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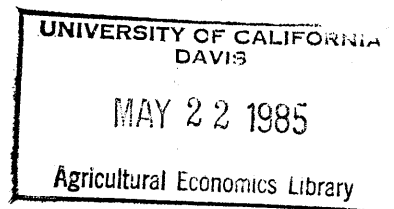
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1982

# Opportunities for Women in Agricultural Economics

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Women

1982

## PREFACE

The Committee on the Status of and Opportunities for Women of the American Agricultural Economics Association (COWOP) has recognized two formal discussions of women's comparative status and opportunities in the profession. The first was an invited papers session at the Association meetings at Clemson University in July of 1981. Papers presented at that session were published in Volume 63, Number 5 of the American Journal of Agricultural Economics which appeared in December, 1981. The second was an Organised Symposium held at the Association meetings at Utah State University in August, 1982. The papers presented, that formed the basis for the discussion that followed, appear in this volume. One of the papers is a report of the analysis of data on job search from the survey of women working as agricultural economists authorized by the Executive Board of the American Agricultural Economics Association in July 1980 and conducted in early 1981 (Lundeen and Clauson\*). One utilized data from the Committee on the Status of Women in the Economics Profession surveys as well as the COWOP survey. Two are based on further surveys conducted by the authors.

From her survey, Offutt found that although fewer than five percent of the membership of the American Agricultural Economics Association are women, almost a quarter of enrolled graduate students in Departments of Agricultural Economics in 40 universities in the United States are women. Eighty percent of the women were in Master's Degree programs as opposed to 60 percent of the men. The majority of the women in the Cornell sample had urban/suburban background, were single, capable and committed. They tended to specialize in the non-traditional areas of agricultural economics. She concluded that they needed exposure to the traditional areas in the field and career counseling if they are to understand the breadth of career possibilities in agricultural economics and the value of a Ph.D.

Clauson found women averaged more interviews at meetings of the American Agricultural Economics Association but, on average, received fewer job offers as a result of just these interviews. After follow-up interviews women, on average, received more job offers than men. State colleges or universities and government, the two types of prospective employers pressed to conform to Affirmative Action plans accounted for the higher average of job offers for women. Men, on average, received higher salaries on accepting positions with state colleges and universities or private firms, but they were older and had more years of work experience.

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\*Lundeen, Ardelle A. and Annette L. Clauson, "The Conduct of the Survey on the Opportunities for and Status of Women in Agricultural Economics". Am. J. of Ag. Econ. 63 (1981) : pp. 1010-1021.

Since both the Offutt and Clauson studies are based on small samples, results cannot be said to be definitive but they are indicative.

Gladwin used a telephone survey and a decision model to predict under what circumstances women with Ph.D.s in Agricultural Economics in the United States would limit their job search due to geographic immobility. She found two-career marriages do tend to result in geographic immobility for the women. When job searches are limited to a given geographical area women are likely to settle for a "less suitable" job than they are qualified for unless they also search for a business or government position in a large metropolitan area.

Redman wrote about hiring and tenure prospects for women in agricultural economics. She reported a disproportionate number of those with Ph.D.s were employed outside of academia, primarily by the federal government. Compared to men, very few women with Ph.D.s obtained their first job in agricultural economics departments. Her sample was too small for any firm conclusions but her tentative conclusions were that discrimination does exist and has existed at the hiring level in academic agricultural economics. She added that discrimination at this level is eroding but slowly, too slowly for evidence on sex discrimination in the tenure decision, made between five and seven years after hiring, to be conclusive at present.

In short, women are now enrolled in graduate programs in agricultural economics in significant numbers but despite Affirmative Action programs, they still have some barriers to overcome if they are to move into the profession on a par with men.

## TRAINING AGRICULTURAL ECONOMISTS:

### ARE WOMEN DIFFERENT?

by Susan E. Offutt\*

Agricultural economics is a discipline dominated by men with farm backgrounds, but the number of women is growing. Thus, questions can be raised about the backgrounds, career goals, and career-related problems of women in agricultural economics. For example, what factors encourage or discourage women from entering agricultural economics? Such questions were addressed by the American Agricultural Economics Association (AAEA) Committee on Women's Opportunities (COWOP), but their survey's sample was small and included very few graduate students. This paper provides additional evidence about the motivations and career goals of women graduate students in agricultural economics based on a survey of students at Cornell University.

Fewer than five percent of the AAEA's membership are women. While almost a quarter of presently enrolled graduate students are female, they remain a minority group within the profession. The assimilation of an increasing number of women can be expected to have an impact on the profession to the extent that the orientation and motivation of women differ from that of traditional agricultural economists. This survey seeks to illuminate the nature and extent of possible differences and considers their implications for women's future experiences in the discipline. In addition, the reciprocal effects of women on the profession are examined. The criteria by which the differences are judged are: socio-economic characteristics; motivation for pursuing graduate study in agricultural economics (and at Cornell in particular); areas of specialization and prior academic background; and expectations about graduate education.

In the past, women have perceived the existence of barriers to their advancement as professional agricultural economists. While the experiences of older women will have been different than those of their younger colleagues (who benefit from the achievements of those who go before), these barriers may still be an influence on the assimilation

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of women into the field. Using the results of the 1981 COWOP survey, Lane determined that the women

...had, for the most part, been dissuaded from becoming agricultural economists, found they had problems with consumption management, had spouses with negative attitudes toward their working, lacked role models, found they were professionally or socially isolated on the job, felt that they had employers who lacked perception of their potential, and had been questioned excessively about family affairs during interviews. (p. 1029)

While some of these barriers (in particular, the last three on the list) do not come into play until after a woman's entrance to the job market, their existence can be anticipated by women currently in graduate school. The results of this survey can be used to determine the extent to which women in graduate school now feel they have been discouraged from becoming economists and have suffered from a scarcity of role models. A number of barriers are associated with a woman's marital status, i.e., consumption (household) management, spouse's attitude, and employer's interest in family affairs. Thus, married women might face greater impediments to career advancement than single women. The survey can identify marital status and future plans which bear on these issues.

Women's acceptance and participation in the profession may be reflected in their graduate school experience and also influenced by their choice of academic specialization. In particular, the survey results can provide the basis for comparison between men's and women's academic achievements which determine their relative quality as students and thus their opportunities and attractiveness in the job market. The existence of colleges of home economics at land grant institutions has left its imprint in the proportion of women concentrating in consumer and human resource economics. Does the present generation share this predilection or are women interested in traditional areas such as farm management and production? Again, the survey results will provide information on these facets of women's experiences.

The original COWOP questionnaire (itself based on an American Economics Association form) provided the basis for the Cornell survey, although modifications were necessary to make it relevant for graduate students. Both female and male students were sampled. The results of the survey provide new information on the status and future of women in agricultural economics through its concentration on graduate students. Further, a prototype questionnaire has been developed that can be used in constructing a form for use in a comprehensive survey of all graduate schools of agricultural economics. In addition, the department at Cornell should obtain some insight into its appeal to both males and females as a place for graduate study.

## CONDUCT OF THE SURVEY

The Cornell graduate student population available for sampling in the fall of 1981 was composed of 23 females and 68 males. All women were surveyed. A matching sample of 23 men was chosen randomly. The only restriction on the sample of men was that the proportion of foreign students did not exceed that found in the departmental student population. This limit was deemed necessary because over 85 percent of the women were domestic U.S. citizens. Therefore, to help assure some degree of comparability between the two groups, the proportion of foreign students could not be too great. No control was made so that the number of Ph.D. men in the sample reflected that of the male population, although the drawing did come out approximately correct (about one-third of the men's sample were doctoral candidates, compared to slightly less than fifty percent in the total male population).

The survey was distributed through intradepartmental mail; students were allowed ten days to complete and return it. The response was 19 out of 23 for the women and 20 out of 23 for the men. All completed questionnaires were used in reporting and analyzing the results. Although the identities of the respondents were known to the researchers, the completed questionnaires were coded numerically to preserve anonymity. A copy of the complete questionnaire is included in the appendix. Further information on responses is available from the author upon request.

## STATISTICAL OVERVIEW

In order to provide some basis for comparison on enrollment composition, 40 other graduate departments of agricultural economics in addition to Cornell were queried about relative numbers of men and women in total and by degree program. The departments surveyed enrolled about 1900 total graduate students, of which some 460 women. Table 1 shows the percentage breakdown by sex and degree category for all schools surveyed.

TABLE 1

### NATIONAL SURVEY : ENROLLMENT BY CATEGORY

DEGREE PROGRAM	% OF TOTAL	
	WOMEN	MEN
M.S.	19	45
Ph.D.	5	31

This table shows that 24 percent of the graduate enrollment is composed of women, most of whom are Master's candidates. Looking at the national

data: another way, 30 percent of all M.S. candidates and 14 percent of all Ph.D. students are women. At Cornell, women also represent 24 percent of the total graduate population. Between degree categories, 31 percent of Cornell's M.S. and 16 percent of its Ph.D. students are female. This distribution is quite similar to that found in the national survey.

To put these figures in perspective, consider that, according to National Science Foundation data, 23 percent (about 4000) of all 1981 doctorates in engineering and the physical, mathematical, life and social sciences were awarded to women (Vetter, p. 1314). (A decade earlier, the figure was only ten percent). Of these Ph.D.'s earned by females, 86 percent were in the life sciences (33 percent) and social sciences (53 percent). Within the social sciences, 35 percent of all 1981 doctorates were awarded to women.

While enrollment is not an accurate predictor of degrees awarded in any one year, the data would suggest that agricultural economics lags behind its sister disciplines in the social sciences in the proportion of Ph.D.'s which are earned by women. The performance of agricultural economics, though, is slightly better than that of economics, in which 12 percent of the 1980/81 Ph.D.'s were women (Bailey, p. 439). This rate of participation of women is comparable to that of the physical sciences, in which only 12 percent of 1981 doctorates were female (Vetter, p. 1314).

As for M.S. degrees, Vetter states, "Although women with master's degrees make up half of all women scientists (the figure is 37 percent for men), we know relatively little about the status of women scientists below the doctoral level" (p. 1314). In the graduate student body in the 40 departments surveyed, eighty percent of the women enrolled are M.S. students. For graduate men, sixty percent are M.S. students. These proportions are the same for graduate students in economics awarded M.A. and Ph.D. degrees (Bailey, p. 439). The higher overall fraction of M.S. students in agricultural economics and economics compared to the total science population is probably attributable to the fact that it is less usual to award master's degrees in other than the social sciences. Within agricultural economics, however, the general case, that proportionately fewer women than men hold doctorates or are studying for same, is reflected.

## SURVEY RESULTS

### BACKGROUND CHARACTERISTICS

Students come to graduate school from different backgrounds, with different academic and family experiences, and at different stages of their lives. All these factors can be expected to influence an individual's intellectual orientation and career aspirations. To determine whether women and men displayed consistent differences in these background



characteristics, data on age, marital status, family characteristics, and academic achievement and preparation were obtained from each respondent. These results are reported in Table 2.

In general, the women tend to be younger than the men (an average age of 26 versus 28.5) and are more likely to be single (an interesting aside - all married females are Ph.D. candidates). In terms of family characteristics, a higher proportion of women's than men's fathers hold college and advanced degrees; for mothers, the differences are not so marked. An optional question about family income was included. Among those who responded (more than 75 percent), women's families appear more affluent. Sixty percent of their families had annual incomes over \$50,000, compared to about 30 percent of those of the men. Ninety percent of the women were raised in urban or suburban areas; only two thirds of the men were. Men were more likely to have been raised in New York state (one third) than were women (one tenth).

As for academic preparation, half of the women attended private undergraduate institutions, versus a quarter of the men. Another third of the men graduated from land grant institutions, as did one fifth of the women. Taken together, land grant institutions were attended by thirty percent of the total sample. By comparison, Schrimper reports that, during the period 1975-1977, two thirds of all Ph.D.'s in agricultural economics had attended land grant universities as undergraduates (p. 17). Cornell, therefore, may be atypical among graduate schools of agricultural economics in drawing a large proportion of students from other public, non-land grant and private schools.

In Table 2, the distribution of undergraduate majors reflects the types of undergraduate institutions attended. More men than women majored in agricultural economics, as more men attended land grant colleges where the major would be part of the curriculum. Sixty percent of the men majored in agricultural economics or economics, compared with about fifty percent of the women. More women than men (42 versus 25 percent) majored in fields outside the social sciences. As for rank in college class, 75 percent of the women graduated in the upper decile versus 45 percent of the men. However, men were slightly more likely to have finished in the upper two percent (25 versus 16 percent). In terms of subjects taken, women tend to have had more economics and calculus but fewer courses in applied quantitative subjects (econometrics, linear programming) than men (perhaps, again, reflecting the fact that these latter subjects are more likely to be offered in an undergraduate agricultural economics than economics department.) This data dispels ideas about women's supposed deficiencies in mathematics.

TABLE 2

BACKGROUND CHARACTERISTICS OF SAMPLED STUDENTS,  
CORNELL UNIVERSITY 1982

	% OF TOTAL	
	WOMEN	MEN
<u>PERSONAL</u>		
Current age		
21 - 23	26	17
24 - 26	37	0
27 - 29	21	50
30 or over	16	33
Marital status		
Single	84	40
Married	16	60
Father's education (by degree)		
Advanced	50	35
College	28	10
High School, other	22	55
Mother's education (by degree)		
Advanced	17	5
College	33	30
High School, other	50	65
Family Income (optional)		
\$25,000 or less	9	16
\$26,000 - \$50,000	33	56
\$50,000 or more	58	28
Type of area where raised		
Rural	10	35
Urban/Suburban	90	65

TABLE 2. (Cont.)

% OF TOTAL

WOMEN      MEN

## State where raised

New York	8	30
Other and foreign country	92	70

ACADEMIC

## Type of undergraduate institution

Land grant	19	35
Other public	31	41
Private	50	24

## Undergraduate major

Agricultural economics	5	25
Economics	42	35
Other social science	11	15
Other sciences	21	10
Humanities	11	5
Other	10	10

## Rank in College class

Upper 2%	16	25
Upper 10%	58	20
Upper 25%	6	30
Upper 50%	10	5
Not applicable/available	10	20

## College subjects

Principles of economics	90	85
Additional economics	74	50
Calculus	74	55
Advanced mathematics	11	10
Statistics	68	75
Econometrics	26	35
Matrix algebra	32	40
Linear programming	5	25

TABLE 2. (Cont.)

