Community College Transfer Agriculture Students: A Longitudinal Trend Study, 1985 and 1992

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Community colleges play a major role in American higher education. Two-year colleges enrolled 43% of the nation's 12.7 million undergraduate students in fall 1989 (National Center for Education Statistics, 1993a). Furthermore, two-year institutions accounted for 76% of the increase in undergraduate student enrollment between 1990 and 1991 (National Center for Education Statistics, 1993b).

Students enroll in community colleges to fulfill a variety of goals. According to Banks (1990), "In any given state, community colleges offer adult and continuing education, as well as a starting point from which many students can continue on to four-year colleges and universities" (p.53).

Despite this diversity of goals, transfer education remains central to the community college mission (Cohen and Brawer, 1989). Brawer (1991) indicated that 22% of students completing 12 or more semester credit hours at a community college enroll for courses at a four-year college or university. Additionally, 42% of public community college graduates continue their education at four-year institutions (El-Khawas, et al., 1988).

Mississippi has a well-established system of 15 public community college districts offering on-campus instruction at 36 locations throughout the state. During the fall 1992 semester, 51% of Mississippi's 98,233 undergraduate students attending public institutions of higher learning were enrolled in public community colleges (Mississippi Institutions of Higher Learning Board, 1993; Dr. Larry Day, Mississippi Junior College Board, personal interview, March 24, 1993). According to Molpus (1989), approximately 45% of Mississippi's public community college students are enrolled in transfer programs.

Nationwide, over 500 community colleges and postsecondary vocational-technical institutes offer programs of agricultural education. These programs are staffed by approximately 4000 instructors and enroll in excess of 80,000 students (Harmon, 1986).

Phipps and Osborne (1988) predicted continued growth for postsecondary agricultural education programs. They stated that:

> A large percentage of jobs now require education in agriculture beyond high school.... As relevant, practical, and realistic education in agriculture programs are provided at the postsecondary level, employers will seek these graduates as new and replacement employees. Persons interested in employment in agricultural occupations are recognizing, in increasing numbers, the need for postsecondary education. (p.463)

In Mississippi, postsecondary education in agriculture is provided by nine public community colleges and two public universities (Alcorn State and Mississippi State). Community college students comprised approximately 27% of the state's undergraduate agriculture enrollment in fall 1992 ("Abridged Fall 1992 National Enrollment," 1993; Johnson, Taylor and Owens, in press).

Six of the nine Mississippi community colleges with agriculture programs offer transfer curricula designed to serve as the first two years of a baccalaureate degree program in agriculture. Taylor and Johnson (1993) found that 49% of undergraduate agriculture students at Mississippi State University in fall 1992 were community college transfers.

Despite what Harmon (1986, p.i) termed the "phenomenal growth of postsecondary agricultural education . . . since 1960," little research exists describing the students enrolled in these programs (Harmon, 1985; Harmon, 1986; and Vogler and Garrison, 1981). Especially lacking is longitudinal research identifying and describing trends occurring within the community college agriculture student population. Yet, according to Erpelding (1988), curriculum designers in agriculture "must take into account the experience, academic preparation, knowledge, skills, attitudes, and other relevant factors which describe the incoming student" (p.6).

Owens (1986) developed a profile of agriculture students attending Mississippi public community colleges during the spring 1985 semester. In order to identify possible changes occurring in this student population, the study was replicated with agriculture students enrolled in Mississippi public community colleges in the spring 1992 semester. According to Babbie (1986) such longitudinal studies have "an obvious

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advantage over cross-sectional studies in providing information describing processes over time" (p.82). According to Borg and Gall (1983) longitudinal studies "can provide insights into ... important educational trend[s]" (p.413).

Purpose

The purpose of this study was to profile and compare community college transfer agriculture students enrolled in Mississippi public community colleges during the spring 1985 and spring 1992 semesters on selected demographic characteristics and educational aspirations. The data were examined to identify trends which may have developed in the community college transfer agriculture student population between 1985 and 1992.

Procedure

This study was conducted as a longitudinal trend study (Babbie, 1986; Borg and Gall, 1983). According to Borg and Gall (1983), "In trend studies a given general population is sampled at each data collection point. The same individuals are not surveyed, but each sample represents the same population" (p.412).

In both 1985 and 1992, data were collected using an instrument originally developed by a team of rural sociologists for use in a 1977 USDA/Cooperative States Research Service (CSRS Project S-114) study of undergraduate agriculture students. During the instrument development process, researchers at participating universities conducted qualitative case study interviews with selected agriculture students to identify and refine the items used in the instrument. A draft version of the instrument was pilot-tested with agriculture students at three institutions. The results of the pilot-test were used to enhance the clarity of the items and instructions included in the final instrument (Howell and Parent, 1979).

