REFERENCES


JOB SEARCH STRATEGIES AND OUTCOMES FOR ACADEMIC ECONOMISTS:
A MIDDLE-MARKET VIEW

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Of all the markets that we study, economists have an inherent interest in the one in which we participate. Yet now Ph.D. economists typically enter this market with little preparation for their first job search. Several recent studies and annual reports can better prepare sellers (and buyers) who participate in the market for academic economists. For example, average salaries for new assistant professors can be found in the AEA's Universal Academic Questionnaire (UAQ) (1999). Also, Siegfried and Stock (1999) report that the recent weak academic market has forced some aspiring professors into business and industry. Besides providing information on what current applicants might expect, their study is also of use to those advising prospective graduate students.

Other resources focus on gender differences in the market. The Committee on the Status of Women in the Economics Profession (CSWEP) provides an information network to assist women with their job search. Other studies reveal gender differences in search activity and outcomes. For example, Formby et al. (1996) and Siegfried and Stock (1999) find that women can expect entry-level salary offers comparable to those made to men. However, women are more likely to accept offers at liberal arts colleges rather than in top-ranked departments or in schools of business (Barbezat, 1992). Women can also expect slower progress toward tenure (Kohn, 1993) and a widening wage gap as their careers develop (Broder, 1989). Finally, every seller can benefit from Carlson and Navarro's (1988) survey of buyers, which outlines the steps in the screening process and ranks the evaluative criteria used by employers.

Results from our recent survey of sellers contribute to this body of research by providing information on job search strategies and outcomes for those in (or anticipating entry into) the market for academic economists. Since our sample is based on a survey of those who applied for a position at typical middle-tier school, our results are most applicable to those anticipating a similar experience. With this in mind, our
results indicate that applicants who have finished all but their dissertations (ABD) fare better in the market than those with Ph.D.s in hand. Since 90 percent of these ABDs are new entrants to the market while 57 percent of Ph.D.s are re-entrants, with about this same percentage of Ph.D.s holding full-time jobs, the ABD advantage is likely due to the negative signals associated with seeking a new position while holding another. This evidence underscores the importance of the first exposure in the job market and the need for preparation prior to entry. Developing or becoming involved in an effective network and referral system should be part of that preparation. Our results indicate that those who relied on networking during their job search had more interviews, received more job offers and accepted a significantly higher salary offer (by $4,500). Those who attended an upper-tier Ph.D. program, but who applied for positions at middle-tier schools, also fared better in all stages of the search process and outcome.

Every graduate department seems to have an estimate of the application-to-offer ratio based on the experiences of recent graduates. For comparison purposes, we find, under recent weak market conditions, that 90 applications result in 10 interviews at the national meetings followed by two campus visits and one job offer. Compared to men, women can expect more initial interviews (13 vs. 8), more campus visits (4 vs. 2), more employment offers (2.2 vs. 1.2) and salary offers equal to those made to men. Also, while another job offer is associated with a higher salary offer, this effect is greatest for male applicants. This finding may be due to the constraints faced by women involved in dual career searches. Finally, all applicants tend to overestimate (by about $3,500) the wage offer they will receive.

The remainder of the paper is organized along the following lines. Our results are based on a sample of job applicants. The characteristics of this sample are discussed in the next section. We then present average data on search methods and outcomes. Next, we report the results of an estimate of the accepted salary and of a recursive system of equations that examines the effects of gender, degree quality, and networking on the various stages of the job interview sequence and its outcome. The paper concludes with a discussion of what departments can do to better prepare their graduates for entry into the job market.

**SAMPLE CHARACTERISTICS AND REPRESENTATION**

The data for the present study were derived from a questionnaire sent to applicants for a position at the University of San Diego (USD), an independent Roman Catholic university with a Carnegie classification of "Doctoral II." Economics at USD is part of the School of Business Administration, which is fully accredited by the AACSB at the graduate and undergraduate levels. The job announcement, which appeared in the fall 1990 issues of *Job Openings for Economists* (JOE), did not specify any particular field. However, the announcement did emphasize the need for a strong commitment to undergraduate teaching and professional development indicating the balance between teaching and research that is typical of many middle-tier schools. As a consequence, the results obtained from this sample are most appropriate for describing the experiences of applicants to schools similar to this university, which is typical of its market segment. More than 400 economists applied for the position. Of those who applied, 159 responded to our survey.