	% OF TOTAL	
	WOMEN	MEN
First year graduate GPA		
4.3 - 4.0	18	9
3.9 - 3.7	18	23
3.6 - 3.3	32	41
3.2 - 3.0	9	23
3.0 and below	13	4
Primary academic speciality		
Intl. trade & development	39	25
Natural resources	26	20
Farm management	5	15
Ag. finance	0	15
Ag. marketing	10	10
Agribusiness management	0	5
Research methods	0	5
Ag. policy	10	5
Human resources	5	0
Consumer economics	5	0

In general, then, women and men appear equally capable and well-prepared for graduate study in agricultural economics. To see how each group subsequently fared over their first year of graduate coursework, the cumulative grade point average (GPA) for this year was obtained for each respondent (these figures were delivered to the researchers in a random order with no names attached). On average, women had a GPA of 3.49 and men one of 3.44. Table 2 shows the distribution across letter grade divisions. That for men is bell-shaped and symmetric; that for women is more evenly distributed over the higher grades. However, the cumulative distribution above 3.3 is about the same for both sexes, about seventy percent. Judging by this information, which may be an imperfect indicator of overall success in graduate school, men and women perform equally well, although women are more likely to be at the very top or bottom of the grade distribution.

Areas of primary academic specialty which indicate future professional orientation were reported by each respondent (Table 2). Sixty-five percent of the women and forty-five percent of the men listed concentrations in international trade and development or natural resources. The proportion of men in traditional specialities within the discipline (management, finance, marketing) was 45 percent, compared with only 15 percent of the women, who were more likely to be in policy analysis or human resource and consumer areas. Redman, in analyzing

the results of the earlier COWOP survey, found the same two areas to be dominant. However, in that survey, 17 percent of the women reported welfare, consumer, or urban/regional studies specialties; the present study does not include consumer economists since the agricultural and consumer economics departments at Cornell are separate entities.

#### CAREER CHOICE

In assessing women's motivations to enter the field of agricultural economics, the survey asked several questions about a student's process of choosing a career. The age at which the decision was made and the role models available at that time may influence decisions to pursue a professional career which requires graduate training. Respondents were also asked to delineate their reasons for selecting the particular field of agricultural economics as well as their ultimate degree plans. In all cases, the intent of the questions was to attempt to identify what, if any, systematic differences between men's and women's career selection processes exist. This information is of value in assessing and formulating the field's recruiting efforts and in understanding women's motivation.

The decision to pursue a career in agricultural economics was made, on the average, at age 23 by women and at 26 for men. Similarly, the decision to pursue any kind of career was made at age 17 by women and age 20 by men. These results are just the opposite of those obtained in the earlier survey, in which women were found to have made a decision on the field several years after men. Redman reports,

Women were relatively more likely to make the choice during graduate school. Agricultural economics, by virtue of its male dominance, may not have occurred to as many women as a viable career choice during their earlier years of education. (p. 1019)

The explanation for this difference is not entirely clear, although it may be that women are more aware of the career decision than men, since men have probably always expected to have a career in the sense of a permanent job. That is, "career decision" may have a different connotation for women than men.

The existence of role models, as well as career dissuaders, is often cited as a potentially large influence on the career decisions of both men and women. Generally, the conjecture is that the lack of same sex role models with whom women can identify and to whom they may turn for guidance prevents women's greater participation in such traditionally male-dominated fields as agricultural economics (Weitzman, p. 121). The results of the role model question are reported below (since more than one could be listed by a respondent, totals do not add to one hundred). Most striking here is that more women than men reported having

role models, indicating either that they are more available than commonly supposed or that women are more sensitive to the influence of others on their career decisions. For women, college professors were the most likely role model (in the survey, half of these were reported as female). In contrast, relatives outside the immediate family and friends or colleagues were the two most influential model types for men.

TABLE 3

PRIMARY ROLE MODELS

	% OF TOTAL	
	WOMEN	MEN
Father	11	5
Mother	5	0
Other relative	5	25
Friend or colleague	21	25
High school teacher	5	0
College professor	31	15
Employer	5	5
No one	37	50

In the earlier survey, separate questions about role models and career-encouraging individuals were asked; the present results may reflect some confusion over the distinction between the two categories. In those results, fathers and teachers were the most likely primary role models for both sexes and professors the most likely career-encouragers for both sexes. The results of the two surveys are alike in the respect that, as Redman says, "Women identified females as often as males as their most influential role models, while men almost never listed females" (. 1022).

In general, neither men nor women felt anyone had attempted to dissuade them from pursuing a career. Twenty percent of the women, however, reported that a parent (most likely the father) or relative had been discouraging. For the ten percent of the men who responded that way, the person was likely to have been a mother or friend. These results are congruent with those of the earlier study.

The most commonly cited reasons for the decision to pursue a career in agricultural economics were previous, field-related experience or an attraction to an applied discipline. Thirty percent of the men cited work or farm background as a motivation, only five percent of the women did so. Furthermore, half of the men, but only twenty percent of the women, discussed the type of job they hoped to hold after graduation and the relevance of skills learned in graduate school. In contrast, over forty percent of the women identified the applied aspects of the field as an attraction, compared with 25 percent of the men. These results appear consonant with those of the earlier study, in which Redman found that

... women more often than men were guided by interest in the subject area. Men were relatively more likely to consider the personal economic opportunities in this field and to view it as an outlet for use of particular individual skills. (p. 1021)

The results suggest that men are more likely than women to have had prior exposure to the field. Since the men are, on the average, two and a half years older than the women, they would have had time for work experience before entering graduate school. As an example, 35 percent of the men in the sample had been in the Peace Corps, but none of the women had.

Only a small fraction of the women currently enrolled in graduate schools of agricultural economics are pursuing doctoral studies. To probe the reasons behind this phenomenon, respondents were asked to identify and explain their ultimate degree plans. Sixty percent of the women and forty percent of the men identified the M.S. as the terminal degree or were undecided about whether to pursue a Ph.D. The adequacy of the M.S. for future work requirements and job satisfaction was the main reason cited by both sexes for the decision not to continue. As a secondary factor, men were more likely to cite a disinterest in continuing school than women, who were more likely to express a desire for work experience and a broader exposure to the field.

For both sexes, the major factors motivating the decision to pursue doctoral studies were expected increased flexibility in job choice and enhanced professional credibility. However, more than half the women said they chose to continue past the M.S. because they enjoyed school or the subject, compared to fewer than twenty percent of the men. Men were more likely to identify Ph.D. qualifications with skills they perceived as necessary to future job activities. Fifteen percent of men and of women sought the Ph.D. to enable university-level teaching. One third of both males and females mentioned an expected pay differential between M.S. and Ph.D. jobs, although they were split on whether the Ph.D. would actually enhance the future income stream. These

answers present a picture of the male graduate student as having more work experience and as being more aware of the contribution of academic training to future work requirements and career development.

#### EXPECTATIONS ABOUT GRADUATE EDUCATION

A student's satisfaction with graduate school and, by extension, the profession, would seem to be correlated with his or her expectations about the experience and assessment as to the degree to which they have been met. In addition to the nature of the experience itself, a student's perception of the intangible and tangible benefits would also be expected to influence his or her level of satisfaction with graduate training. In examining these issues, it was hoped the response would illuminate the extent to which women might feel encouraged or discouraged about entering the profession based on the success of their graduate school experiences.

When asked to state expectations about graduate education, about half of both groups expressed a hope that would be more rigorous and challenging than their undergraduate schooling. A significant proportion also mentioned their desire to be trained to be capable of independent research. As one woman said,

I hadn't expected that such a sophisticated level of mathematical knowledge would be involved. However, in general, my expectations of gaining research experience and the opportunity to do relatively independent research, in addition to the usual coursework, have been met.

Men were more likely than women to mention their anticipation of interaction with faculty. One man said his expectation was "to actively interact with competent faculty involved in the teaching and research of subject areas which were of particular interest to me". Only two of the women, versus six of the men, identified collaboration with faculty or other students as an expectation about graduate school. While one woman answered that she had looked forward to working with knowledgeable people, the other said she did not have as close a working relationship with her chairman as she had anticipated. Most of both the men and women who had expectations about the nature and quality of the academic program felt that these had been met.

Among those students whose expectations had not been met (about half of each group) there was little consensus on the reason for the disappointment. Of the six men who mentioned interaction with the faculty as an expectation, two felt these had not been met. Fifteen percent of the men found that the program was not as applied as they had anticipated; none of the women had this complaint. In terms of overall



satisfaction, no clear-cut pattern of differences emerges between men and women. However, women's expectations in general centered more on the curriculum and less on their anticipated involvement with faculty members.

Students appear to perceive that the benefits of a graduate education are closely related to expectations about it as well as to original motivation to enter the field. The enhanced capability for independent research work was cited as a benefit by 45 percent of the men but by only 26 percent of the women. Twenty percent of the men specifically mentioned the applicability of their training to what were termed "real world problems;" none of the women said this. This difference may again reflect the latter's lack of job experience and thus limited exposure to such problems. The same proportion of men and women, one quarter, cited the quality of inter-personal relationships (with fellow students and with faculty) and increased job versatility as benefits. About one third of each group explicitly expressed personal satisfaction as a benefit of graduate education. Here, women were more likely to emphasize an increase in their self confidence while men discussed their academic maturity and self-discipline. For example, one woman stated that "competing with bright people creates (a) perspective (regarding) one's own strengths and weaknesses and can build confidence". Another said that she had much greater confidence in her ability to do economic analysis. In contrast, the men's answers are typified by this response: "I feel I will leave school with a solid background for applied research, and in particular I feel I will have had the important opportunity to develop my own individualized research methodology/philosophy". So, while men's and women's assessment of the benefits are fairly similar, women are more likely to view them in a personal, not professional, context.

The survey also sought to determine why Cornell was chosen as an institution for graduate study, as opposed to any other, in order to identify factors which influence the choices of students with non-traditional backgrounds, many of whom are female. Sixty percent of the men and an equal proportion of the women cited Cornell's reputation for academic excellence (the distinction between that of the university and the department not always clear) as the major factor contributing to their decision. One third of the women identified Cornell's location (East Coast) as important to their choice, as was the program's flexibility. Twenty percent of the men identified the significance of each of these factors. The major difference between the male and female responses was the assertion by 20 percent of the women that Cornell was chosen because it would be a convenient location for their husbands or boyfriends. None of the men mentioned their wives' or girlfriends' preferences as a consideration in their selection of Ithaca, even though three times as many men as women were married.

Having selected Cornell, students were asked whether their expectations about their experiences here had been met. The point of the

question was to compare the levels of satisfaction between men and women at Cornell. The majority of the expectations about Cornell concerned the high overall quality of the graduate program (as reflected in students' perception of Cornell's good reputation). Seventy percent of the men stated categorically that their expectations in this area had been met. However, the women's responses were less enthusiastic and more equivocal. Of the forty percent of the women whose expectations about Cornell had been met, only one quarter of them did not qualify this affirmative response. For example, one woman wrote that not all of her expectations had been met, in particular,

Some classes aren't as rigorous as I'd expected;  
some students aren't as rigorous as I'd expected;  
there is not an appropriate seminar format  
for sharing ideas and research; courses in the  
catalogue were not available.

On the other hand, men's responses were typified by an answer such as this: "I anticipated having a substantial degree of flexibility in both selection of coursework and formulation of a dissertation topic. This has in fact been the case". The women's reservations dealt mainly with faculty relationships (just as others had been well pleased) and the lack of coordination among courses on an intra- and inter-departmental basis. Men's disappointments, on the other hand, tended to focus on the program's lack of courses in specific areas of interest (e.g., Africa, finance). These differences may reflect women's more intellectual versus men's pragmatic orientation to graduate studies.

The graduate students did not expect their degrees to make them rich, a characteristic which may set them apart from their peers who attend professional school (Butterfield, p. A1). The answers to a question on their expected level of earnings five years after graduation illuminate the precise nature of this perception. Table 4, in 1981 dollars, gives the distribution of responses. Most students expect to be earning between \$20,000 and \$40,000. The most notable feature of the results is the 20 percent of the women who did not know or care or would not guess at expected earnings; none of the men refused to speculate.

#### GRADUATE SCHOOL EXPERIENCES

Having the motivation for the decision to undertake graduate study in agricultural economics, the survey also sought to determine how similar were the graduate school experiences of men and women. Are they comparable in the sense of providing equal opportunity for productive study and professional training? Information on sources of financial support, research work, thesis advisors, and publications was obtained. In addition, a question was included which dealt directly with the extent to which gender may have influenced graduate school activities.

TABLE 4

EXPECTED EARNINGS

	% OF TOTAL	
	WOMEN	MEN
\$20,000 or less	5	20
\$21,000 - \$29,000	37	25
\$30,000 - \$39,000	33	40
\$40,000 or more	5	15
Don't know/care or won't guess	20	0

An earlier section noted that men and women appeared equally well-prepared for graduate study, both in terms of courses taken and scholarly achievement. Furthermore, males and females had comparable performances once in graduate school, as measured by first year GPA. In view of these facts, it seems reasonable to expect that men and women would be university-funded, either through assistantships or fellowships, in the same proportions. Availability of financial support is not only a factor in the decision to attend graduate school, but also in the nature of the experience. Having to work to support oneself takes time away from study or leisure or both.

Because the survey requested an identification of the major sources of support, it was not possible from the results to determine the main source conclusively. Consequently, actual figures on funding for the 88 active students in Spring 1982 are used (67 males, 21 females). In total, 48 percent of the students are on assistantships, another 11 percent on fellowships. Because foreign student quite often matriculate with funding from their home countries, they are not included in the following statistics, which show the distribution of assistantships and fellowships among domestic men and women to be quite even. Seventy-nine percent of the women and 74 percent of the men are supported. Women and men are equally likely to be on assistantships (85 percent) or fellowships (15 percent); so, there is apparently no bias in the distribution of financial support.