Owens (1986) used a slightly modified version of the S-114 instrument to collect data from Mississippi public community college agriculture students. Owens pilot-tested the revised instrument and reported that the pilot-test participants had "no problems understanding the questionnaire" (p.28). The S-114 instrument, as modified by Owens, was used to collect data in both 1985 and 1992.

The instrument was judged to have face and content validity based on the results of the pilot-test and a review by graduate faculty in agricultural education. Since the instrument solicited primarily demographic information from respondents, instrument reliability was not estimated (Van Tilburg et. al, 1989).

The same research procedures were followed in 1985 and 1992. Prior to data collection, one agriculture instructor at each of the nine public community colleges having agriculture programs was contacted by telephone. At this time, the research purpose and procedures were explained, current enrollment figures were obtained, and a contact person (instructor) for each community college was identified.

In both years, survey instruments and a cover letter detailing data collection procedures were distributed to each community college contact person. The contact persons distributed the instruments to their students, collected the completed surveys, and mailed the instruments back to the researchers.

The data reported in this paper were collected in 1985 and 1992 as part of larger studies of Mississippi public community college agriculture students. In both years, the entire population of vocational-technical and college transfer agriculture students enrolled in Mississippi public community colleges during the spring semester was surveyed. In 1985 and 1992, the same six Mississippi public community colleges offered formal, two-year transfer agriculture curricula. Selected data concerning transfer agriculture students enrolled in these six community colleges were extracted from the 1985 and 1992 data sets and are presented in this paper.

Usable responses were received in both 1985 and 1992 from transfer students in each of the six community colleges. In 1985, 97 of 110 students provided usable responses for an 88% response rate. In 1992, 146 of 222 students provided usable responses for a 65.8% response rate. No follow-up of non-respondents was conducted in either year.

Results

Students in the 1985 and 1992 respondent groups were similar in age with means of 19.77 and 20.03 years, respectively. During both years, white males comprised the majority of respondents (79.4% in 1985; 86.6% in 1992). As shown in Table 1, the percentage of both whites and males increased from 1985 to 1992.

Table 1 Gender and Race of Community College Transfer Agriculture Students, 1985 and 1992.

	Year			
Variable	1985		1992	
Category	n	%	n	%
Gender				
Male	83	85.6	133	91.1
Female	14	14.4	13	8.9
Race				
African-American (Black)	6	6.2	6	4.2
Native American (American Indian)	1	1.0	1	0.7
Caucasian (White)	90	92.8	137	95.1

A majority of respondents in both 1985 and 1992 reported they had lived most of their lives in rural areas (69.1% and 65.3%, respectively). However, as shown in Table 2, the distribution of rural respondents changed markedly between 1985 and 1992. In 1985, 70.2% (47 of 67) of the rural stu-

dents had lived most of their lives on a farm; by 1992, only 46.8% (44 of 94) of the rural respondents reported having lived on a farm for most of their lives.

Table 2 Type of Residential Area in Which Community College Transfer Agriculture Students had Lived for Most of Their Lives, 1985 and 1992.

Residentail Area Category	Year 1985 n	1985 %	1992 n	1992 %
Urban				
≥ 50,000	9	9.3	13	9.0
10,000-49,999	11	11.3	23	16.0
<10,000	10	10.3	14	9.7
Rural				
Non-farm	20	20.6	50	34.7
Farm	47	48.5	44	30.6

Table 3 presents information on the type of residential area in which the parents of community college transfer agriculture students had been raised. In both 1985 and 1992, a majority of fathers and mothers had been raised in rural areas. However, the percentage of parents raised in rural areas declined from 1985 to 1992 (fathers, from 75.2% to 67.0%; mothers, from 64.8% to 53.4%). This decline was accounted for by the decreasing percentage of both fathers and mothers raised on farms. Conversely, the percentage of parents from rural, non-farm areas increased from 1985 to 1992.

In 1985, a majority (57.7%) of the respondents indicated their parents currently lived on a farm. In 1992 a majority (64.8%) of respondents reported that their parents currently did not live on a farm. Table 4 presents data concerning parents' farm residence and ownership status.

Table 4 Farm Residence and Ownership Status of Community College Transfer Agriculture Students' Parents, 1985 and 1992.

