes to a further understanding of the operation of the factor market providing students who undertake graduate study in agricultural economics.

Information in May issues of the AJAE about previous year's Ph.D. recipients are the main source of data. Even after supplementing this data with information appearing in other issues of the AJAE, many gaps existed. The remaining pieces of information were obtained through correspondence with department heads, graduate coordinators, and other individuals. Missing educational information in the lists of Ph.D. students was augmented with data from the 1972 and 1976 AJAE directories.

The first part of the paper examines the type of undergraduate institution attended by domestic students and the country where foreign students received a bachelors degree. The second part of the paper considers the migration patterns between various degrees of students who received their Ph.D. in agricultural economics in the U.S. during one of the periods noted above. A final section presents some evidence on the average time lag between successive degrees.

Location of Undergraduate Education

Land-grant universities continue to be the major source of undergraduate training for Ph.D. students in agricultural economics, but there has been a marked decrease in the proportion of students from this type

of institution (Table 1). In 1975-77, more than one-third of all domestic Ph.D. recipients had undergraduate training from nonland-grant institutions. The 1890 institutions have shown some increase but still account for a relatively few number of students.

Presumably most of the students recruited from nonland-grant institutions come from nonagriculturally oriented curricula. Some of the change in source of students might be explained by expanded interest in national and international food and resource issues in general undergraduate education. These factors, however, should have also influenced undergraduates in nonagriculturally oriented curricula at land-grant institutions. Differences in relative job prospects for students from different types of institutions might also be a factor to explain the observed changes. Another hypothesis related to the differential change in recruitment of students from land-grant and other institutions is possible differences in undergraduate training programs influencing their preparation for current graduate programs

and the likelihood of securing financial aid for graduate study. Further exploration of this hypothesis and other possible reasons for this change in the factor market for students was beyond the scope of this study.

The number of foreign students receiving Ph. D. degrees in agricultural economics in the U.S. expanded very rapidly during the 1960s. Much of the change resulted from large increases in the number of students from Asia, Central America, and South America (Table 2). More than 75 percent of the increase in foreign students between 1961-63 and 1975-77 were from those parts of the world. All parts of the world, except India and the United States, had a substantial increase in the number of students receiving Ph.D.s in agricultural

Table 1. Type of undergraduate institution attended by domestic Ph.D. recipients ^a

Type of Institution	Time Period					
	1961-63		1968-70		1975-77	
	No.	Percent	No.	Percent	No.	Percent
Land-Grant Universities ^b	237	87.4	324	81.8	169	62.1
Other Agricultural- Economics Dept. Schools ^c	4	1.5	13	3.3	6	2.2
Other Institutions	30	11.1	59	14.9	97	35.7
Totals	271	100.0	396	100.0	272	100.0

^aA separate tabulation of the number of students from each university is available upon request from the author.

^bIncludes 1, 2, and 5 students for the respective three time periods who completed their undergraduate education at an 1890 institution.

^cIncludes Southern Illinois, Stanford, and Texas Tech. as listed in AJAE Handbook of Department Heads.

Table 2. Geographic distribution of foreign students who received Ph.D. degrees in agricultural economics in the United States according to prior training^a

Area	Time Period					
	1961-63		1968-70		1975-77	
	No.	Percent	No.	Percent	No.	Percent
Africa	3	4.0	19	10.2	17	8.3
Asia ^b						
India	11	14.9	24	12.8	14	6.8
Countries West of India	4	5.4	13	7.0	20	9.7
Countries East of India	19	25.7	32	17.1	62	30.1
Central and South America	4	5.4	34	18.2	40	19.4
Great Britain, Canada, Australia and New Zealand	22	29.7	43	23.0	34	16.5
Other European Countries	6	8.1	15	8.0	14	6.8
Unknown	<u>5</u>	<u>6.8</u>	<u>7</u>	<u>3.7</u>	<u>5</u>	<u>2.4</u>
Total	74	100.0	187	100.0	206	100.0

^aClassified by country in which bachelor's degree received.

^bConsidered to be Turkey and all countries to the East.

economics between 1961-63 and 1975-77. There was a decline in foreign student numbers from some regions between 1968-70 and 1975-77 similar to the United States, but there was continued growth from Central America and South America, and especially from countries in the eastern part of Asia.