Another question attempted to gauge the extent to which students were involved with major research projects and the impact this had on

thesis work at the M.S. and Ph.D. levels. Major research projects are usually focused on areas the profession recognizes as deserving attention and study. The idea was to determine the extent of women's participation in these main-stream studies. At the M.S. level, one quarter of both the males and females were involved in a major project to which their theses were related. For Ph.D. students, five percent of the women and ten percent of the men were similarly involved. There seems to be little difference between the sexes in terms of research participation; however, bear in mind that these figures also represent the influence of funding sources, since those on assistantships are probably most likely to be closely involved with major departmental research efforts. For both sexes, three quarters of both M.S. and Ph.D. students responded that their thesis advisor/committee chairman was prominent in his or her field at the time they studied. This question was asked to determine whether women tended to work with less esteemed faculty members than men. However, since the definition of prominence was not given, there may be some ambiguity in its interpretation by respondents.

Possibly reflecting equal research opportunities, one third of both men and women had published articles, presented papers, or co-authored departmental publications. In both cases, the students were usually Ph.D. candidates. However, the total number of works by men (17) was twice as large as that of women (8). Reasons for this discrepancy are not readily apparent; however, with less job experience than men, women may not sufficiently appreciate the significance of the publications record. Moreover, faculty members may do nothing to foster this recognition in either men or women.

The earlier COWOP survey found the men and women equally likely to have interrupted graduate studies. The Cornell results show that more men than women had stopped school for some period of time (35 versus 20 percent). Furthermore, while Redman reported that women usually quit to gain work experience and men to assume home responsibilities, this outcome is reversed in the current study. It is difficult to think of a systematic explanation to illuminate either pattern of behavior.

To allow respondents to identify more subtle and/or less quantifiable differences in graduate school experience, a question directly asked whether "your experience in graduate school would have been different if you were a member of the opposite sex". For both males and females, half of the responses were in the affirmative. Among women, there was no consensus on how the experience would have been altered; some examples of women's responses are given below.

If I were a member of the opposite sex I would be surrounded by role "models" --- the absence of professional women in the department is lamentable. If I were a member of the opposite sex I would probably be less aware of the practical aspects of life and would be more prepared to accept traditional academic roles and ideas.

The only effect I might trace to being female is my "math phobia" which causes me to avoid certain quantitative courses. I have not been hampered in activities though I have noted some male chauvinism among male faculty members and graduate students.

Two women discussed the ways that alternative family relationships and structures would be an influence. Specifically, having a working wife or one who stayed at home or no children were seen as arrangements which might have increased participation in the department's activities.

The men's responses, on the other hand, tended to be more specific than those of the women, whether the men answered the question affirmatively or not. Again, however, there was little agreement on the nature of the changes; some examples are presented below.

It's hard for me to assess the psychological effects of having a male-dominated faculty on a woman. I have not noticed any blatant sexism in the actions or attitudes of the faculty... there may be social advantages to being a woman at Cornell in that there are many more men. I'm not sure that women notice this, but many males including myself do see it as a disadvantage.

I imagine that, had I been a female, I might have felt greater pressure to excel.

Feel that the extent to which students maximize the benefits to be had from a graduate program is determined more by the types of academic and working experience gained before entering the program. Once in the program I am not personally aware of any differences in the problems - or their solutions - confronted by students of either sex, who have displayed the necessary motivation and commitment.

This last response is representative of several of those of the men, which made distinctions between discrimination or effects of the general culture and background of women as opposed to the influence of graduate school specifically.

Great diversity of opinion among graduate students was exhibited in the responses to this question. The perceptions of the influence of gender are as varied as the individuals in the department at Cornell. Half of the respondents, it should be noted were in disagreement with the premise that being a member of the opposite sex would have any effect on graduate school experiences at all. Most who felt this way did not elaborate.

## SUMMARY AND CONCLUSIONS

The results of the Cornell survey certainly raise more issues and suggest more implications than have been discussed in this report. Interpretation of the survey data and responses can be difficult and not all will agree with any particular set of conclusions drawn from it. Some additional points of interest deserve mention, however, and suggest areas in which further research would be fruitful.

The less visible emotional aspects of women's opinions about and experiences in graduate school have not been explicitly considered in this depth. The literature on the psychology of women's choices and compromises between career and family attachments is growing and has clear relevance to issues raised by the survey. For instance, to what extent do young women feel these options to be mutually exclusive? How do they view the potential trade offs involved in attempting to satisfy the demand of filling two roles simultaneously? Are their views different from those of women already established in the profession? These questions raise concerns which transcend the bounds of any particular discipline but clearly influence the choices women make, while still in graduate school, in anticipation of their future roles. In the current case specifically, is the present small number of female Ph.D. candidates in some way related to women's reluctance to make such a large commitment to a career because of its perceived deleterious effects on other aspects of their personal lives? Does the graduate school experience reinforce or assuage this hesitancy?

The survey responses indicate that, in spite of demonstrably dissimilar backgrounds from those of men, women do not seem to feel major differences with a traditionally male-oriented profession. Are their personal and professional values the same as those of men or have they simply embraced what they see as the prevailing norm? Juanita Kreps suggests that women's limited participation in graduate education may be related to their lack of acceptance of the academic community. She asks,

Is it true, as Margaret Mead has argued, that 'the academic world is fundamentally hostile, by tradition... to those aspects of femininity which involve child bearing' and that, as students and faculty members, academic women must forgo their emphasis on such things as personal appearance in favor of interests which are monastic in nature?'  
(p. 51)

These issues are somewhat outside the scope of the present survey but merit closer scrutiny. To the extent that women are uncomfortable or confused about their dual roles, their constructive participation in the profession will be hampered.

While investigation of these less obvious aspects of women's experiences would be worthwhile, the administration of the current survey to a broader sample of graduate students nationally would be very useful. While Cornell's department is numerically representative of other schools, its large draw of students from non-traditional backgrounds may be atypical. Beyond providing more comprehensive results, the administration of the survey itself is a valuable means to "raise consciousness" about women's issues. It is hoped that financial support for a nationwide survey based on the one developed here at Cornell will be forthcoming.

Based on the results of the survey, a profile of the typical Cornell female graduate student in agricultural economics can be delineated. She is a 26 year-old who is single and has little work experience. She comes from an affluent, well-educated, urban or suburban family and probably did not attend a land grant university as an undergraduate. In college, the female student is equally likely to have majored outside the economics discipline as within it; she was probably in the top ten percent of her graduating class. In short, she does not have a traditional background by the standards of the profession.

This woman made the decision to embark upon a career in agricultural economics at age 23. Her most important role model for pursuing a career was likely to have been a college professor (male or female). She does not feel that any one attempted to dissuade her from this path. The discipline was selected because of her intellectual interest in its applied aspect, not because of any work experience. If an M.S. candidate, she plans that it be her terminal degree. If a Ph.D. candidate, she decided on the advanced degree because she felt it would enhance her future professional flexibility and credibility.

Her expectation about graduate school was that it would be more challenging and rigorous than her college training. She has found this to be the case and felt the experience made a significant contribution to her personal development. While graduate school left her well-trained, she had no expectation that it would make her rich. Five years after graduation she thinks she will be earning about \$30,000.

During graduate school, she was probably on some type of full support, an assistantship, or, less likely, a fellowship. She felt her academic advisor was prominent in his or her field and, if a Ph.D. candidate, she had done at least some publishing. Her graduate school experiences might have been different if she were male, she thinks, but cannot say specifically how.

This profile differs from the one which would be associated with a traditional agricultural economist by more than just gender. Most notable is the female graduate student's lack of farm background, and in this she is distinguished from her male contemporaries as well. In

this respect, her suburban background and choice of a non-land grant undergraduate school are probably related. Her academic interests, in the areas of resource and international economics, also diverge from the traditional focus of the discipline. These differences between young women in graduate school and their male contemporaries and their senior as well are suggestive. At present, two major implications are examined.

First, the predominance of single women, should it continue as the present cohort ages, implies that women trained in the field can be expected to pursue careers vigorously (Polachek, p. 92). As discussed at the beginning of this paper, marital status is associated with several barriers to a woman's career advancement. The demands of household management and of the spouse on the married woman may impinge upon her participation in the field as a professional (there was evidence that this is also a problem for female graduate students, particularly when children are present). Whether married or not, though, women may be asked questions (albeit illegal ones) during interviews about their family affairs. While the proportion of single women (which includes those involved in less formal but stable relationships) may change over time, the evidence indicates that never-married or divorced women are most likely to be found in high paying positions, at least in business. Ferretti cites the results of a survey of women who had attained the rank of corporate vice president. He reports, "Fifty-two percent had never married or were divorced or separated, (and) 70 percent had no children" (p. C8). Thus, there is an apparently high correlation between career commitment and success and single marital status. For agricultural economists, this tendency implies that a large portion of graduate women will likely remain in the profession with a dedication to pursue a career and can be expected to have a strong attachment to the work force.

Second, it remains to be seen whether the concentration of young women's interests in non-traditional areas of agricultural economics will hamper their assimilation into and acceptance by the majority of those in the profession, whose focus lies in more conventional production, management, and price and income analysis. The results of the survey indicate that the academic concentration of two-thirds of the women surveyed lies in the areas of resource and international economics. This is in contrast to the findings for graduate men and also for the profession at large. Examining the declared speciality areas for AAFA members (AJAE Handbook-Directory 1982), only one quarter had designated those two areas. In contrast, the more traditional specialities in management, marketing, and price, income and policy analysis accounted for about half of all members' concentrations. Only five percent of the women at Cornell selected these areas as their focus. To the extent that the mainstream of the profession is involved in areas which do not attract women, women will play the role of a minority group in a non-traditional subject area. Their full acceptance and assimilation into



the profession will not be facilitated under these circumstances. An analogous situation evolved in the medical profession, in which women doctors were initially concentrated in obstetrics and gynecology. Only in the past decade have women begun to select traditional specialties such as surgery and internal medicine. As long as women remain segregated in one area or another of the discipline, they will find it difficult to exert much influence on the direction or priorities of their profession or fully establish themselves as the equals of men in its mainstream.

These results show that young women in graduate schools of agricultural economics are seriously committed to the pursuit of their education and careers. As for their concentration in non-traditional areas of the field, this tendency likely reflects the fact that women are less likely to have come from the usual farm and rural backgrounds of many current agricultural economists. Consequently, women are less likely to be drawn to areas such as farm management, say, simply from lack of exposure. With limited work experience in addition, women are even less likely to be aware of the issues and opportunities in traditional areas of agricultural economics. Their relative ignorance of the discipline may also handicap them in their pursuit of careers in non-traditional areas as well. So, although women are clearly as capable and perform as well academically as men during their training, their concentration in a few areas may be attributable to their lack of exposure to and information about the entire spectrum of specialities within agricultural economics.

In order that women have a basis from which to consider choice of academic speciality and of a career within it, they should be given the kind of information and career counseling that their backgrounds do not provide. Because of the obvious difficulties in reaching an undergraduate audience outside the land grant university system, graduate schools are best equipped to offer this service to future agricultural economists (many men would also benefit from this guidance). Early on in their program, women should be apprised of the breadth of the field and the numerous kinds of career opportunities within it. Perhaps women should be specifically encouraged to become production economists or extension agents, for example, fields in which they are now scarce. Regardless of particular interest, more women should be encouraged to pursue a Ph.D., otherwise role models for future women in the discipline are limited. Again, the small proportion of women doctorates may reflect the fact that women in general are not aware of the professional benefits of a Ph.D. The graduate schools have the resources of their faculties, who should be enlisted in this effort. The dissemination of such information could only benefit the profession by helping to encourage the distribution of capable individuals in general, and women in particular, across its divisions. Without such affirmative programs, the assimilation of women into the profession will take a time very much longer than it need be. Women and the profession at large would suffer from such a delay.

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JOB SEARCH FOR WOMEN AND MEN IN AGRICULTURAL  
ECONOMICS SINCE 1979

by Annette L. Clauson\*

The recruitment and hiring practices in the job market for women and men in agricultural economics is examined in my segment of the symposium. Emphasis is placed on interviews, follow-up interviews, job offers, and salary differentials.

JOB SEARCH AND AFFIRMATIVE ACTION

Several hypotheses about the possible effects of Affirmative Action on the 1979-81 job market for agricultural economists can be suggested. First, some observers suggest that, as designed and enforced, Affirmative Action was window dressing. It was ineffective as a means to end what was assumed to be sex discrimination in employment. It also had the undesirable side effect of raising women's and men's job search costs. Job search costs rose because prospective employers enthusiastically interviewed women without any intention of hiring them. This gave the appearance of complying with Affirmative Action requirements. Second, some observers suggested that Affirmative Action forced prospective employers not practicing discrimination zealously to recruit and hire women in order to be above suspicion. As a consequence of excessive interviewing, job recruitment costs rose. Third, some observers suggested that Affirmative Action discriminated against men, sometimes referred to as reverse-discrimination. (Amsden and Moser)

Data from the Job Search Survey as presented in Table 1 indicate that women average more interviews at AAEEA meetings, but averaged fewer job offers as a result of just those interviews. Only after follow-up interviews did women average more job offers than men. As one would expect, not many employers make job offers solely on the basis of interviews at the meetings, however, men averaged more job offers as a result of the AAEEA interviews only than did women.

Interestingly, women averaged more interviews than men with two types of prospective employers, State University or College, and Government. These two types of prospective employers are usually held to Affirmative Action plans. Women averaged more job offers as a result of

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AAEA plus follow-up intensive interview than men from these two areas of prospective employers. Affirmative Action may have contributed to women averaging more job offers after follow-up intensive interviews.

TABLE 1

AVERAGE NUMBER OF INTERVIEWS OF JOB-MARKET RESPONDENTS, SINCE JULY 1979

ITEM (Since July 1, 1979)	TYPE OF PROSPECTIVE EMPLOYER			
	University or college		Govern- ment	Business industry or non-profit organization
	State	Private		
A. Number of interviews you had at AAEA meetings <sup>1</sup>	F-4.3 M-4.0	F-1.0 M-1.0	F-2.9 M-2.5	F-1.5 M-1.5
B. Number of job offers as a result of AAEA meetings only <sup>1</sup>	F-0 M-1.4	F-0 M-0	F-1.5 M-1.5	F-1.0 M-1.0
C. Number of follow-up interviews resulting from your AAEA interview <sup>1</sup>	F-2.0 M-1.5	F-1.0 M-0	F-1.8 M-1.7	F-1.0 M-1.0
D. Number of job offers as a result of AAEA plus follow-up intensive interview <sup>1</sup>	F-2.0 M-1.4	F-0 M-0	F-1.8 M-1.3	F-1.0 M-1.0
E. Number of intensive interviews without prior AAEA interview <sup>1</sup>	F-1.5 M-1.5	F-1.2 M-1.3	F-1.9 M-2.2	F-2.0 M-1.6
F. Number of job offers as a result of intensive interview without prior AAEA interview <sup>1</sup>	F-1.6 M-1.3	F-1.2 M-1.0	F-1.3 M-1.6	F-1.4 M-1.5
G. Number of job offers without any interview <sup>1</sup>	F-1.7 M-1.4	F-2.0 M-1.0	F-1.2 M-1.2	F-1.4 M-1.5

<sup>1</sup>Average number of interviews per person responding to this question.

