DOCUMENT RESUME

ED 293 671 RC 016 571

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TITLE A Gender Comparison of Former Agricultural Students' Employment Experiences.
INSTITUTION Texas A and M Univ., College Station. Texas Agricultural Experiment Station.
PUB DATE 88
NOTE 21p.; A version of this paper was presented at the Annual Meeting of the Southern Rural Sociological Association (New Orleans, LA, 1988).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Agricultural Education; *Agricultural Occupations; *Agricultural Personnel; *College Graduates; Comparative Analysis; Employed Women; Employment Level; Employment Patterns; *Equal Opportunities (Jobs); Fringe Benefits; Graduate Surveys; Higher Education; Job Placement; Occupational Surveys; Salaries; *Sex Differences; Sex Discrimination; Unemployment; *Work Experience

ABSTRACT

To examine the transition of male and female agricultural students from colleges of agriculture into the labor market, a questionnaire was mailed in 1986 and 1987 to a 30% random sample of agricultural majors formerly enrolled at Texas A&M University and Oklahoma State University in the 1976-77 academic year. The survey obtained information about current educational attainment; past agricultural curriculum training; resources used by study participants to find employment; employment benefits received; and labor market participation according to first full-time position, starting salary, and total number of weeks unemployed since college graduation. Analyzed and compared by gender, the survey data clearly indicated that structural conditions allocated different occupations and employment benefits to comparably trained men and women. Although more than 90% of the study participants graduated with degrees from colleges of agriculture, women experienced more occupational segregation than men. Their first full-time jobs after leaving college were concentrated in traditional female occupations such as sales, clerical, and technical positions. Men more frequently obtained managerial and professional positions. The particular education qualifications of women in the study served primarily to allocate them to white-collar, secondary jobs. Future inquiries should address why women graduates are relegated to secondary jobs and why the positions are accepted. (JHZ)

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A Gender Comparison of Former Agricultural Students' Employment Experiences

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A version of this paper was presented at the 1988 meetings of the Southern Rural Sociological Association in New Orleans, Louisiana

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A Gender Comparison of Former Agricultural Student's Employment Experiences

Introduction

Researchers and other observers have noted the trend of increased but targeted participation by women in the overall labor force. Since 1970, the percent of women in the civilian labor force has increased from 38 percent to 44 percent in 1986. The proportion of all women who are working has risen likewise from 43 percent to 54 percent (Bureau of Labor Statistics, 1987). Yet, employment increases by women have differed across industries and occupations. This is evident particularly in American agriculture. Despite significant enrollment increases by women in colleges of agriculture at 1862 land-grant universities (Dunkelberger, et al., 1982), women represent less than 5 percent of the scientists and professionals in the agricultural industry and concentrate primarily in such areas as nutrition, the social sciences, and food science (Busch and Lacey, 1983). Two possible explanations can be offered to account for their lack of participation given the decreasing supply and projected shortage of professional and technical manpower confronting this industry (Bruene, et al., 1985; Coulter and Stanton, 1980; Bender, et al., 1985). Women who are attaining higher education in agriculture either are choosing not to pursue agricultural-related careers, or they are structurally "locked out" from filling agricultural-related positions in the labor market.

To more adequately understand why women are under-represented in the agricultural industry when shortages of professional manpower are projected, it is necessary to examine selected aspects and outcomes of the labor market recruitment and entry process experienced by women trained in

colleges of agriculture. In this paper, we first examine the educational achievement patterns of former students enrolled in colleges of agriculture at two land-grant universities in the Southwest. Since we do not expect all students who declare agricultural majors to remain in such majors until graduation, we identify the proportion who actually graduated with agricultural degrees, their academic area of study, and the proportion who pursued graduate education in agriculture. We conclude our analyses by examining patterns of market entry and early career mobility. Specifically, we identify sources that facilitate job placement and transition into the labor market, the types of acquired jobs, and the types of employment benefits received.

Background

Research on women's career development and participation in the labor force has taken generally two courses. Evolving from what had been predominantly "male status attainment modeling", one approach focused on estimating levels of influence that background factors had on career choices and attainments. Antecedent factors included in some combination parental socioeconomic statuses, significant other influences, and personal characteristics. These were hypothesized to affect achievement attitudes, which in turn determined status attainments. Research in this area demonstrated that the career development and attainment process for women was different and more complex than that for men during various stages in the life cycle (Alexander and Eckland, 1974; Falk and Cosby, 1975; Rosen and Aneshensel, 1978).