Mobility of Domestic Students

Further analysis of the mobility patterns of the individuals who received their undergraduate education in the U.S. was undertaken by classifying them into one of the following four categories according to where they received their bachelor's degree relative to their Ph.D.: (1) same institution as Ph.D. degree; (2) same state as Ph.D. degree but different institution; (3) different state within region; and (4) different region.

This tabulation indicates a substantial reduction in the proportion of individuals receiving their undergraduate degree and Ph.D. at the same institution between 1961-63 and 1975-77 (Table 3). For example, in the earlier period, 23.2 percent received bachelor degrees and Ph.D.s at the same institution; whereas in 1975-77, 15.8 percent received their degrees at the same institution. This proportion increased somewhat in 1968-70 to 24.8 percent with the general expansion in the total number of Ph.D.s but has decreased since then. Institutions which had a substantial decrease in the number of students recruited from their own institution in 1975-77 relative to the two earlier periods include Cornell, Minnesota, Missouri, Ohio State, and Purdue. Missouri shifted from being almost totally dependent on "home-grown" students in the early 1960s to all of their domestic students coming from other states in the mid 1970s.

Table 3. Location of undergraduate training relative to where Ph.D. obtained for domestic recipients by period^a

Location of Undergraduate Education Relative to Ph.D.	Time Period					
	1961-63		1968-70		1975-77	
	No.	Percent	No.	Percent	No.	Percent
In-State						
Same Institution	63	23.2	98	24.8	43	15.8
Different Institution	14	5.2	23	5.8	23	8.5
Out-of-State						
Same Region	90	33.2	145	36.6	83	30.5
Different Region	<u>104</u>	<u>38.4</u>	<u>130</u>	<u>32.8</u>	<u>123</u>	<u>45.2</u>
Totals	271	100.0	396	100.0	272	100.0

^aA listing of these categories for each institution is available from the author upon request.

The data also indicate a relatively few domestic Ph.D. students are attracted from other institutions within the same state. The number of students migrating from other states within a region exceeded the number of in-state students in each period. For two of the three time periods, within region movement was smaller than interregional migration. This clearly demonstrates that the market for students entering graduate school has been and continues to be national as well as international in scope.

Completion of a master's degree remained the most usual route for domestic students pursuing a Ph.D. degree in agricultural economics (Table 4). A growing but still somewhat small proportion of domestic students obtained a Ph.D. degree without completing a master's degree. For example, in 1975-77, 36 of the 272 Ph.D. recipients or 13.2 percent did not have a master's degree. This compares to only 5.5 percent of Ph.D. recipients in 1961-63 who did not obtain an intermediate degree. Most of the students in this category migrate to a different institution to do their graduate work rather than obtaining all their education at the same place. This is consistent with a general increase in overall mobility of students completing graduate work in agricultural economics. For example, the proportion of students receiving all their degrees at the same institution has consistently declined since the early 1960s. Similarly, the number of students who obtained degrees at three different institutions has increased to 22.4 percent in 1975-77.

An interesting shift in the timing of migration appears to have occurred for those students who receive a master's degree. In the early 1960s, it was very common for individuals to complete a

Table 4. Number of institutions from which degrees were received by domestic students receiving Ph.D. degree in agricultural economics

Number of Institutions from which Degrees Were Received	Time Period					
	1961-63		1968-70		1975-77	
	No.	Percent	No.	Percent	No.	Percent
One Institution						
No Master's	5	1.8	13	3.3	7	2.6
Received Master's	52	19.2	71	17.9	35	12.9
Two Institutions						
No Master's	10	3.7	13	3.3	29	10.7
Received Master's						
Migrated after						
Bachelor's	54	19.9	91	23.0	76	27.9
Migrated after						
Master's	111	41.0	128	32.3	62	22.8
Migrated after						
Bachelor's but re-						
turned for Ph.D.	4	1.5	14	3.5	2	.7
Three Institutions	35	12.9	66	16.7	61	22.4
Totals	271	100.0	396	100.0	272	100.0

master's degree at the same place they obtained a bachelor's degree. More recently, there is a tendency to migrate after completion of a bachelor's degree. Migration after completion of a master's degree is also very common. In 1975-77, over 45 percent of the Ph.D. degrees awarded to domestic students involved students who migrated to another institution after completing a master's degree. This includes those who received their master's degree at the same place they completed their undergraduate education as well as those who received degrees from three institutions.