Given USD's location and religious affiliation, sample selection bias from these sources may be a concern. However, several factors including recent weak market conditions and the low marginal cost of responding to job announcements reduce the likelihood of selection bias from these sources. For example, Ehrenberg [1989] argues that the recent tightness in our academic market has exacerbated the "trickle-down" problem of graduates from top programs accepting positions in lower-tier departments. Data from our sample support Ehrenberg's notion. Of those who responded to our survey, 52 percent attended an upper-tier graduate program and two-thirds of these individuals indicated a first preference for employment in a Ph.D.-granting institution. It is likely that USD did not attract the top students from upper-tier programs, so in this way our results may not accurately represent the job market for these individuals. However, these data suggest a motivation of the applicants in our sample to apply to USD for reasons other than its location or religious affiliation.

Siegfried and Stock [1999] report that there were approximately 750 jobs for the 903 new Ph.D.s in 1994. Even job candidates with weak qualifications or low interest in the position at USD may have submitted an application given the low marginal cost involved (postage, copying expenses and time). Faced with such a market and costs, applicants would likely cast a wide search net. Indeed, applicants for the USD position sent an average of 40 applications to other schools. This type of search strategy and the data both suggest that the USD announcement elicited applications from a broad group of applicants seeking positions at middle-tier schools.

Comparing our sample distributions with those of other published reports provides additional evidence that we received information on a wide cross-section of those seeking positions as academic economists in this market period. Our sample is 23 percent female, which is consistent with the National Science Foundation finding that 24.5 percent of Ph.D.s granted in 1994 went to women. Also, CSWEP [1996] reports that in the same year, 25 percent of applicants in the overall market for economists were female. Also, 22 percent of our sample attended a top-twenty Ph.D. program in economics. This is comparable to Siegfried and Stock [1999] who report that 32 percent of the 1996-1997 graduating class consists of those who attended the top 15 programs.

The range of salary offers made to the respondents of our sample falls with the range of salaries reported in the UAQ [1999]. Respondents to the USD survey reported a mean low salary offer of $38,486 and a mean high offer of $47,000 (the mean accepted salary, based on 101 responses was $43,698). This range of accepted salaries is consistent with the salaries offered to new assistant professors in 1994. For example, the UAQ reports that new assistants at BA-granting institutions received $38,808. The reported average at Ph.D.-granting institutions was $45,570 for new assistants for the same year. Consistency in the ranges of salaries here is not surprising given that those from our sample who accepted positions were evenly distributed between BA, MA and Ph.D.-granting institutions.


TABLE 1
Summary Statistics for Job Search Activity
(The number of respondents is shown for each category)

<table>
<thead>
<tr>
<th></th>
<th>Found</th>
<th>Useful</th>
<th>Overall</th>
<th>Ph.D. from</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=25</td>
<td>n=91</td>
<td>n=20</td>
<td>n=121</td>
</tr>
<tr>
<td></td>
<td>950</td>
<td>165</td>
<td>848</td>
<td>581</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>956</td>
</tr>
<tr>
<td>Other Ads</td>
<td>327</td>
<td>165</td>
<td>.367</td>
<td>.277</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>.163</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.333</td>
</tr>
<tr>
<td>Confidential placement services</td>
<td>189</td>
<td>158</td>
<td>.888</td>
<td>.172</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.172</td>
</tr>
<tr>
<td>Referrals and networking</td>
<td>346</td>
<td>500</td>
<td>.253</td>
<td>.312</td>
</tr>
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<td></td>
<td></td>
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<td>.469</td>
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<td>.394</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.367</td>
</tr>
</tbody>
</table>

a. The two proportions for this category are statistically different at the 1 percent level.
b. The two proportions for this category are statistically different at the 5 percent level.
c. The two proportions for this category are statistically different at the 10 percent level.
d. This is significant at the 12 percent level.

Other sample distributions indicate that 44 percent of the respondents were ABD and 22 percent were non-white. Respondents represent the output of 76 different Ph.D. programs. Those who accepted a position in this market cycle found jobs in 51 states. Since the USD job announcement solicited applications for assistant and associate professor ranks, our sample contains those who already held jobs as well as new entrants to the market. For example, 83 percent are new entrants and 17 percent are re-entrants. This distribution matches closely with degree status as 90 percent of ABDs are new entrants and 97 percent of Ph.D.s are re-entrants.