Farm Status Category	Year 1985 n	1985 %	1992 n	1992 %
Reside on a farm	56	57.7	51	35.2
Own a farm, but do not reside there	8	8.2	20	13.8
Do not own or reside on a farm	33	34.0	74	51.0

Respondents indicating that their parents either lived on or owned a farm were asked if the farm was their parents' primary (≥50%) or secondary (<50%) source of income. In both 1985 and 1992, a majority of respondents indicated that the farm was a secondary source of income (72.6% and 70.8%, respectively).

In both 1985 and 1992, a majority of respondents had graduated from a public high school (72.9% and 80.1%, respectively). Private high school graduates decreased from 25.0% in 1985 to 19.1% in 1992. Likewise, GED recipients decreased from 2.1% in 1985 to 0.7% in 1992.

The percentage of students graduating from larger high schools increased between 1985 and 1992. In 1985, only 29.2% of respondents had graduated in classes of 100 or more students; by 1992, 51% of the respondents had graduated in classes of this size. As shown in Table 5, the percentage of respondents in each of the two smallest class sizes decreased between 1985 and 1992. Conversely, the percentage of students in each of the three largest class sizes increased from 1985 to 1992. The percentage of respondents having graduated in classes of 200 or more students almost doubled from 1985 to 1992.

Table 3 Type of Residential Area in Which Parents of Community College Transfer Agriculture Students had been Raised, 1985 and 1992.

Residential Area Category	Parent: Father 1985 n	Father 1985 %	Father 1992 n	Father 1992 %	Mother 1985 n	Mother 1985 %	Mother 1992 n	Mother 1992 %
Urban								
≥50,000	8	8.3	8	5.5	10	10.3	12	8.4
10,000-49,999	6	6.2	19	13.1	7	7.2	27	19.0
<10,000	10	10.3	24	16.6	15	15.5	28	19.7
Rural								
Non-farm	17	17.5	37	25.5	22	22.7	35	24.6
Farm	56	57.7	57	39.3	43	44.3	40	28.8

Table 5 Number of Students in Community College Agriculture Transfer Students' High School Graduating Class, 1985 and 1992.

Number of Students	Year			
	1985		1992	
	n	%	n	%
<50	35	26.5	24	23.5
50-99	33	34.4	37	25.5
100-149	14	14.6	29	20.0
150-199	2	2.1	9	6.2
≥200	12	12.5	36	24.8

In both 1985 and 1992, a majority of the respondents had attended high schools offering agricultural education programs. A majority (52.8%) of the 1985 respondents reported enrollment in one or more agriculture classes; however, in 1992, only 42.5% of the respondents had enrolled in agriculture classes. Table 6 summarizes data concerning the availability of and enrollment in high school agriculture classes.

Table 6 Community College Transfer Agriculture Students' Participation in High School Agriculture, 1985 and 1992.

Variable	Year			
	1985		1992	
Response	n	%	n	%
Attended school offering ag. ed.				
No	40	41.7	62	42.8
Yes	53	55.2	81	55.9
Do not know	3	3.1	2	1.4
Enrolled in ag. ed. courses				
No	46	47.9	84	57.5
Yes	51	52.8	62	42.5

Examination of Table 6 shows that a majority of students attending high schools offering agriculture classes had enrolled. In 1985, 51 of 53 (96.2%) students attending such schools reported enrollment; in 1992, 62 of 81 (76.5%) students attending schools offering agriculture classes had enrolled. Of those students enrolling in agriculture classes, a majority in both 1985 and 1992 had enrolled for three or more years (56.7% and 59.7%, respectively).

Students in 1985 and 1992 reported a variety of work experiences. Data in Table 7 show that the percentage of respondents having agricultural work experience decreased slightly from 1985 to 1992. Conversely, a higher percentage of 1992 respondents reported non-agricultural work experience than did 1985 respondents.

Table 7 Work Experiences of Community College Transfer Agriculture Students, 1985 and 1992.

Type of Work Experience	Year			
	1985		1992	
	n	%	n	%
Agriculture—related to major	57	58.9	75	51.7
Agriculture—not related to major	67	70.2	93	66.0
Non-agricultural	70	72.6	117	84.2

The respondents were also asked to indicate the type of area in which they would like to live once they completed their education. These data are presented in Table 8.

Table 8 Desired Residence of Community College Transfer Agriculture Students, 1985 and 1992.

Residential Area	Year			
Category	1985		1992	
	n	%	n	%
Urban				
≥50,000	9	9.4	9	6.5
10,000-49,999	14	14.6	16	11.5
<10,000	9	9.4	6	4.3
Rural				
Non-farm	15	15.6	43	30.9
Farm	49	51.0	65	46.8

The data in Table 8 show the respondents' preference for living in a rural area. This preference was expressed by a larger percentage of respondents in 1992 (77.7%) than in 1985 (66.6%). While the largest percentage of respondents in each year desired to live on a farm, the percentage of respondents desiring to live in a rural, non-farm area almost doubled from 1985 to 1992 (15.6% and 30.9%, respectively).