SOURCE: Data from AAEA 1981 Job Search Survey of Agricultural Economists

F = Female  
M = Male

The data from the Job Search Survey indicate salary differences for women and men agricultural economists accepting new positions since July 1979. Table 2 indicates that men averaged higher salaries than women when accepting positions with State Universities and Colleges, and Business employers. This can not all be simply attributed to discrimination. Personal data and educational background may help in explaining a portion of the salary differentials.

TABLE 2  
SALARIES OF JOBS ACCEPTED BY JOB-MARKET RESPONDENTS

ITEM	MEAN SALARIES OF ALL RESPONDENTS	NUMBER OF RESPONDENTS
<u>State Universities and colleges</u>		
Female	\$20,164	11
Male	\$24,010	62
<u>Private Universities and colleges</u>		
Female	0	0
Male	\$15,500	1
<u>Government</u>		
Female	\$21,581	17
Male	\$19,802	19
<u>Business</u>		
Female	\$19,125	8
Male	\$25,250	4

SOURCE: Data from AAEA 1981 Job Search Survey of Agricultural Economists

#### REGRESSION ANALYSIS

Table 3 is a multiple regression analysis of the persons accepting new jobs from 1979-1981. My hypothesis is that other variables beside sex are important for determining the salary differences of female and male agricultural economists. This regression shows that Ph.D. and age

are the only significant factors affecting salary differences. School and sex were not significant in adding anything toward determining the salary of female and male agricultural economists. This regression (from 95 respondents) refuted the theory that male agricultural economists earn more than female agricultural economists based on sex alone. This indicates that Affirmative Action is making a difference in equalizing pay for women and men entering the job market from 1979-81.

TABLE 3

MULTIPLE REGRESSION - ALL RESPONDENTS

REGRESSION MODEL:

$$Y = \alpha_0 + \beta X_i + \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3$$

Where,  $Y_i$  = annual salary;  $X_i$  = age of respondent

$D_1$  = Sex    1 = male  
              0 = female

$D_2$  = Ph.D.    1 = has Ph.D.  
              0 = otherwise

$D_3$  = school    1 = degree from one of nine schools with largest  
                                  graduate enrollment  
                                  0 = otherwise

REGRESSION EQUATION:

$$Y = 6911 + 397 X_1 - 144 D_1 + 4357 D_2 - 296 D_3$$

F VALUES, 26.178, 0.025, 20.779, 0.113

Overall F Value = 20.07942

ANALYSIS:

1. Age and Ph.D. are significant at the .05 level
2. School and Sex are not significant in adding anything toward determining the salary of female and male agricultural economists
3. Adjusted  $R^2 = .44809$ ; with a 45% degree of association between Y and all other explanatory variables jointly
4. Age accounts for \$397 of differential in salary
5. Ph.D. accounts for \$4357 of differential in salary.

Tables 4, 5 and 6 are multiple regressions broken down into the individual categories of type of employer. The data from the 95 respondents is broken down by State University or College (Table 4), Government (Table 5), and Business, Industry or Non-Profit Organization (Table 6). The only area of employment that sex makes a difference in is Business, Industry or Non-Profit Organization where males earned \$8,721 more based on their sex. A possible explanation is that Business, Industry or Non-Profit Organizations are usually not held to Affirmative Action restrictions. However, Affirmative Action seems to be making a difference in hiring practices and salary in the other areas of employment.

TABLE 4

MULTIPLE REGRESSION - STATE UNIVERSITY OR COLLEGE

REGRESSION MODEL:

$$Y = \alpha_0 + \beta X_i + \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3$$

Where,  $Y_i$  = annual salary;  $X_i$  = age of respondent

$D_1$  = Sex    1 = male  
              0 = female

$D_2$  = Ph.D.    1 = has Ph.D.  
              0 = otherwise

$D_3$  = school    1 = degree from one of nine schools with largest  
  graduate enrollment  
  0 = otherwise

REGRESSION EQUATION:

$$Y = 7915 + 333 X_1 - 268 D_1 + 5203 D_2 + 114 D_3$$

F VALUES, 16.851, .045, 18.811, .013

Overall F Value = 12.82714

Critical F Value approximates 2.58 at .05 level

ANALYSIS:

1. Ph.D. and Age significant; Sex and school not significant
2. Ph.D. makes a \$5203 difference in salary; Age makes a \$333 difference in salary





TABLE 6

MULTIPLE REGRESSION - BUSINESS, INDUSTRY OR  
NON-PROFIT ORGANIZATION

## REGRESSION MODEL:

$$Y = \alpha_0 + \beta X_i + \alpha_1 D_1 + \alpha_2 D_2 + \alpha_3 D_3$$

Where,  $Y_i$  = annual salary;  $X_i$  = age of respondent

$D_1$  = Sex    1 = male  
              0 = female

$D_2$  = Ph.D.    1 = has Ph.D.  
              0 = otherwise

$D_3$  = School    1 = degree from one of nine schools with largest  
  graduate enrollment  
  0 = otherwise

## REGRESSION EQUATION:

$$Y = 6898 + 315 X_1 + 8722 D_1 \text{ (} D_2 \text{ tolerance level insufficient)} - 2021 D_3$$

F VALUES, 2.143, 61.911, 3.377

Overall F Value = 24.57657

Critical F value is 6.59 at .05 level

## ANALYSIS:

1. Sex makes a difference in hiring practices
2. \$8721 difference higher salary if male

## PERSONAL DATA AND EDUCATIONAL BACKGROUND

Of those accepting new positions, over 90% of both women and men held at least a master's level degree. Men seemed to have an advantage concerning area of study during their master's degree program. Of the male respondents, 90% had a major in either agricultural economics or economics, compared with women at 59%. Ninety-four percent of the female respondents had completed their master's degree since 1970, compared with 82% of the male respondents. The fact that a larger

percentage of men had completed their master's degree before 1970 may give them an edge in the job market with the possibility of more years of job experience.

The Job Search Survey indicates that only 39% of the female respondents had completed a Ph.D. degree, compared with 61% of the male respondents. Seventy-three percent of the female Ph.D. respondents had their degree in either agricultural economics or economics. Again, both female and male respondents had completed their Ph.D. degree program recently. Ninety-one percent of the female respondents had completed their Ph.D. since 1970 and 85% of the male respondents had completed their Ph.D. since 1970. The combination of more job experience (due to a smaller percentage receiving M.S. and Ph.D. degrees since 1970), and a higher percentage of degrees specifically in the field of agricultural economics or economics may suggest a reason why men received higher salaries in their new positions in State University/College and Government jobs.

The Job Search Survey asked each respondent what they considered their area of specialty in agricultural economics. Agriculture and natural resources had the highest percentage of responses from both females and males. Forty-seven percent of the females and 58% of the males categorized themselves in this specialty area. There is a higher percentage of women, 13%, compared to 2% for men, in the specialty field of International Economics. Women, more than men, have generally chosen careers in humanistic areas. The Job Search Survey reflects this trend, as 18% of the female respondents have career specialties in Manpower, Welfare, Labor and Population, while only 8% of the male respondents have chosen these areas of specialty.

The Job Search Survey revealed that 62% of the female respondents were age 30 or less; for men this percentage was 44%. The fact that a higher percentage of female respondents are younger indicates less job experience. It has been theorized that less than half as many women as men continue on for their Ph.D. degree in agricultural economics, thus giving women a disadvantage in the job market.

An important question in the survey asked (if married in 1980) what percentage of the total family income came from the respondent. Not surprisingly, only 51% of the female respondents contributed more than half of the support to their family unit. Eighty-eight percent of the male respondents were contributing more than half of the support to their family unit. At the extreme end, 12% of the female respondents and 20% of the male respondents were contributing all of the support to their family unit. A partial explanation for this may be that women tend to marry someone with equal or greater education, while a large percentage of men tend to marry someone with equal or less education.

## EMPLOYER AND INTERVIEW

Several subjective questions were asked of the Job Search Survey respondents regarding job satisfaction and interviews. When asked if the new job the respondent had accepted was in accordance with the type of employment preferred, 92% of the male respondents answered yes, compared to 71% of the female respondents. A larger percentage of the female job seekers accepted jobs not of their preference possibly due to location, education limitations, or family responsibilities.

When asked on the questionnaire if they were ever told by a prospective employer that they were overqualified for the position they were interested in, 15% of the females compared with 5.6% of the males were told that they were overqualified. Over-zealous interviewing to comply with Affirmative Action may explain in part why women were told this more than men.

Respondents were asked if questions during an interview were disproportionately directed to spouse and/or domestic situation. Twenty-two percent female respondents thought that domestic considerations were important in the mind of the potential employer, while only 5.6% of the male respondents thought domestic considerations were important. Some responses cited by respondents from employers were:

1. Willingness of spouse to move was an issue
2. How husband feels about travelling
3. Concerned about spouse being transferred or my getting pregnant
4. Ability to travel with child at home and child care problems
5. Spouse's satisfaction with location/where would spouse work?
6. A single employee would be able to travel more

When asked during their job search if they suspected that a prospective employer had no real intention of making them a job offer, both female and male respondents answered yes 20% of the time. Over-interviewing to meet Affirmative Action guidelines may answer why both sexes felt that the prospective employer had no real intention of making them a job offer. Some reasons given by respondents from employers were:

1. Still interviewing 2 years later for same position
2. Readvertised position rather than hire me, only candidate
3. Employer seemed to have other qualifications in mind
4. Said they had no job vacancies
5. Told me no job available - at same time recruited a male colleague
6. Lack of follow-up
7. Talked in generalities/asked insignificant questions
8. Gave no reason for not making an offer

When asked if they thought that they were paid less or had a lower job level than if they were of the opposite sex, 24% of the female respondents said yes, compared with 5% of the male respondents. Some reasons from respondents by employers were:

1. Different rate of assistantship for females and males
2. Difficulty for female to move into management position
3. Males have higher salary for similar duties
4. Accepted lower offer than should have
5. Had to obtain position for spouse as well
6. Felt needed less money because "her husband supports her"
7. Women given last GRA and GTA assignments and paid via "funds available"
8. Had "revolving door" position
9. Salary adjustments less than male
10. Lack of support by supervisors
11. Women given preferential treatment in promotions and job offers
12. Women in short supply so are offered higher salaries
13. EEO/Affirmative Action

When asked if an employer ever indicated in their presence a preference for hiring an agricultural economist of the opposite sex, 25% of the female respondents answered yes, compared with 13% of the male respondents. Some reasons given by respondents from employers were:

1. "Worried" women could not communicate with farmers or male clientele
2. Reluctance to train women who will soon become pregnant and quit
3. Male employees would not be willing to accept female supervisor
4. Women are not as serious students or as qualified
5. Male students need role model
6. Men more cool-headed, less emotional
7. Tradition
8. Women too aggressive
9. Preferred female for affirmative action reasons
10. Travelling difficult for women
11. Men more stable and produce more

#### CONCLUDING REMARKS

Women are participating increasingly in the job market for agricultural economics positions. Although women average a lower salary; age differences, educational differences, and mobility account for these real differences. For women to be more competitive in the job market with men for agricultural economics positions they need to obtain a Ph.D. degree instead of stopping at the Master's degree level.

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## JOB SEARCH DECISIONS OF WOMEN

### AGRICULTURAL ECONOMISTS

by Christina H. Gladwin\*

Following the lead of women economists, psychologists, and sociologists, women agricultural economists have recently begun to compare the position of women to men in the field (Lane, Lee, Redman). In general, their findings concur: women agricultural economists receive lower salary and rank than men (Lee, Reagan, Rosenfeld), are less likely to be tenured (Lee, Rosenfeld), have fewer publications per year and less post-degree experience (Lee), are often located in less prestigious settings (Rosenfeld), and advance more slowly up the academic ladder (Reagan, Rosenfeld). In addition or as a partial explanation, women face more problems of motivation and lack of a support system. Compared to men agricultural economists, half as many women are married individuals, who are more likely to complete the Ph.D. than single individuals (Redman, Marwell et. al.). Half as many women have ever had children (Redman), who sometimes motivate the major breadwinner in the family (Reagan). Further, women face "significant barriers to parallel advancement" in the form of lack of appropriate role models, mentors, and supportive attitude on the part of spouses, relatives, employers and colleagues (Lane, p. 1029).

However, concludes Lane, "the barriers are falling", since fewer younger female agricultural economists, with degrees received since 1970, report encountering some of the demand- and supply-side barriers perceived by the older women with degrees received on or before 1970 (p. 1030). Is Lane's optimistic assessment correct? Did the struggle for women's equality in the 70's have a liberalizing effect on the traditionally male-dominated domain of agricultural economics? If so, will the younger women agricultural economists continue to move up the professional ladder in parallel with the younger men?

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Some evidence suggests not. A study of recent postsecondary graduates of agricultural programs (including agricultural economics) in California shows that the gap between men's and women's starting salaries has widened each year, from 1977 to 1979 (Wood et. al.). Other studies that also look at historical rather than cross-sectional data on career paths of individuals from the same institution (Reagan and Maynard) similarly conclude that women advance up the career ladder more slowly than men. Women spend longer, on average, as assistant professors in a given school and slightly longer as associates (Rosenfeld, p. 344). Why, if the barriers are falling?