The breadth of cross-section of this sample allows us to examine topics of interest to many current job seekers, such as differences in search strategies and earnings between those who did and did not attend upper-tier graduate programs, between Ph.D.s and ABDs, and the earnings effect of networking. Johnson and Stafford (1974) have pointed out that one of the benefits of examining a well-defined labor market, like the one for academic economists, is that many of the sources of heterogeneity are removed. However, to address many topics of interest to current market participants, some sample heterogeneity is needed. The USD sample possesses the characteristics needed to provide insight into that portion of the labor market in which the preponderance of economists participate, including many of the readers of this Journal.

SALARY AND JOB SEARCH

Summary statistics for the usefulness of job search activities are presented by respondent characteristics in Table 1. There are significant differences in the perceived usefulness of search strategies by job-seekers from the top 20 departments compared to others. Carson and Navarro (1988) find that departments in the top twenty are more likely to rely on networking when filling a position and our results indicate that graduates from these programs are also more likely to use these referral systems when looking for work. Those from the top twenty programs are also much less likely to use advertisements other than in the JOE. Notice also that the results for females are similar to the top twenty responses. Females rely less heavily on other ads and, although not significant at the 10 percent level (p-value > .10), place more emphasis on networking and referrals. As mentioned above, job seekers with degrees in hand tend to be repeat market participants and the lack of significant differences between Ph.D. and ABD job seekers suggests that the usefulness of strategies does not change with subsequent searches.

Table 2 reports summary statistics for search outcomes for the overall sample of applicants and for the categories based on gender, degree status, program rank and search strategy used. In the 1989-1994 job search period, respondents submitted an average of 98 job applications. Note that this blanket search strategy is a characteristic of all the subcategories and is likely an artifact of weak market conditions. Overall, respondents obtained an average of 9.6 preliminary interviews followed by 2.5 interview visits to institutions. An average of 1.41 employment offers were received. These data suggest an offer-to-application ratio of 1.45. While these data were collected during glutted market conditions, they do offer a basis of comparison between specific programs (yours) and a market average.

Respondents were asked in the survey to report the difference between their expected salary and their accepted salary. The mean reported difference was $4,389, with an interquartile range of $0 to $8,000 (for 94 responses). Siegfried and Stock (1999) report that for many new Ph.D.s, career expectations while in school do not match the realities of the job market. Our data on expected salaries indicate another expectations mismatch; job seekers tend to overestimate the level of salary they will be offered.

Applicants who used networking received significantly more initial interviews, campus visits and job offers. They also received significantly higher salaries. Though not significant at the 10 percent level (p-value > .10), those relying on networking accepted salary offers closer to what they expected. This is not surprising, as good referral systems provide information about applicants and job characteristics. Given that women and top-twenty graduates are more likely to use a referral system, it is not surprising that their search processes and outcomes match closely with those who networked. The notable exception is the lack of gender differences in the salary categories.

Siegfried and Stock (1999) report that those from the top six graduate programs earned approximately $7,000 more than the average for all members of the 1986-1997 graduating class. We report a larger differential among a more heterogeneous group: those from the top programs relative to all other job seekers. White applicants received significantly more initial interviews and campus visits than nonwhites. Although not statistically significant, nonwhite respondents reported a slightly lower accepted salary than white respondents.

When sorted by degree, we see that job seekers who were still ABD received significantly more initial interviews and offers than job candidates with a Ph.D. in hand. ABD respondents reported significantly higher accepted salaries, and their accepted salaries were much closer to their expected salaries compared to job seekers with a
completed Ph.D. The signals associated with job seeking with a degree in hand may explain this result. For example, 58 percent of the Ph.D.s in our sample held a full-time job at the time they applied for another position. This may be a signal to prospective employers that those applicants may have had difficulty fitting in or achieving tenure at their current position. The other 42 percent of our sample with Ph.D.s held part-time jobs or were unemployed. These traits also likely send a signal of lower quality to prospective employers. Given the above, not having a track record may be to the advantage of those who are ABD and may explain their greater success in the market.