More recent research has demonstrated not only differences but also reported them specifically for the recruitment to agricultural occupations. For example, Lyson (1981) reported that although men and women who are

enrolled in colleges of agriculture come from similar social origins and are influenced by a similar set of significant others, female students are less likely than male students to have had prior agricultural work experience and participation in agricultural-related youth and high school organizations. Moreover, he found that male and female agricultural majors differed in their perceptions of labor market opportunities and reward structures. Female students pursuing agricultural education/research and agribusiness types of employment expected to attain lower incomes but higher status jobs than their male peers.

One of the major criticisms against this and other attainment research is its emphasis on background and personal characteristics of an individual as sole determinants of occupational and income attainments in the labor market. These factors have accounted for too little of the total variation in status outcomes. As a result, a second course of research has attempted to explain how individuals are differentially allocated to "structural positions". Horan and Tolbert (1984: 77-78) point out structuralists,

> . . .focus on the importance of different levels of organization within the industrial economy, emphasizing the priority of such industrial organization over the characteristics and behaviors of individuals. Among the major levels of organization considered in this growing structuralist literature are positions and relationships within the productive process (the workplace), positions within corporate decision-making and authority relations (the firm), and positions within market relationships (the economy). . . [T]he empirical relationships between antecedent and consequent individual characteristics bear no direct correspondence to fundamental socioeconomic processes. Instead, they represent summary measures of the outcomes of match-ups between individuals and resources that are produced by the fundamental processes of interest.

It is evident that these two approaches compete regarding their respective emphases on attainment and allocative processes, outcomes of such processes, and selection of different units of analysis. Nevertheless, exclusive use of either approach limits our ability to derive a comprehensive understanding of career development and labor market participation. To avoid this dilemma, Horan and Tolbert (1984: 80-83) used in their neostructural approach both characteristics of individuals being allocated and the characteristics (categories) of industries and occupations to which they were allocated. Findings from their work on the organization of work in labor markets in the South indicated that (1) characteristics of these labor markets vary (e.g. urban trade, agricultural, export, etc. types of labor market), (2) these characteristics have a significant effect on the allocation of individuals to occupations and on the allocation of earnings to occupations, and (3) extreme gender and race differences existed in occupational and earning allocative outcomes when type of market was controlled.

Our work will differ from that of Horan and Tolbert (1984) by controlling in two ways a major variable in the attainment literature. We control first the level and then the type of educational achievement in our study by focusing on individuals who have attained baccalaureate degrees specifically from colleges of agriculture at two land-grant univerities in the Southwest. Given what we know about female enrollments in colleges of agriculture and the under-representation of women in agricultural-related occupations, we hypothesize that structural features of the agricultural sector of the labor market are generally excluding female agricultural graduates resulting in their being allocated to other sectors and positions in the labor market.

Methods

Data

Participants in the current study were obtained from a 30 percent random sample of agricultural majors formerly enrolled at Texas A&M University (TAMU) and Oklahoma State University (OSU) in the 1976-77 academic year. The sample excluded individuals who were graduate students and special students in 1976, and foreign students with 1986 foreign addresses. A mail survey was conducted from late 1986 to early Spring of 1987. Notification letters were sent three weeks prior to the mailing of the questionnaires to sample members to inform them of the purpose of the study and to confirm current address information. Follow-up letters were sent 5 weeks after mailing questionnaires to nonrespondents. Overall, 48 percent (n=559) of the original TAMU sampling list and 28 percent (n=158) of the OSU sampling list participated in the study where employment occurred. Males and females represented 75 percent and 25 percent, respectively, of the study participants.

Measurement

The early career formation process consists of three stages: educational attainment, labor market entry, and market participation. In this study, we examine educational attainment in terms of level or current status of attainment and type of past agricultural curriculum training (e.g. agronomy, animal science, agricultural economics, etc.). We follow this by identifying for labor market entry the types of resources used by study participants to find employment. Five resources are included in the analysis: self-employment. personal acquaintances and efforts, university services and faculty, employment services (public and private), and civil

service and military. Finally, we examine labor market participation according to first full-time position (occupation), industry status (agricultural and nonagricultural), starting salary, and total number of weeks unemployed since college graduation. In addition, we compare by gender 12 types of employment benefits received during respondents' first full-time jobs. They were: medical insurance, dental insurance, accident insurance, life insurance, sick pay, unemployment insurance, paid vacation, profit sharing. company training program, retirement/pension plan, company-provided transportation, and company housing.