One explanation, advanced to explain slower transition rates of women psychologists between academic ranks, is the following (Rosenfeld, Marwell et. al.). The disparity between men and women in academic status and earnings derives not so much from personal characteristics and discrimination, but from the fact that upwards mobility in academia, essentially a national market in specialized positions, requires strategic job shifts and geographic moves. "Job switching is the rule and it pays off in upward mobility" (Marwell et. al., p. 1226). Taking advantage of strategic opportunities to move, and making job shifts when and where they appear, however, is easier for men academics than women, who tend to marry men of higher (or at least not lower) status than their own. As a consequence, almost all married women academics are in two-career marriages; while very few men academics are. Membership in a two-career family affects career development adversely in two ways: one member may be unable to accept a good offer in another city because the career of the other spouse cannot develop there; or one member may have to relinquish a good position to move to a less suitable job elsewhere, in order to move with spouse. In general, these career costs tend to be borne by the wife because couples place the needs of the husband's career first in deciding on geographic moves (p. 1226). As a result, "job mobility for men, as measured by number of previous jobs, seems related to movements up the tenure track ladder, while for women it seems associated with lack of advancement" (Rosenfeld, p. 356). In a test of this hypothesis, Rosenfeld regressed explanatory variables including geographical mobility on job transition rates of men and women psychologists, and found geographic mobility to have the strongest and most consistent effect (p. 357).

For the symposium, I decided to do my own kind of test. Following Rosenfeld, the unit of analysis is the job shift, i.e., a change of institution without a change of title or a change of title within an institution. Departing from previous researchers, the method of analysis is the use of personal telephone interviews with women Ph.D.s in agricultural economics in the United States, in order to test an information processing or "decision tree" model of their job search processes. The methodology, described in previous papers (Gladwin, 1976, 1979, 1980), assumed each job shift requires the individual woman to make one or more job search decisions. By modeling these decisions, a researcher should be able to identify geographical immobility as a



factor limiting job search and job acceptance, if in fact it is one. A simple tally of the number of each woman's job shifts limited by geographical immobility, summed over women, should then demonstrate the importance of geographic immobility as a limiting factor. By using historical job shifts of women agricultural economists as "test cases" of the decision model(s), the researcher can avoid use of sometimes misleading hypothetical questions such as, "Are you willing to move 100 miles away from your present location to a position paying more, with more responsibility?" When push comes to shove and the job offers are in, the willingness to move may evaporate for the woman agricultural economist or her husband, since real-life decisions, including job shift decisions, are made in historical context.

As the psychological literature shows, the context or environment in which decisions are made determines to a great extent the actual alternatives and relevant decision factors considered by the job searcher (Tversky and Kahneman). What this means is that a decision model, to be 100 percent descriptively adequate, should be formulated for each individual and for each decision process (Quinn). However, by abstracting from specific information processed to more general criteria (e.g. generalizing terms like "research time, research interests, proximity of research subjects) to labels like "suitability or compatibility of job with long run career plans") and realizing that some decision criteria are "preattentive" or lurking in the background of the actual decision context and not consciously processed (Gladwin and Murtaugh), one can formulate a general model which aims to predict most of the historical choices of individuals in a group.

The form of the decision model is hierarchical (i.e., a tree, a list, a set of rules, a decision table, or a flowchart) rather than linear additive because:

...most decisions are made in decomposed fashion using relative comparisons. Evaluations of multi-dimensional alternatives are seldom holistic in the sense of each alternative being assigned a separate level of utility. It is cognitively easier to compare alternatives on a piece-meal basis, i.e., one dimension at a time ... (Schoemaker, 1982)

The dimensions or "decision criteria" can be read in the diamonds (denoted by < >) at the "nodes" or branching points of the decision tree. They are either goals motivating the decision, aspects to be "maximized" or constraints that must be passed or satisfied, in this case as the woman agricultural economist makes four interrelated sequential decisions:

1. the decision to search for a job in agricultural economics at time  $t$  (Figure 1);

2. the decision to limit or not limit search to a small geographical region; e.g., a city, county, or state, also at time  $t$  (Figures 2 and 3);
3. the decision to apply for a job at time  $t + 1$ , given search at time  $t$  (Figure 4); and
4. the decision to accept a job at time  $t + 2$ , given (an) offer(s) (Figures 5 and 6).

In each decision model, based on a particular woman's answers to a series of questions in the decision criteria, which are arranged in a logical sequence from the top of the tree to the bottom, the tree model deterministically predicts what "outcome" the woman chooses, read in the boxes at the endpoints of the paths. If a woman's responses send her (data) to the outcome, "accept job  $i$ " and in fact she accepts job  $i$ , the model is correct. If she rejects job  $i$ , however, the model has made an error. By asking a number of women the same questions, and putting their responses "down the tree", and counting the number of errors, a researcher can tell how accurate the model is.

Because the model is usually built inductively rather than deductively after interviews with one sample of 25 to 30 decision makers, a proper test of the model can only be had with a separate "test" sample of decision makers (Gladwin, 1979). Due to the small number of women agricultural economists with Ph.D.'s in the United States, however, this model was built after reading the literature and interviewing four male and two female colleagues at the University of Florida. The models in Figures 1 through 6 were then tested on 46 job shift decisions made by 24 women, roughly half the total number of women Ph.D.'s. Unfortunately, only two of those women are older women with Ph.D.'s received before 1971. These results are therefore preliminary, as I hope to interview almost all women Ph.D.'s and their male matches.

Since decision models in Figures 1 through 6 are relatively straightforward, with results summarized beneath each outcome, a description of each model will be brief, and the reader is urged to "go down" the tree models as he/she reads along.

#### THE DECISION TO SEARCH AT TIME $T$

The search decision process does not start unless a woman agricultural economist - or a man for that matter - has at least one reason to search. These include: her education is completed or almost completed and no job offer has yet appeared; she is losing her present job; she is dissatisfied with some aspect of the job (salary, pay raises, professional isolation, the department chair, political fights or cliques within the department, etc.); her spouse is moving to another job in another location; or someone has searched her out about a possible job

opening. In the latter case, women often say "there was no search". If no reason for searching exists, she does not search. Given a reason, she does not search if she cannot pass constraints of good health, a supportive or at least not unsupportive spouse - if she has a spouse - and access to resources (capital and time) to search. In addition, if she has children, she must feel that she can satisfy her children's needs and her career needs at the same time. Finally, she must not feel so "burned out" by career demands that she considers changing careers altogether.

Results show that half (23) of the job shifts in this sample occur because a woman is completing her Ph.D., as expected since all the women in this sample were currently holding jobs and had completed the educational requirements for a Ph.D. or DBA. After receiving their degree, none of the women had had a work gap of greater than or equal to six months. Thus 46 cases of job shifts proceed on to decision 2, to limit or not limit the search for a job.

#### THE DECISION TO LIMIT OR NOT LIMIT SEARCH

During the same time period, women make the decision to limit or not limit search to a small geographical area; e.g., a city, county or state (Figures 2 and 3). It is assumed that this decision is made (consciously or preattentively) prior to the decision to apply for a specific job (in Figure 4), although it may be made again, in the job acceptance process. Thus output from this decision enters into the decision to apply for a job and may enter into the decision to accept a job. For brevity, the results of testing the model are presented along with the model.

As postulated by Rosenfeld, Reagan, and others, the first criterion and the one responsible for the biggest "cut" (of the sample into subsamples) is a woman's presence in a two-career family with spouse not perfectly mobile. Single women and older women with spouses who are retired or have easily-movable careers (e.g., high school teachers, consultants) go down the right-hand side of the tree leading to the outcome, "Don't limit search"; while women in two-career families or partnerships go down the left-hand side of the tree. In this sample, 26 of 46 job shifts are made by women currently in two-career families; 20 are not. Of these 20 shifts, 18 are made by single women; only two shifts are made by married women with perfectly mobile spouses. Further, of these 20 shifts, only 12 shifts proceed to the outcome, "Don't limit search", since "even single women may prefer to limit themselves to larger urban centers for social reasons" (Rosenfeld, p. 348). If they do, they - or more accurately their data - are sent to Figure 3, to decide whether to settle for a less suitable job in order to get an acceptable geographical location or lifestyle.

On the left-hand side of the tree, in 16 of 26 shifts, women are deferring to spouse's career and following him to a given geographical

location at the time of the job switch. They therefore also proceed to Figure 3, since their search is also limited. Of the 10 remaining job shifts of married women, six have spouses who agree to a joint or location-interdependent job search. These six women also "feel right" about uprooting the spouse - itself not an easy task. Some of these women have followed the spouse in earlier stages of the life cycle and feel it's their turn now. Other couples make democratic job search rules right at the start of their careers; e.g., "if you get a good job first, I'll follow; if I'm not happy, we'll move again". Of these couples, however, only three find (joint) jobs in the same location. The other couples have to decide which spouse gets the good job and which spouse follows. In this admittedly small and biased sample - biased since the sample was taken from a roster of active women agricultural economists - two women get good job offers and spouse agrees to follow, while one woman proceeds to Figure 3.

To summarize, of the 26 job shifts made by married women, in only three did the woman receive a joint job offer and in only two did the spouse agree to follow the woman agricultural economist. These data thus support the hypothesis that the tendency for women to marry men of higher status than their own, resulting in two-career marriages for women professionals, also results in geographic immobility for the women.

In all, (data on) 28 cases of job shifts proceed to Figure 3, which first asks if a woman is willing to apply for or stay at a less suitable job (defined as one with less salary or rank, more dissatisfaction, and/or less compatibility with lifetime goals than they are qualified for) in order to get an acceptable geographical location. In this sample, 18 women are willing. Seventeen therefore limit their search, while one woman stops searching. Ten women are not willing to apply for a less suitable job than they are qualified for. Of these, two women are willing to wait a while for a suitable job to open up in their area; two women are willing to commute to work (and spouse); six women are indecisive.

#### FEEDBACK

Of the 28 job shifts in Figure 3, 24 are limited to a small geographical area. (Two are not limited; two searches are still in progress with results unknown). At least at this point in the search decision process, feedback (in the form of the presence or absence of job offers) enters (Simon). The feedback criteria in Figure 3 therefore asks if a suitable job has appeared, even though the woman agricultural economist has limited her search. For 13 cases of job shifts, it has and the woman proceeds to decision 3 to apply for a job. In this sample, eight of the 13 suitable jobs were in government in large metropolitan areas; three were in academia in small and large towns; two were in business in a large city. In 11 more cases, a suitable job does not appear; a less

suitable one does, however, and the woman proceeds to decision 3 to apply for it. In this sample, nine of these less suitable jobs are in academia, while one is in business and one in government. These data thus support the hypothesis that women who limit their search are disadvantaged in the national market place of academia.

#### THE DECISION TO APPLY FOR A JOB

Whether or not women have limited their search, they proceed to Figure 4 to apply for a job at time  $t + 1$ , which can be anytime after they have decided to search or someone has searched them out. They will apply for job  $i$ , if they pass all the constraints in Figure 4: they must have access to or be able to build an information network to hear about the job opening; they must be able to get good recommendations from mostly male faculty (or have enough female faculty on their committee); their spouse must not be unsupportive. Again, they must feel they can handle both children's and career needs; they must be open to moving to the geographic location of the job. The salary, if known at the time of the application, must be suitable or "competitive"; the requirements of the job must be suitable or compatible with their career interests and qualifications. Finally, they must hear about the job on time, before they accept another job or before applications are closed. If all these constraints are passed, a woman will apply for a job. If one constraint is failed, the woman will not. After the application is made and the interview had, discriminatory feedback from an employer or institution can also eliminate the job possibility.

Results of asking women about the job applications that resulted in job offers as well as the jobs they heard about but did not apply for produced the results in Figure 4. The reader should note that several alternative jobs can be eliminated at the time of a job shift, and as long as one alternative job possibility passes all the constraints in Figure 4, the woman proceeds to Figure 5, to decide to accept or reject that job offer. The results show that the main reasons why women in this sample did not apply for more jobs than they did is location (in 12 cases of job shifts), lack of job suitability (in 8 cases), and timeliness (also in 8 cases). Discriminatory feedback from potential employers did not seem to "cut" for this sample. Only in 3 cases was a woman aware that employers' discriminatory attitudes had cost her a job offer. However, other women also might have been excluded from some positions without information of discrimination getting back to them. Thus the methodology used here probably precluded finding employers' discriminatory attitudes as an important limiting factor.

#### THE DECISION TO ACCEPT A JOB

Given one or more job offers at time  $t + 2$ , any time after an application is made, a woman proceeds to Figure 5, either to compare job offers and choose one, or to accept or reject one job offer. If the

time between job offers is large enough, the woman may only process one job offer at a time, as in Figure 5, "continued", without comparing alternative offers, as in Figure 5. Of 35 women who maximize suitability below in this sample, 15 women had multiple job offers to choose between at the same time; while 20 had only one job offer to accept or reject. For brevity, however, and because the decision criteria are the same in both cases, I henceforth assume that multiple job offers exist to rank and choose between.

Given job offers i, j and k, a woman ranks the alternatives that have made it through Figures 1-4 on a dimension or aspect of her choice (Gladwin, 1980). Thus the first criterion in Figure 5 asks, "What's more important to you, suitability or compatibility of the job to your long run career interests (1), salary (2), family income (3), prestige of the department or institution (4), or closeness to someone you love (5)?" In 35 (81%) of the 43 job shifts in Figure 5, suitability of the job is chosen or maximized; in 5 (12%) of the cases, closeness to someone you love is chosen. Prestige and salary are maximized in 1 case each. The results seen in Figure 5 are limited to the 35 cases where women maximize suitability, again for brevity of presentation.

Given the ordering aspect, other dimensions of the choice become constraints with thresholds to be passed (Gladwin, 1980 : pp. 58-60). Thus on the left-hand path of Figure 5, the woman must judge that the salary of the most suitable job (e.g., job i) is "competitive" and that the increase in salary she receives over her past job (often as a graduate student) will approximately cover moving expenses, for her to proceed to Figure 6, a list of other constraints to be passed. Of the 35 cases of job shifts with job offers ranked on suitability, 30 women do pass these particular constraints and proceed to Figure 6. Five women do not. In 2 of these cases, the job will increase family income now or in the future, however, so that these cases also pass to Figure 6. In 3 cases, job X has enough prestige so that the advantages of the job outweigh the disadvantages, and these cases also proceed to Figure 6.