Mobility of Foreign Students

Approximately three-fourths of all foreign Ph.D. students in the most recent period received all of their graduate degrees in the United States (Table 5). This is a slightly larger proportion than in 1961-63 when it was more common to complete a master's degree before migrating to the United States for Ph.D. work. This change is a little surprising in view of attempts to initiate and upgrade graduate programs in several developing countries. Perhaps some of the new programs in other countries have emphasized training for terminal master's degrees anticipating that better prepared undergraduate students would continue to migrate to the United States and other places for graduate training. Improved undergraduate training in foreign countries may also have expanded the pool of qualified applicants ready to undertake graduate training in the United States.

A large proportion of foreign students migrate between U.S. institutions for their graduate training. In 1975-77, almost 39 percent of the foreign students received a master's and Ph.D. at dif-

Table 5. Location of master's degrees for foreign students receiving Ph.D. degrees in agricultural economics in the United States^a

Master's Degree Status	Time Period					
	1961-63		1968-70		1975-77	
	No.	Percent	No.	Percent	No.	Percent
U.S. Master's Degree						
Same institution as Ph.D.	27	36.5	76	40.6	71	34.5
Different institution						
than Ph.D.	17	23.0	62	33.2	80	38.8
Foreign Master's Degree	23	31.1	36	19.2	41	19.9
No Master's Degree	<u>7</u>	<u>9.4</u>	<u>13</u>	<u>7.0</u>	<u>14</u>	<u>6.8</u>
Total	74	100.0	187	100.0	206	100.0

^aA classification for each Ph.D. granting institution is available upon request from the author.

ferent U.S. institutions. This was considerably larger than the proportion in 1961-63. In the earlier period, it was more common for foreign students to do all their graduate work in the United States at one institution, either coming with a master's degree or completing both degrees at the same institution.

Time Between Degrees

The years in which various degrees were received by each individual were used to calculate the average length of time between different degrees. These calculations indicated the Ph.D. degree was received around five to six years after the master's degree and nine to ten years after the bachelor's degree. These numbers do not represent the length of time spent in graduate school since it was not possible to adjust for interruptions because of work experiences or military service.

Domestic students received their Ph.D. a little sooner after their bachelor's degree than was the case for foreign students. On the other hand, domestic students had a few months longer time span between their master's degree and Ph.D. than foreign students. Very little difference in time spans among the three time periods was noted for foreign students. A slight reduction of a few months was observed in the more recent period for domestic students.

Summary

Land grant universities continue to be the major source of undergraduate training for Ph.D. students in agricultural economics, but in recent years more students have been coming from other types of institutions. In 1975-77, other institutions accounted for more than one-third of domestic students, a large increase from the little over

11 percent fifteen years earlier. Most of the increase in demand for training foreign students during the 1960s was from Asia, Central America, and South America.

Increased mobility among institutions by domestic students as well as foreign students pursuing graduate study in agricultural economics was evident during the mid to late 1970s relative to 15 years earlier. This was indicated by fewer students completing all of their education at the same institution. Furthermore, over 30 percent of domestic students migrate between regions for graduate study. There has been an increased tendency for domestic and foreign students to move to a different institution after completion of undergraduate programs. Although the number of individuals who do not receive a master's degree en route to the Ph.D. has been increasing, it still is very common for students to complete a master's degree and then shift to another institution for further study. Some of the increased movement of domestic students is the result of an increased number of Ph.D. students who complete their undergraduate programs at nonland-grant universities.

Approximately 75 percent of foreign students receiving a Ph.D. in agricultural economics in the United States complete all their graduate study in the United States. This is an increase from what was observed during the early 1960s when more foreign students had a master's degree prior to coming to the United States for a Ph.D. degree.

Finally, the evidence indicated that the Ph.D. degree was received about five to six years after the master's degree in each of the periods. Also, the average time lag between the Ph.D. degree and bachelor's degree was nine to ten years.