Discussion

Based on the student enrollment figures provided by the community college agriculture instructors in 1985 and 1992, it is apparent that enrollment in transfer agriculture programs increased substantially over the seven year period. In 1985, 110 students were enrolled in transfer agriculture programs at the six community colleges; by 1992, enrollment had increased to 222 students. This was an increase of 102%.

In comparison to this growth at the community colleges, undergraduate agriculture enrollment at Mississippi State University remained stable during the seven year period (fall 1985 = 1172; fall 1992 = 1170) ("Fall 1985 Enrollment Report . . ., 1986; Abridged Fall 1992 National Enrollment Report," 1993). Additionally, the percentage of community college transfer students in the undergraduate agriculture stu-

dent population at Mississippi State University increased from 42% in 1987 to 49% in 1992 (Taylor and Johnson, 1993). Taken as a whole, these statistics underscore the growing importance of community colleges in Mississippi's system of higher education in agriculture.

In both years the vast majority of respondents were white males. However, the percentage of females in the respondent groups decreased from 14.4% in 1985 to 8.9% in 1992. Likewise, the percentage of minority respondents decreased from 7.2% in 1985 to 4.9% in 1992. Admittedly, the potential for nonresponse bias present in this study precludes generalizing these decreases from the respondents to the population. However, the magnitude of the discrepancy between the percentages of females and minorities in the Mississippi public community college population and those responding to this study does support the somewhat cautious conclusion that both groups are underrepresented in transfer agriculture programs.

The most obvious trend identified in this study was the decreasing percentage of respondents with farm backgrounds and other agricultural experiences. When compared to the baseline 1985 respondent group, the 1992 respondents were less likely to have: (a) been raised on a farm, (b) had parents who were raised on a farm, (c) had parents who owned a farm, (d) enrolled in high school agricultural education, or (e) had agricultural work experience.

This decrease in the percentage of respondents having farm backgrounds and associated agricultural experiences is consistent with changes in the rural Mississippi population structure between 1980 and 1990. According to the U.S. Bureau of the Census, the Mississippi farm population declined from 84,758 in 1980 to 56,225 in 1990 (U.S. Department of Commerce, 1981; U.S. Department of Commerce, 1991). This represents a net outmigration of 33.7% of the state's farm population during the decade.

Despite the sizable decrease in the percentage of farm-reared respondents in 1992, the overall percentage of respondents from rural areas remained fairly constant from 1985 to 1992 (69.1% and 65.3%, respectively). This relative stability was accounted for by an increase in the percentage of rural, non-farm respondents from 1985 to 1992 (20.6% and 34.7%, respectively). Again, this mirrors changes in Mississippi's rural population structure. Between 1980 and 1990, the state's rural, non-farm population increased by 62,077 persons (4.99%) (U.S. Department of Commerce, 1981; U.S. Department of Commerce, 1991).

When compared to the 1985 respondents, a higher percentage of 1992 respondents desired to live in a rural area. Again, the increased preference for a rural, non-farm residence and the decreased preference to live on a farm are consistent with changes in the respondents' backgrounds and those changes occurring in the state's rural population base.

Conclusions and Recommendations

The potential for non-response bias present in this study limits the generalizibility of the conclusions and recommendations. However, given the strength and consistent direction of selected findings and their congruence with trends occurring in the state's rural population, the following conclusions and recommendations were developed.

Conclusion #1: An increasing percentage of Mississippi students planning to earn four-year agriculture degrees are beginning their studies at the community college level.

Recommendation #1: Increased efforts should be made by community college and university agriculture faculty and administrators to articulate instruction, curricula, and student academic advisement. Such efforts should increase the ease and efficiency with which transfer students matriculate at the senior universities.

Conclusion #2: Females and minorities are underrepresented in Mississippi community college transfer agriculture programs.

Recommendation #2: Increased recruitment efforts should be targeted toward females and minorities. Additionally, action-oriented research to identify and remove possible barriers to enrollment by females and minorities should be conducted.

Conclusion #3: An increasing percentage of Mississippi community college transfer agriculture students have non-farm backgrounds and lack associated agricultural experiences.

Recommendation #3: An increased emphasis on internships and practicum courses should be considered. Such courses could provide students with practical agricultural experiences and form a common student experience base on which to provide classroom instruction.

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