More constraints on job acceptance are processed in Figure 6. First, a risk constraint asks the woman if she is worried about handling risks associated with the job: fear of failure, of not getting tenure, of being labeled a job changer, of having an unhappy spouse. Twenty-six women were either not worried or had a strategy to handle these risks such as: "work harder, find mentors, persistence; do it!" Nine women were worried but the job was worth taking these risks. Also on the left-hand path of the tree are capital (to cover moving costs), spouse, children, and location constraints. Here again, a bad location constrains 2 women so that they pass to the right-hand side of the tree to the "trade-off" criterion. For these women, the job is not worth their suffering with the location, but they take the job anyway because there's just no other choice.

In summary, the models in Figures 1 - 6 predict 41 of these 46 job shift decisions made by this sample of women agricultural economists. In general, results support the hypothesis that two-career marriages result in geographic immobility for the woman. When job searches are limited to a given geographical area, women are more likely to settle for a "less suitable" job than they are qualified for - unless they also search for a business or government position in a large metropolitan area. In conclusion, I have the following recommendations for young women agricultural economists:

1. If you want the most-upwardly mobile career path, stay single or marry a perfectly-mobile man; and if in academia you must be, be willing to live in small towns.
2. If you want a two-career family, then think about business or government jobs in a big city, where you'll have more likelihood of finding - and keeping - a career man and a suitable job in agricultural economics.
3. If you want an academic job and a two-career family - if neither scenario (1) or (2) is what you want, then be prepared to face a complex career path with joint job searches which when unsuccessful may lead one spouse or the other to hold a "less than suitable" job. Given the resulting dissatisfaction, expect to move: "women in places where jobs are less likely to exist are more likely to move" (Rosenfeld, p. 358).

Figure 1:

Decision 1  
Decision to search for a (new) job as an agricultural economist at time t

46 job shifts of 24 women

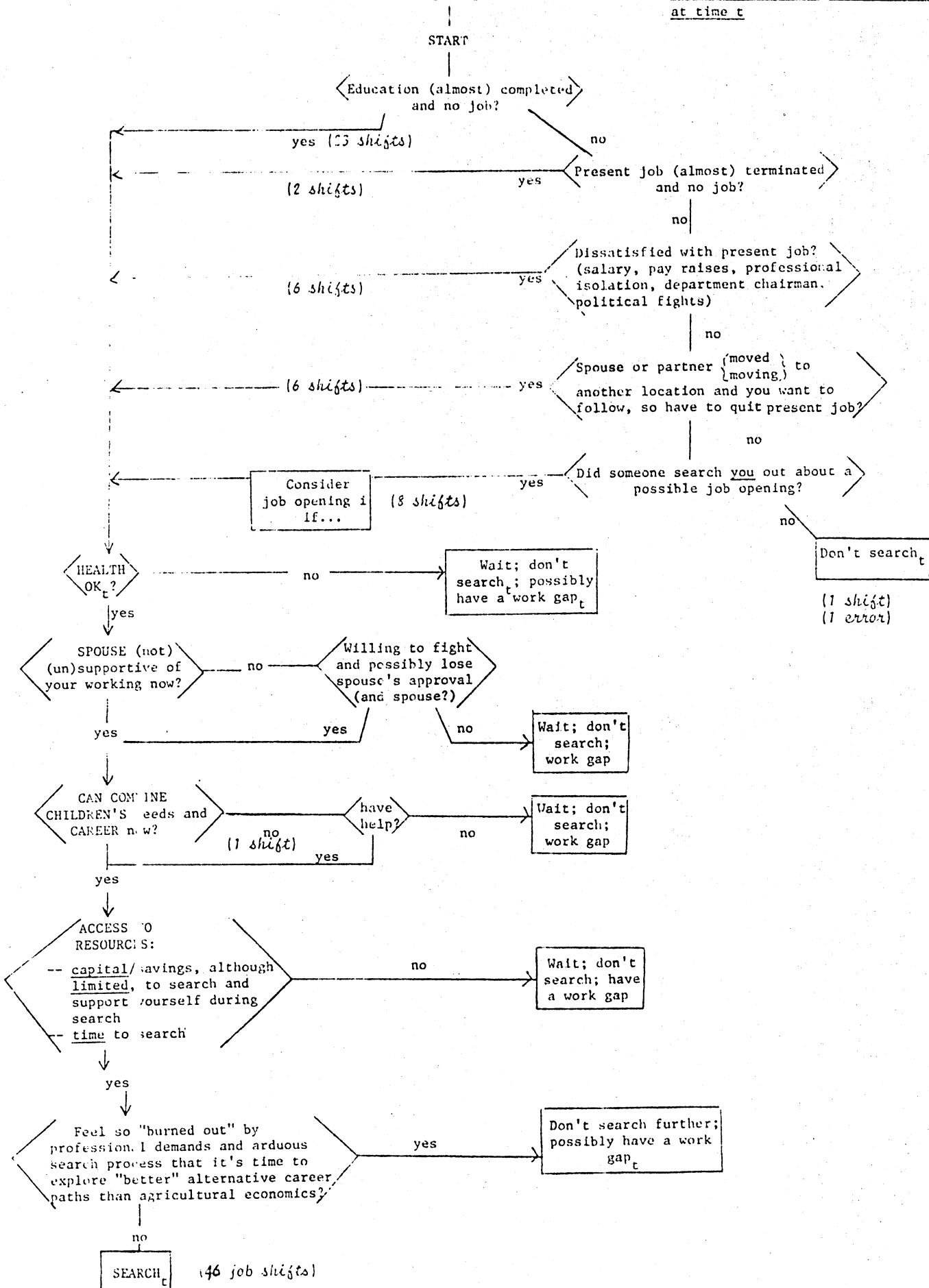




Figure 2:

Decision 2  
Decision to limit or not limit search to SMALL geographical region(s), e.g., a city, county, or state at time t

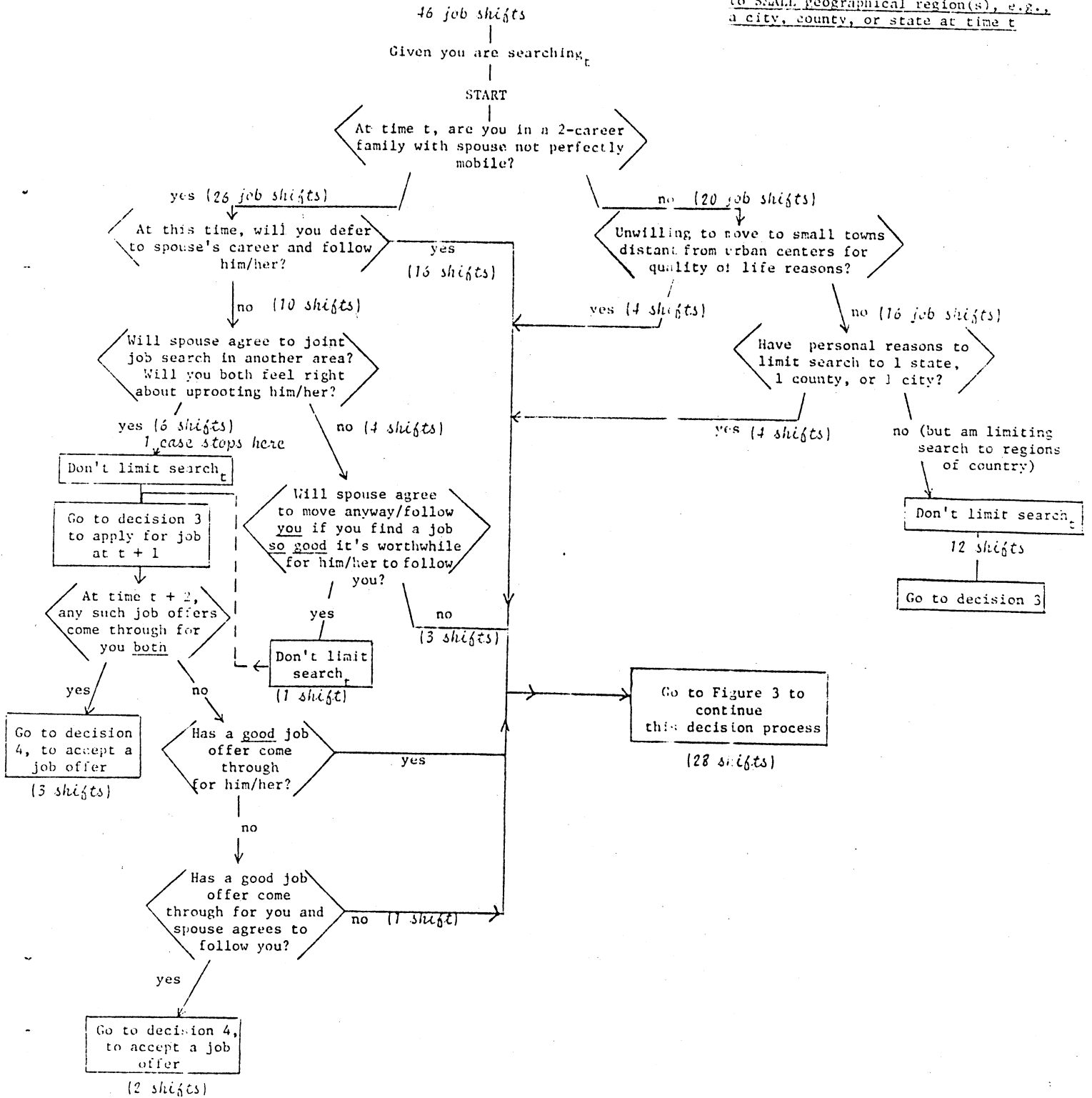
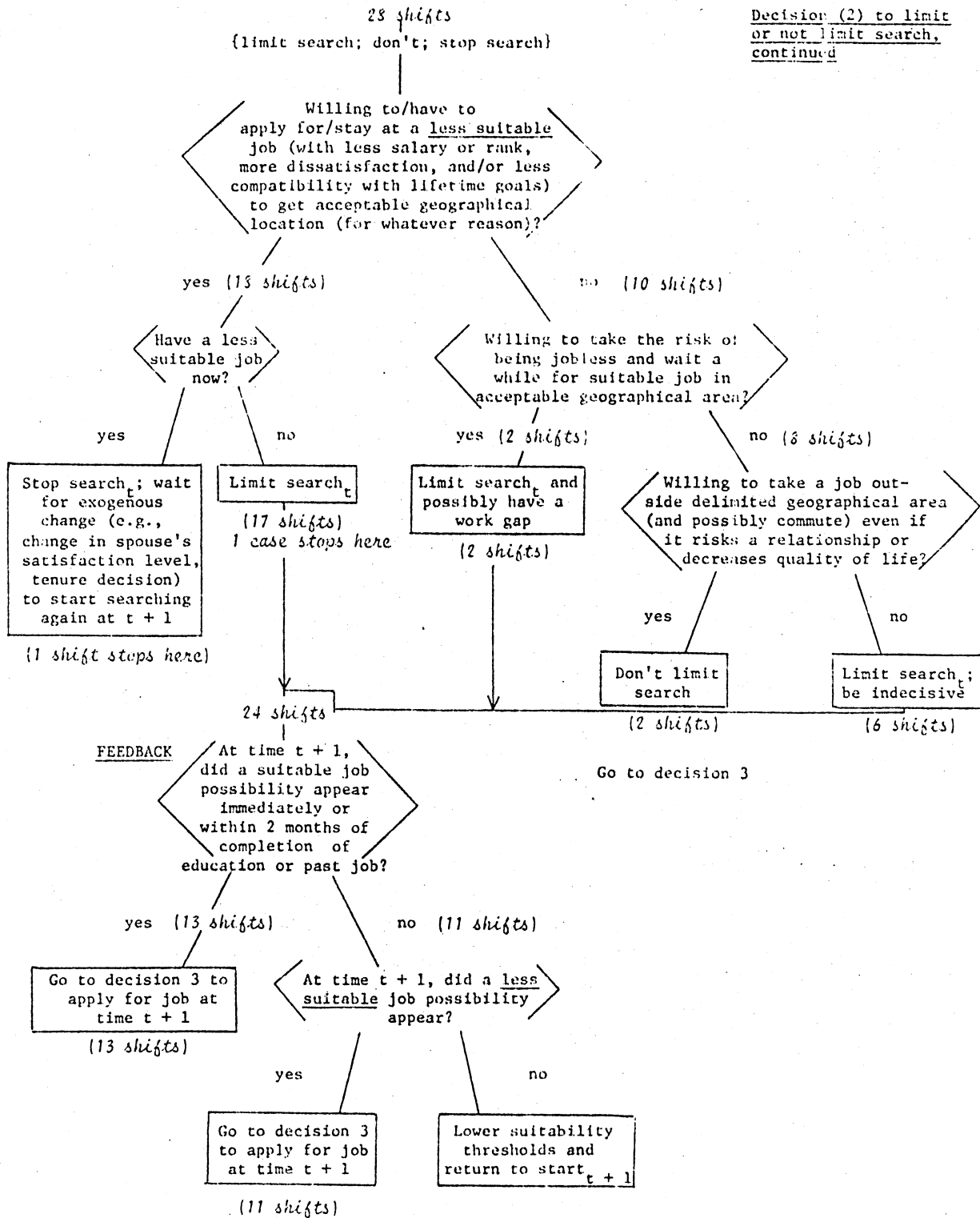


Figure 3:



Given you have decided to search  
or "a job's come up"  
 $t$

INFO  
NETWORK

At time  $t + 1$ , have you access to or can  
you build your own information network to inform  
you about job openings?

yes

no

Job i possibility  
is eliminated

(43 cases of job shifts)

RECS

Can you get good recommendations from  
mostly male faculty to enable you to  
have a chance at job  $i_{t+1}$ ?

yes

no (2 shifts)

Have enough female  
faculty to get  
recommendations?

no

Job i possibility  
is eliminated  
1 alternative of  
1 shift

yes (2 shifts)

(43 shifts)

SPOUSE

Spouse (not) (un)supportive  $t + 1$ ?

Don't apply for  
job i

yes (43 shifts)

CHILDREN

Can combine children's and  
career needs  $t + 1$ ?

no

Don't apply for  
job i

1 alternative of  
1 shift

yes (43 shifts)

Decision 2 to  
limit search  
to geographical  
area

LOCATION

Is location alright, or within  
delimited search area  $t + 1$ ?

no

Don't apply for  
job i

1 shift (no move  
made) and 1 alter-  
native of 12 shifts

yes (42 shifts)

SALARY

Is salary of job i within a  
suitable range, given  
delimited search area  $t + 1$ ?