Statistical Analysis

The survey data were analyzed and compared by gender. Chi-square statistical tests of significance were conducted for most categorical comparisons. The Student's t-test was conducted when variable means could be calculated for each gender. No test of significance was conducted when the number of response categories was too large and cell frequencies were low. On such occasions we considered the descriptive features of the data more important than the application of data reduction procedures to permit the conduct of significance tests. The purpose of these tests was to determine if early employment/career experiences were equivalent for both genders given the similarity of their educational credentials. If differences occurred, they would be attributable to unspecified structural features of the general labor market, or specific regional/local labor markets.

Results

Educational Attainment

Educational statuses are reported in Table 1. General attainment patterns were similar for both gender groups. Less than 10 percent of the respondents did not graduate from college with a baccalaureate degree. Approximately 60 percent of both groups completed their undergraduate education and had not attained other degrees or enrolled in advanced programs. Slightly more men (14%) than women (12%) attained a master degree, while the reverse was the case for those who attained professional and doctoral degrees (women-9%, men-6%). Almost 1 in every 10 respondents in each group was currently enrolled in some type of graduate or professional program.

To determine whether respondents had actually completed their undergraduate education in agriculture, they were asked to report the curriculum or major of their bachelor's degree. Table 2 reports the results for 18 types of agricultural curricula. While a large majority (>93%) of both groups received degrees from colleges of agriculture, they differed regarding specific areas of study. Among males, 72 percent majored in animal science, agricultural economics, agronomy, agricultural education, wildlife and fisheries sciences, agricultural engineering, and range science, compared to 47 percent of the females' majoring in these areas. Animal science was most frequently mentioned by both groups. Among females, 38 percent, compared to 14 percent of the men, reported receiving degrees in horticulture, recreation and parks, biology, and food science. Women (7%) more frequently than men (2%) changed to nonagricultural undergraduate majors (e.g. business, social sciences, etc.).

Labor Market Entry

Sources contributing most to respondents' finding their first full-time employment after leaving college are reported in Table 3. Both groups, particularly women, relied heavily on personal acquaintances and individual effort (e.g. direct application to employer and response to employment advertizing) to find employment. Almost a fourth of all respondents credited university placement services. Although few used employment agencies/firms and the civil service/military, women more frequently than men depended on these agencies/firms; the reverse was the case for the two groups regarding government and military employment. Finally, men were more likely than women to become self-employed. Much of this self-employment was attributable to their beginning farming and ranching. Overall, these gender differences were statistically significant.

Labor Market Participation

The occupational positions of respondents' first full-time employment after college are presented in Table 4. Several differences in gender allocation to employment positions are notable. Although large percentages of men (40%) and women (32%) attained managerial and professional specialty positions, men more often acquired employment in these and other male-stereotypical positions. As mentioned above, 20 percent compared to 5 percent of the women began farming or some agricultural production-related work. Twelve percent compared to 4 percent of the women took blue-collar jobs involving manufacturing, operative, and service types of work. Elsewhere, the distribution of women followed their traditional employment patterns with substantial percentages employed in sales (women-40%, men-19%) and technical types (women-17%, men-10%) of positions. Overall, 23

percent of the women versus 16 percent of the men was employed in specific professional and technical health and natural science positions.

Starting annual salaries also differed significantly by gender. As shown in Table 5, men ($14,046) had an average annual starting salary of more than double that of women ($6,777). Much of this difference is attributable to twice the proportion of women (35%) than men (17%) had starting salaries less than $10,000.

Fringe benefits received by men and women during first full-time employment were similarly distributed for primary types of compensation such as medical insurance, paid vacation, and sick pay. However, fewer respondents received other types of benefits and the distribution of many of these benefits differed significantly according to gender. Table 6 reports the results. Regarding benefits other than those just listed, men received more frequently than women accidental insurance, life insurance, company training, retirement plans, company-provided transportation, profit-sharing, and housing. While only access to such benefits has been examined here (Lord and Falk, 1982), the extent of benefit coverage has been shown also to be a function of gender characteristics in the general population and characteristics of employing firms (Dalto, 1987).