Regional segmentation in the market for academic economists may also explain the relative success of those who are ABD. For example, Ault, et al. [1979] find that the highest rated school at which an academic economist will be employed is the first school at which they are employed. The authors attribute this result to geographic segmentation that constrains occupational mobility once employment is secured within a region. For the Ph.D.s in our sample who are already employed and are seeking new jobs, geographic segmentation may limit their job search. On the other hand, those who are new to the market (ABDs) may not face the same constraints and are able to compete for a greater array of employment opportunities in the national market. The differences in the number of applications submitted by those who were ABD (100) versus those with degrees in hand (83) is consistent with the notion of a more narrow search for applicants with experience.

In sum, the data reported in Tables 1 and 2 suggest that access to well-paying jobs for academic economists depends on access to a good referral system. The wage premium experienced by those from top-twenty programs may be due to higher quality or to the referral systems those graduates participate in. Furthermore, Barbezat [1987] has argued that affirmative action policies have played a large role in the increased relative earnings of women within academia. However, given the differences in the types of schools and career paths that male and female applicants sort into, networking on the part of women may also play a significant role in securing those jobs that offer salaries comparable to those offered to men. Those and other issues are developed further in the following examination of the estimation of the accepted salary.

**ESTIMATION OF THE SALARY OFFER**

In this section we report results from the estimation of accepted salaries for those respondents who received an offer from an academic institution in the 1993-1994 job market. The accepted salary is a function of personal and productivity characteristics of the individual as well as the characteristics of the type of position accepted. Following the discussion from Table 2, we are interested in the effects of gender, race, search strategy, degree status and graduate school rank on the level of the accepted salary (holding job productivity and other personal characteristics constant). To this end we estimate the following model:

### Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean Response by category</th>
<th>Male</th>
<th>Female</th>
<th>Top 100</th>
<th>Top 200</th>
<th>Non-Tenure</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>3.54</td>
<td>3.54</td>
<td>3.54</td>
<td>3.54</td>
<td>3.54</td>
<td>3.54</td>
<td>3.54</td>
</tr>
<tr>
<td>Initial interviews</td>
<td>2.61</td>
<td>2.61</td>
<td>2.61</td>
<td>2.61</td>
<td>2.61</td>
<td>2.61</td>
<td>2.61</td>
</tr>
<tr>
<td>Campus visits</td>
<td>2.04</td>
<td>2.04</td>
<td>2.04</td>
<td>2.04</td>
<td>2.04</td>
<td>2.04</td>
<td>2.04</td>
</tr>
<tr>
<td>Offers</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
<td>1.42</td>
</tr>
<tr>
<td>Accept Offer</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>Accepted Salary</td>
<td>34000</td>
<td>34000</td>
<td>34000</td>
<td>34000</td>
<td>34000</td>
<td>34000</td>
<td>34000</td>
</tr>
</tbody>
</table>
SAL = B₁ + B₂ FEMALE + B₃ NETWORK + B₄ OFFERS + B₅ PUB + B₆ ABD + B₇ TOP20 + B₈ EXP + B₉ X + B₁₀ Z + B₁₁ LAMBDA + E

SAL is the respondent's accepted salary offer. FEMALE equals one if the respondent is female and zero if male. NETWORK equals one if the respondent indicated that they found networking and referrals useful in their job search. OFFERS is equal to the number of employment offers that the individual received. Productivity characteristics are measured by the number of refereed publications (PUB), whether or not the applicant has yet to complete the Ph.D. (ABD), and if the respondent attended one of the top twenty economics programs (TOP20). EXP is the number of full-time years of work experience. X and Z are vectors of job and personal characteristics, respectively. LAMBDA, the inverse Mill's ratio, is included to correct for selection bias because only individuals who received job offers are included in the sample. E is the error term.

The summary statistics for the variables used in the regression equation are reported in Table 3. The sample size is reduced because this group includes only those who received a salary offer and had no missing values for the relevant variables. However, the data for this subsample is comparable to our overall sample. For example, 26 percent of this sample is female, 40 percent of the sample found networking useful, 28 percent were from the top twenty graduate programs and 44 percent were ABD. The mean salary offer for this subsample is $41,275. Furthermore, respondents had an average of 1.24 refereed publications and received 2.2 job offers. The average level of full-time work experience was two years, yet 78 percent of this sample possessed three or fewer years of experience. As a consequence, our results are weighted toward those at the inception of their careers. Thirty percent of this sample received an offer from a Ph.D.-granting institution (PHD), and 54 percent of the positions were tenured or tenure track (TEN-TRACK). Seven percent received offers for part-time or adjunct positions (ADJNT).