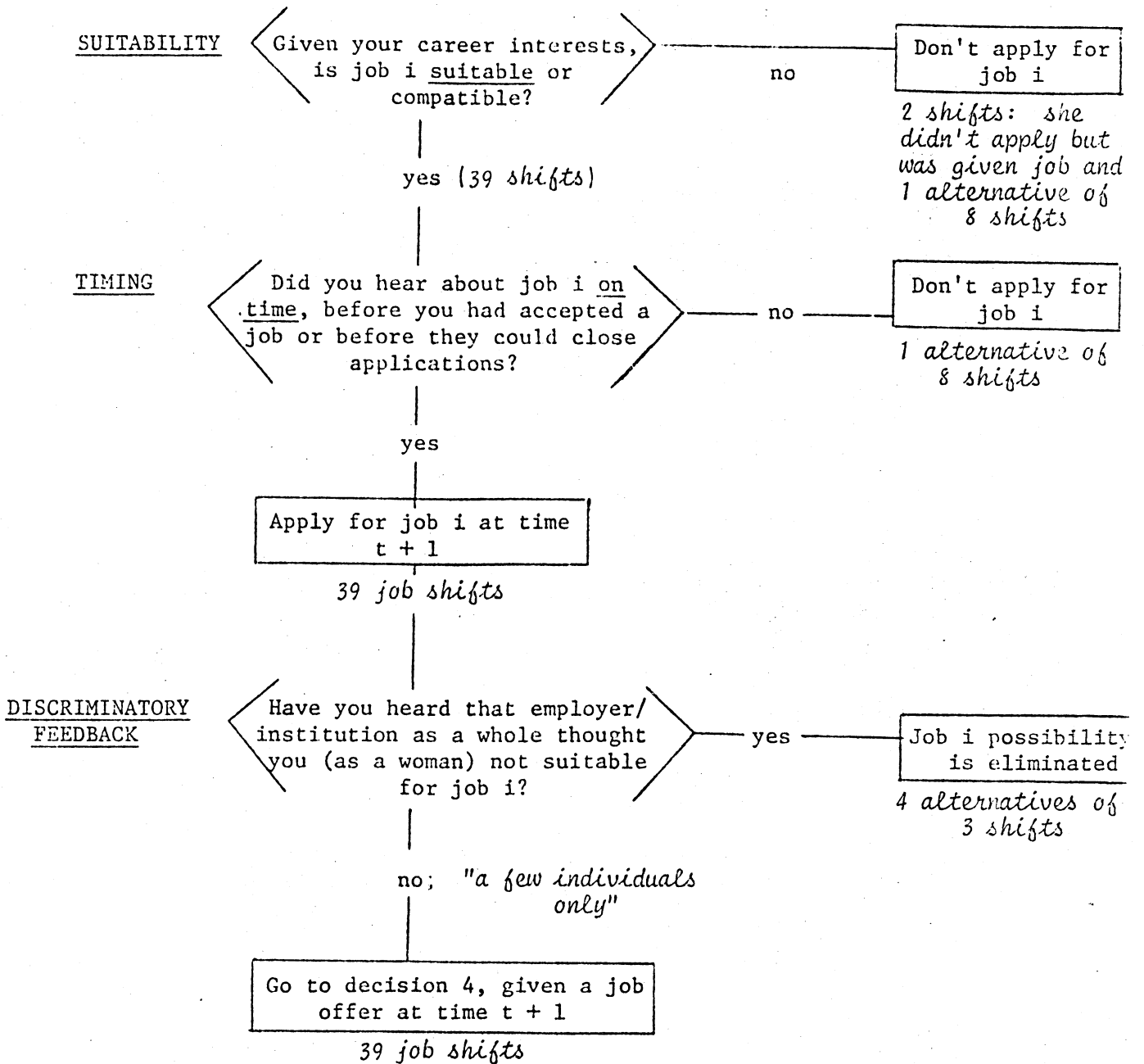
no

Don't apply for  
job i

1 alternative of 3  
shifts (1 error:  
she took the job  
anyway)

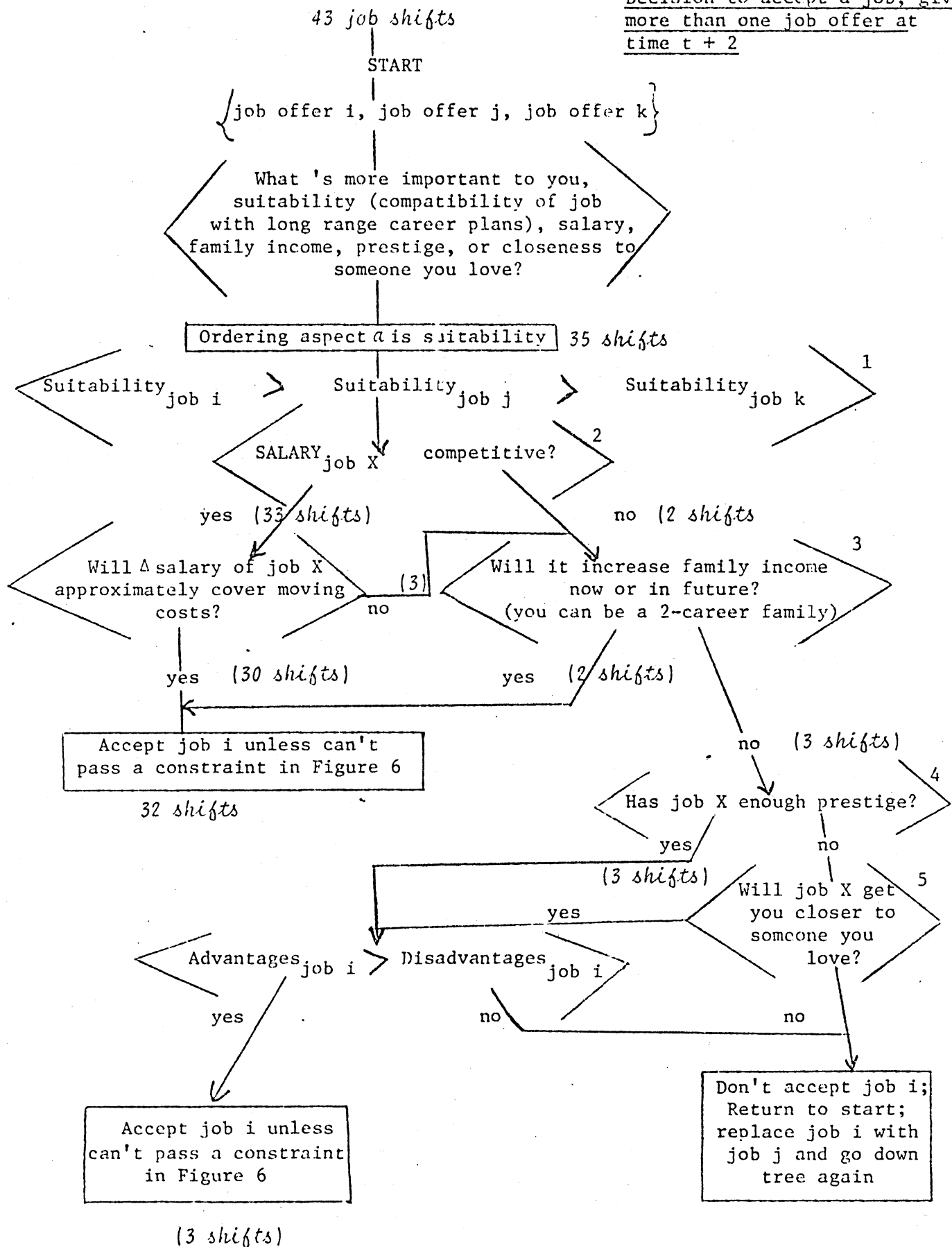
yes (41 shifts)

CONTINUE



Decision 4

Decision to accept a job, given more than one job offer at time  $t + 2$



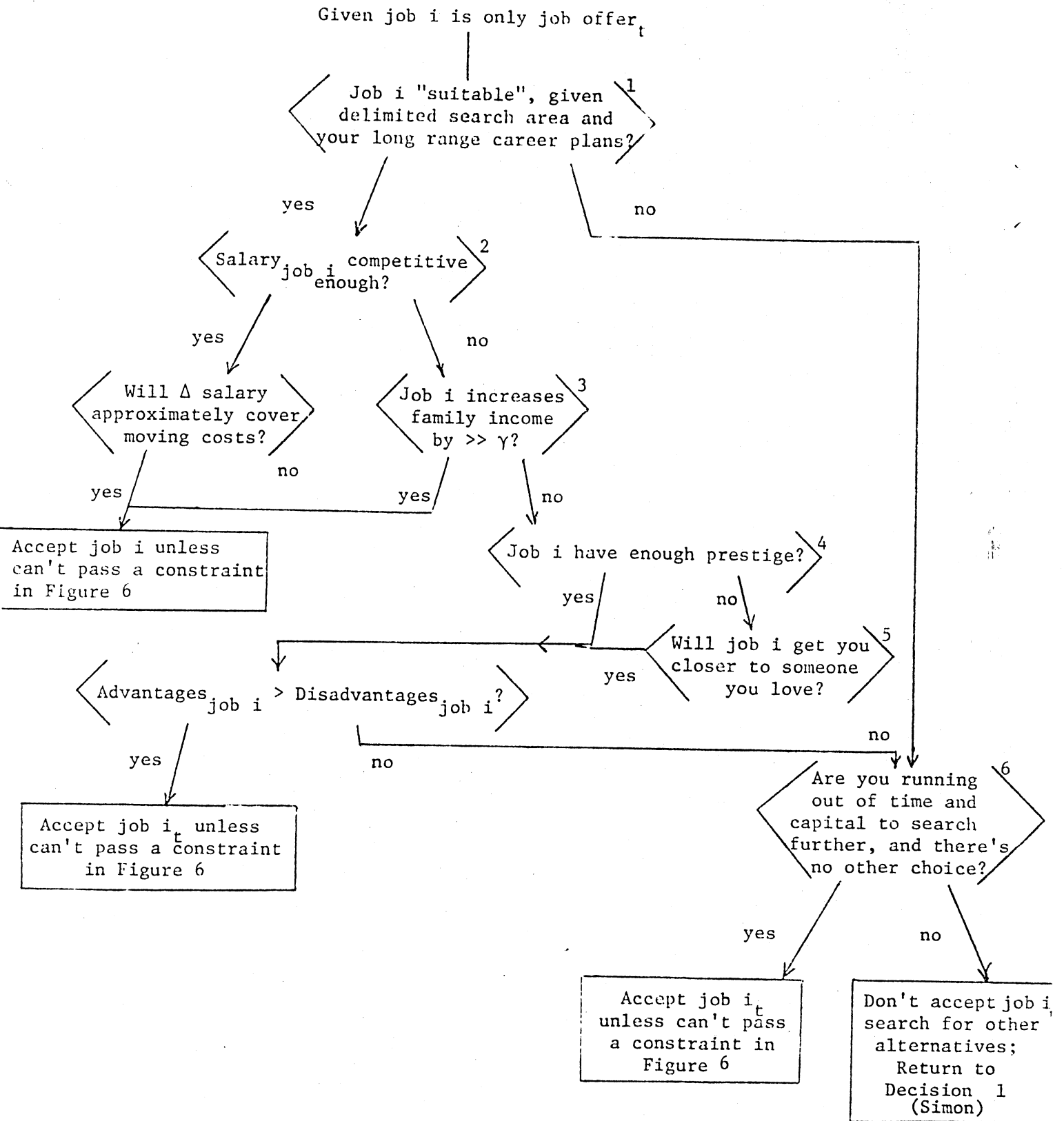
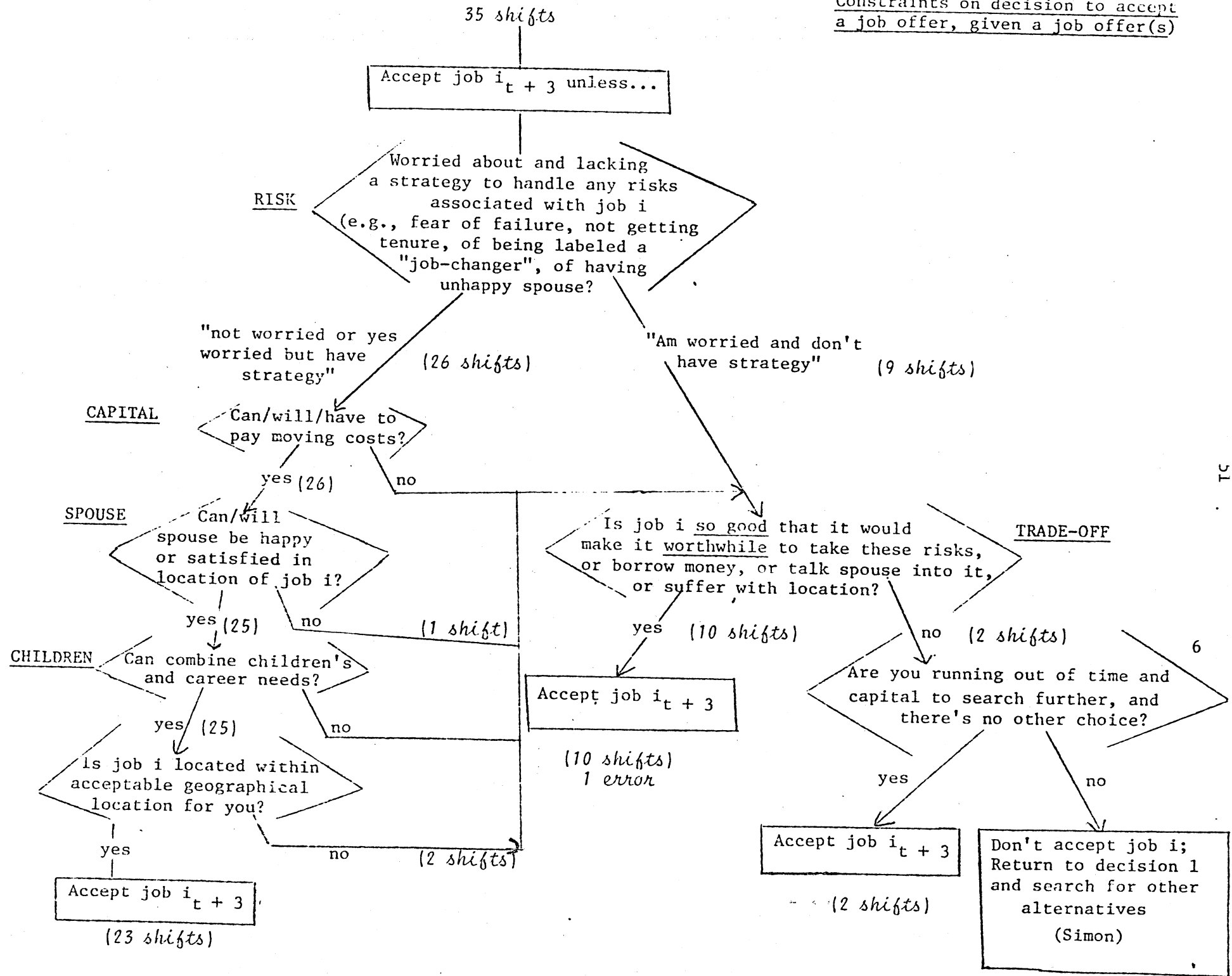


Figure 6

Constraints on decision to accept a job offer, given a job offer(s)



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## CURRENT OPPORTUNITIES FOR WOMEN IN AGRICULTURAL

### ECONOMICS : HIRING AND TENURE PROSPECTS

by Barbara J. Redman\*

The question of job discrimination against women in academia has received increased attention in recent years. Several studies have been done which document salary and rank differentials between men and women. Some of these have considered the group of all faculty women regardless of discipline, some have focused on women within a particular university, and others, recently, have concentrated on economics and agricultural economics.