Finally, total number of weeks of unemployment are presented in Table 7. Women were unemployed significantly longer than men. They averaged 53 weeks out of work since leaving college while men averaged 18 weeks. Fourteen percent were unemployed a year or longer, compared to only 2 percent of the men. We did not determine whether they and other respondents actively sought employment during such periods. Clearly though, women had more difficulty than men finding jobs. Approximately 36 percent have been employed continuously since leaving college. Among men,

however, 2 out every 3 have been steadily employed.

Summary and Discussion

The intent of this paper was to examine the transition of male and female agricultural students from colleges of agriculture into the labor market. By selecting individuals with a similar level of education (16 and more years of education) and area of study (agricultural sciences), we partially controlled the educational qualifications of study participants. Although we suspect that specific majors (e.g. agricultural economics, animal science, etc.) are important for employment outcomes, we could not pursue determining this with our sample. Nevertheless, by further selecting students formerly enrolled during 1976-77 and obtaining their participation in the 1986-87 study, we controlled also "period effects", temporal changes in occupational opportunity structures, that can influence allocative processes (Horan and Tolbert, 1984: 101). Overall, these controls facilitated our investigation in determining whether differences, if any, in employment outcomes for males and females could be attributable to unspecified structural conditions in the labor market.

The results of our study clearly indicated that structural conditions (e.g. firm size and type, industry mix, and rural/urban area) allocated different occupations and employment benefits to comparably trained men and women. Although more than 90 percent of both study groups graduated with degrees from colleges of agriculture, women experienced more occupational segregation than men (Bielby and Baron, 1986; Abrahamson and Sigelman, 1987). Their first full-time jobs after leaving college were concentrated in primarily traditional female occupations such as sales, clerical, and technical positions that are generally allocated lower earnings and

employment benefits than those for men, who were allocated more frequently to managerial and professional positions. These findings agree with those of other studies which found similar allocative patterns for all men and women in general (Abrahamson and Sigelman, 1987; Dalto, 1987; Lyson, 1985; and Hodson, 1984).

It seems then that the particular education qualifications of women in this study served primarily to allocate them to white-collar, secondary jobs. Opportunity structures associated with such jobs depend on internal labor markets within particular types of firms and establishments. Conceptual and empirical features of this allocation have been occasionally described using two forms of segmentation within labor markets - occupational internal labor markets (OILMs) and firm internal labor markets (FIRMs). Smith (1983) distinquishes OILMs as occupational groups (defined by skill and work requirements) that cut across firm and industry boundaries. FILMs represent essentially career ladders, accompanying benefits, training programs, and work conditions developed by large firms to control and retain skilled labor (i.e. professional, managerial, and technical positions).

Cautiously extrapolating findings regarding the operation of OILMs and FILMs from other studies, we can infer that women in our study who are employed in white-collar, secondary jobs, particularly those in the peripheral economic sectors (e.g. the agricultural industry) will have access to limited internal labor markets that restrict career mobility and earnings. Mobility tends to be across industrial sectors and firms since employing peripheral firms are generally smaller, less complex and bureaucratic, and more competitive than core firms (Baron and Bielby, 1984). Women with jobs in larger, core firms will be afforded, on the

other hand, more employment security, pay, and career movement (Lorence, 1985; Granovetter, 1984) and Jacobs, 1983).

Future analyes should investigate subsequent employment allocations of these former male and female agricultural students to determine whether indeed their mobility patterns coincide with general segregative patterns for all men and women. If patterns resemble, educators and students may become concerned that agricultural higher education fails to produce nontraditional career advantages for women in the labor market. Moreover, questions should be raised regarding not only why women with college educations continue to be allocated to secondary jobs but also why they choose to accept such positions. Finally, our study did indicate that some women with agricultural majors/degrees were allocated to primary employment positions. More effort needs to be directed toward identifying academic and background characteristics that distinquish these women from other women graduating from colleges of agriculture.

Table 1

Level of Educational Attainment by Gender (Percents)

Educational Level	Male (n = 537)	Female (n = 172)
No Degree	5.6	7.6
Attained Bachelor Degree	66.7	63.4
Enrolled in Master Program	4.8	3.5
Attained Master Degree	14.3	11.6
Enrolled in Professional Program	1.3	3.5
Attained Professional Degree	3.4	5.8
Enrolled in Doctrate Program	1.7	1.7
Attained Doctrate Degree	2.2	2.9

Chi square test was not significant at .05 level.