Of those who considered all academic women together, Katz found that in 1969 women were paid on average \$2410 less than men. His conclusions on promotion were more limited; half the women in his study had husbands who were professors at the same university and of these women, two-thirds had lower rank than their husbands. He attributed this to a segregated job market whereby women with faculty husbands were not taken seriously as professionals. Interestingly, Katz also found that research productivity declined by one article per year after promotion from assistant to associate professor, but rose by approximately the same amount after promotion to full professor.

Johnson and Stafford's life-cycle explanation of rank and salary differences has been refuted by the later Committee on the Status of Women in the Economics Profession (CSWEP) research on women's career patterns, but still they found that women had lower salaries and ranks than men, even after correction for demographic differences such as marital status. They also found that women are most often hired by smaller schools which neither emphasize research nor have a steep earnings curve with job experience as do major universities. They did find that the pay differential between men and women was less in the government sector.

Loeb and Ferber surveyed the women faculty at the University of Illinois in 1968. Again, women's salaries were significantly below men's. Concerning rank, they found that while 11.8% of the university's faculty were women, women comprised only 3.7% of full professors

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\*Department of Agricultural Economics, University of Georgia. A paper presented at the American Agricultural Economics Association Meeting in Logan, Utah, August 1-4, 1982.

and 9.4% of associate professors, but 16.8% of assistant professors and 33.7% of instructors. In several departments, women were hired at rates well below what one might expect from their proportion in the national job market for their fields. However, there was no significant difference between the sexes in publications or prior job experience.

Astin and Bayer performed perhaps the most detailed study of university faculty. They concluded that "even after controlling numerous predictor variables which account for over 60% of the variance in academic rank, there remain significant differences between the sexes" (p. 342). Tenure status was closely aligned with rank and length of employment at the institution. They also concluded that sex differentials in salary are even greater than sex differences in rank, and found more than \$1000 average difference (which they estimate as a low bound) in salaries which was not attributable to rank differences.

With reference to the economics and agricultural economics specialties, the Committee on the Status of Women in the Economic Profession and more recently, the Committee on Women's Opportunities in Agricultural Economics have conducted surveys of the profession. The CSWEP survey results have been reported in the American Economic Review, and essentially confirmed the trends noted above. The findings of present particular interest appear in the May, 1981 issue as a committee report. A Universal Academic Questionnaire was distributed in 1972 and 1978-79, and CSWEP surveyed its roster in April, 1980. Results were tabulated for each time period both for the economics departments in all colleges and universities, and for the economics departments in the "Chairperson's Group of Universities" which consisted of 43 major universities in 1972 and 65 major universities in 1978-79.

The disturbing point about Table 1 is the decline in women's status in economics over the two time periods of the Universal Academic Questionnaire. The percentage of women in the tenured ranks has actually decreased. Explanations for this vary. One of the more reasonable explanations is that women who received their degrees prior to World War II held a favored position relative to women who entered academia in other time periods, since during the war women were more readily hired and promoted. Some also argue that these women had to be exceptional professionals to be considered at all. Lane has addressed this point. These women are now retiring; social acceptance of women in "non-traditional" fields declined in the 1950's and 1960's, so that as these women retired from the tenured ranks they were not fully replaced by the promotion of younger women. Although the CSWEP survey identified many more women economists than had been suspected previously (many in departments outside general economics), the results on rank distribution are no more encouraging. The majority of the Chairperson's Group of Universities had no tenured women professors in economics, and nearly a third had no women at all. It is not expected that agricultural economics would show a better performance.

TABLE 1

FACULTY DISTRIBUTION OF TENURE TRACK RANKS BY SEX

	UNIVERSAL ACADEMIC QUESTIONNAIRE, 1972				UNIVERSAL ACADEMIC QUESTIONNAIRE, 1978-79				CSWEP ROSTER APRIL, 1980	
	FEMALES		MALES		FEMALES		MALES		FEMALES	
	No.	Distri- bution	No.	Distri- bution	No.	Distri- bution	No.	Distri- bution	No.	Distri- bution
Full Professors	48	21.5	1489	38.2	48	19.7	1637	43.4	184	31.3
Associate Professors	59	26.5	1055	27.1	58	23.8	1005	26.6	171	29.1
Assistant Professors	<u>116</u>	52.0	<u>1350</u>	34.7	<u>138</u>	56.5	<u>1130</u>	30.0	<u>233</u>	39.6
TOTAL	223		3894		244		3772		588	
<u>CHAIRPERSON'S GROUP OF UNIVERSITIES, ECONOMICS DEPARTMENTS</u>										
									CSWEP SURVEY MARCH, 1980	
Full Professors	14	26.4	563	51.4	10	17.5	653	57.4	20	22.1
Associate Professors	8	15.1	211	19.3	8	14.0	184	16.2	17	16.8
Assistant Professors	<u>31</u>	58.5	<u>321</u>	29.3	<u>39</u>	68.4	<u>301</u>	26.4	<u>58</u>	61.1
TOTAL	53		1095		57		1138		95	

SOURCE: The American Economic Review, May 1981, p. 475.

The methodology and some results from the survey in agricultural economics were presented at the 1981 AAEA meetings and in the December 1981 AJAE. Of particular note is Linda Lee's paper. She estimated a more than \$3000 average sex differential in salaries, with other factors controlled for; her sub-sample showed that of academicians, 55% of the men but only 24% of the women were tenured. Further, 63% of the men but only 51% of the women are employed in academia. The purpose of the present paper is to more fully explore the patterns of tenure status and type of employer among men and women.

As reported last year (Redman), there appears to be a skewed distribution of agricultural economics women's Ph.D. completion dates. A far higher percentage of women than men received their degrees before 1960. This corresponds with the hypothesis on the effect of World War II on women's employment described above. The popular impression is that much of the discrimination against women in agricultural economics takes place at the hiring level if not before; government in particular, has become known as the employer of last resort for women. Our sample is indeed, an inadequate representation of women who chose agricultural economics because many who could not get jobs in academia turned to government or (occasionally) industry, and over time and different job assignments gradually lost touch with the agricultural economics profession. We only have included women who currently identify with agricultural economics and, further, returned our questionnaire. The reputation of government is further supported by the finding cited above of a lesser salary differential between government men and women. Whether or not women in government feel discrimination is the subject of another report (Reichelderfer) which should soon be ready.

The current survey results (Table 2) do indicate a disproportionate employment of women in the non-academic sector (primarily the federal government) among those Ph.D. holders who indicate a primary specialty in agriculture or natural resources. The  $X^2$  statistic (8.37, 3 d.f.) was significant at the 5% level. The statistic for all fields combined (6.25) fell just short of significance at the 10% level. Agriculture and natural resources accounted for  $\frac{1}{2}$  of the total sample specializations.

TABLE 2

TENURE STATUS BY SEX FOR Ph.D. RECIPIENTS

	AGRICULTURE AND NATURAL RESOURCES		ALL FIELDS OF SPECIALIZATION		CURRENT EMPLOYMENT IN AG. ECON. DEPT.			CURRENT TENURE-TRACK EMPLOYMENT IN AG. ECON. DEPARTMENT	
	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE		FEMALE	MALE
Tenured	3	12	8	24	3	18	Tenured	3	18
Non-Tenured but Tenure-Track	2	5	5	10	4	5	Non-Tenured	4	5
Non-Tenure-Track Academic	3	0	3	1	1	2			
Non-Academic	<u>4</u>	<u>3</u>	<u>8</u>	<u>7</u>	<u>3</u>	<u>4</u>		<u>—</u>	<u>—</u>
	12	20	24	42	11	29		7	23
	$\chi^2_3 = 8.37^a$		$\chi^2_3 = 6.10$		$\chi^2_3 = 4.01$			$\chi^2_3 = 3.20^b$	

<sup>a</sup>Significant at  $\alpha = .05$

<sup>b</sup>Significant at  $\alpha = .10$

Table 3 indicates type of employer for men and women Ph.D.s. The results bear out suspicions of past hiring discrimination on the part of the agricultural economics departments. Very few women compared to men obtained their first job in agricultural economics departments. They instead pursued their interests in other academic departments. This, again, excludes the employment patterns of those who began with government or industry and who no longer identify with agricultural economics. When current employment was analyzed, however, the distributions more nearly corresponded. This is as expected given the way in which men were sampled for this survey (Lundeen and Clauson).

TABLE 3

TYPE OF EMPLOYER BY SEX, FOR Ph.D. RECIPIENTSA. FIRST JOB AFTER Ph.D.

	GOVERNMENT	PRIVATE SECTOR	ACADEMIC - AG. ECON. DEPARTMENTS	ACADEMIC - OTHER DEPARTMENTS
Females	5	3	7	10
Males	<u>7</u>	<u>3</u>	<u>29</u>	<u>0</u>
	12	6	36	10

$\chi^2_3 = 21.89^{a/}$

B. CURRENT POSITION

	GOVERNMENT	PRIVATE SECTOR	ACADEMIC - AG. ECON. DEPARTMENTS	ACADEMIC - OTHER DEPARTMENTS
Females	7	3	9	6
Males	<u>7</u>	<u>4</u>	<u>24</u>	<u>7</u>
	14	7	33	13

$\chi^2_3 = 2.92$

a/ Significant at  $\alpha = .01$

Because of the small size and limited nature of the sample (this sub-sample consisted of those presently tenured and tenure-track, plus a few who from their job histories might reasonably be supposed to have left academia for tenure reasons), it was very difficult to obtain logit regression results with tenure status as dependent and sex as an independent variable (Table 4).

TABLE 4

LOGIT REGRESSION RESULTS; DEPENDENT VARIABLE = TENURE

VARIABLE	BETA COEFFICIENT	ST. DEV.	CHI-SQUARE	P	D
Intercept	-5.5487	2.3977	5.36	0.0207	
Years since Ph.D.	0.5959	0.2083	8.18	0.0042	0.170
No. Articles	-0.0907	0.0693	1.71	0.1905	0.041
No. Other Papers	-0.0648	0.1415	0.21	0.6471	0.005
Sex (1 = Female, 2 = Male)	1.7661	1.1723	2.27	0.1319	0.054

n = 45

Correct Predictions : 93.3%

Predictive Accuracy Coefficient : 0.601

In fact, no significant results could be obtained except for years since the Ph.D., which positive result is hardly surprising given the up-or-out policy almost universally prevalent. It is particularly interesting that according to these sample results, the tenured are no more productive in research than the untenured. The tenure process is supposed to select the most productive of the pool of untenured faculty. However, these non-significant results are supported by the Katz study described earlier, though not by the Astin and Bayer study. Although sex failed to reach the 10% level of significance, it is interesting to note that according to the D-statistics (equivalent to partial  $R^2$ ), sex ranked second only to years since Ph.D. in influence on tenure.

One further regression was run to explain non-tenure-track employment among academicians (Table 5). Those who ranked lowest in their college class were more likely to be so employed, as were those who had



been out of school longest. Sex was not significant; however, only five observations out of fifty-five were non-tenure-track, so caution should be used in interpreting these results.

TABLE 5

LOGIT REGRESSION RESULTS; DEPENDENT VARIABLE = NON-TENURE STATUS

VARIABLE	BETA COEFFICIENT	ST. DEV.	CHI-SQUARE	P	D
Intercept	-3.9286	2.4510	2.57	0.1090	
Academic Rank (1 = highest, 6 = lowest)	0.8016	0.3566	5.05	0.0246	0.090
Years since Ph.D.	0.0652	0.0437	2.23	0.1357	0.042
Sex (1 = Female, 2 = Male)	-0.9512	1.0898	0.76	0.3828	0.015

n = 55

Correct Predictions : 94.5%

Predictive Accuracy Coefficient : 0.67

The limitations of sample size made detailed analysis difficult; for example, efforts to analyze effects on tenure acquisition of publications, years since Ph.D., etc., for men and women separately fell afoul of singular matrices and the scarcity of women in the tenured ranks. Restriction of the sample to agricultural economics departments exacerbated the problem. In fact, there are yet so few women who have been employed in academic agricultural economics departments that analysis of our position is difficult. Only seven responded to the questionnaire (which in itself probably reflects a fifty percent response rate), three of whom were tenured. Of these seven, almost all were hired within the last seven years. The sample size is not much enlarged by inclusion of women from other academic departments, and missing data for some observations further complicates analysis. In short, sophisticated statistical analysis is difficult with so few degrees of freedom. The tentative conclusion is that discrimination does exist and has existed at the hiring level in academic agricultural economics; discrimination at this level is eroding but slowly, and too slowly for evidence of sex discrimination in the tenure decision, usually made between five and seven years after hiring, to be conclusive at present.

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