Table 2

Curriculum or Major of Bachelor's Degree by Gender (Percents)

Curriculum/Major	Male (n = 508)	Female (n = 161)
Agriculture Development	1.4	0.0
Agriculture Economics	15.8	7.5
Agribusiness	2.8	1.9
Farm and Ranch Management	0.4	0.0
Agriculture Education and Journalism	8.5	1.9
Agriculture Engineering	6.3	1.2
Agronomy	11.4	7.5
Animal Science	17.7	21.1
Biology	3.4	7.5
Dairy Science	0.6	0.6
Entomology	2.2	3.1
Horticulture	5.9	16.2
Food Science	0.8	5.0
Forestry	4.5	3.1
Poultry Science	0.6	0.0
Recreation and Parks	3.7	9.3
Range Science and Management	4.5	0.6
Wildlife and Fisheries	7.5	6.8
Other	2.2	6.8

Table 3

Sources Contributing Most to Respondents' Finding First Full-Time Employment by Gender (Percents)

Factors	Male (n = 534)	Female (n = 170)
None Helped	3.2	4.7
Self-Employment	10.3	6.5
Individual Contacts	49.8	57.7
University Services	26.6	22.4
Employment Service	2.6	5.9
Civil Service/Military	7.5	2.9

Chi-Square test was significant at .05 level.

Table 4

Occupation of First Full-Time Position
by Gender (Percents)

Occupations	Male (n = 527)	Female (n = 168)
Managerial and Professional Speciality Occupations:		
Executive, Administrative, and Managerial Occupations	16.1	8.9
Engineers and Physical Scientists	5.3	3.0
Natural Scientists and Veterinarians	7.4	6.6
Health Occupations	1.0	2.4
Teaching Occupations	4.2	6.0
Agriculture and Forestry Teaching and Vocational Occupations	3.0	2.4
Other Professions	2.9	2.4
Technical Occupations:		
Health Occupations	1.0	3.0
Engineering Occupations	0.2	0.6
Natural Science Occupations	6.6	10.7
Other Technical Occupations	2.1	2.4
Sales and Administrative Support Occupations:		
Sales Occupations	14.4	19.1
Administrative Support Occupations and Clerk	4.2	21.4
Private and Public Service Occupations:	1.1	1.8
Farming, Forestry, and Fishing Occupations:		
Farm Operators and Managers	11.8	3.6
Other Occupations	8.5	4 2
Precision Production, Craft and Repair Occupations:	5.3	1.8
Operator, Fabricator, and Laborer Occupations	5.3	0.0

Table 5

Starting Annual Salary of First Full-Time Job After Leaving College by Gender (Percents)

Starting Annual Salary	Male (n = 500)	Female (n = 159)
Less than $10K	17.2	34.6
$10K - $20K	72.4	56.6
$20K - $30K	8.4	7.6
$30K - $40K	1.2	1.3
$40K - $50K	0.2	0.0
$50K or more	0.6	0.0
Mean	$14,046	$6,777
Standard Deviation	$11,905	$5,084

T-test was significant at .05 level.

Table 6

Company Benefits for First Full-Time Job After Leaving College by Gender (Percents)

Benefits	Percent Reporting Benefit Male (n = 530)	Female (n = 169)
Paid Vacation	76.4	75.1
Medical Insurance	72.6	71.6
Sick Pay	61.9	65.7
Accident Insurance*	52.4	50.0
Life Insurance*	57.4	42.6
Retirement*	47.4	36.3
Company Training Program*	36.2	25.6
Unemployment Insurance*	34.8	33.7
Company Transportation	33.2	17.2
Dental Insurance	29.6	24.3
Profit-Sharing*	22.1	10.7
Housing*	14.3	7.7
Other	7.4	7.7

*Chi-Square test was significant at .05 level.

Table 7

Number of Weeks Unemployed Since Leaving College by Gender (Percents)

Weeks Unemployed	Male (n = 529)	Female (n = 170)
None	67.3	35.9
1-6 Weeks	14.0	14.1
7-12 Weeks	7.4	14.7
13-26 Weeks	4.5	13.5
27-52 Weeks	4.9	8.2
More than 52 Weeks	1.9	13.5
Mean	18.5	52.8
Standard Deviation	26.9	98.5

T-test was significant at .05 level.

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