To control for personal characteristics other than gender we included measures of the respondent's race, age, marital status and family size. Forty-two percent of the sample was married (MARR) and 10 percent had children living with them (KID) in the job search year. Four percent of the sample was black. Asians were 14 percent and Hispanics were 3 percent of the sample.

Regression results are reported in Table 4. The low t-value for FEMALE is consistent with recent studies reporting the absence of significant gender earnings differences at the entry level [Broder, 1993; Furmy, et al., 1993; Siegfried and Stock, 1996]. However, our data do not allow us to examine trends in gender earnings as individuals accumulate experience. Other studies [Broder, 1993; Johnson and Stafford, 1974] suggest that wage disparity increases as female economists accumulate work experience.

Applicants in the market for academic economists who reported that networking was useful in their job search accepted an offer that was approximately $4,500 higher than other applicants (significant at the .05 level for a one-tailed test). Corcoran, et al. [1860] reports that in other labor markets referred workers receive an initial wage premium that declines over time. Curtis and Warner [1992] develop a framework to explain the higher initial earnings for those who are hired through the "old boy" network; however, these authors conclude that it is not clear whether this wage advantage is due to the reduced uncertainty of hiring referred workers, or if it is due to favoritism. Similarly, with respect to the market for academic economists, we are also unable to determine if this wage advantage experienced by those who network is due to reduced uncertainty or to favoritism. However, given the low earnings growth in the economics profession, this initial wage difference is likely to persist.

Barbezat [1987, 1992] has argued that affirmative action policies, for the large part, are responsible for the trend toward gender wage equality in academia. The results discussed above indicate that networking has a positive effect on earnings and that women are more likely (at the .12 level) to find referral systems of use when looking for a position. Combined, this suggests that networking may play a role in the relative earnings. To explore this issue further, we estimated the model again by adding the interaction of FEMALE and NETWORK as an additional independent variable. While the coefficient for this interaction term is positive (suggesting that women earn more if they networked) the t-value was almost zero. This suggests that to the extent female applicants use networking in their search process, it does not increase their earnings relative to males.
The coefficient for the number of job offers (OFFERS) suggests that more highly qualified applicants, who receive more job offers, are able to select positions that offer higher salaries. While finding no significant difference in the level of the accepted salary between men and women, we do observe gender differences in the earnings effect of an additional employment offer. The salary equation was estimated with an additional interaction term (OFFERS*FEMALE). This specification allows us to determine if the earnings effect of another job offer is also a function of gender. Results from the interaction model indicate that men receive an additional $4,518 for another job offer while women only receive $1,050. Gender differences in the willingness and ability to migrate may explain this result. For example, Biely and Biely [1990] find that a husband's potential loss from a move depresses a wife's pursuit and realizing opportunities at a new location. However, a wife's potential loss does not have the same effect on a husband's decision. This constraint may limit the ability of women to take full advantage of the earnings benefit of additional employment offers.

The coefficient for KID [0.05] is significant at the 0.05 level for a one-tailed test. This result indicates that the earnings associated with having a child are positive and significant. The coefficient for LAMBDA is -2.83, which is significant at the 0.05 level for a one-tailed test. This result suggests that the earnings associated with having a child is negative and significant. The coefficient for E(3) is 0.65, which is significant at the 0.05 level for a one-tailed test. This result suggests that the earnings associated with having a child is positive and significant.
variable, is significant and negative. While the purpose of \textsc{lambda} is to correct for sample selection bias, the coefficient indicates that the average accepted salary for a respondent with given characteristics is lower than what this salary would be for other comparable applicants had they accepted an offer. The \( B \) is higher relative to other studies of this kind.\textsuperscript{10}

**RECURSIVE ESTIMATION OF THE JOB INTERVIEW SEQUENCE**

In the previous section we examined the effect of networking and degree quality on the level of the accepted salary. In this section we use regression analysis to examine further the effects of these two variables throughout the job interview sequence. Specifically, we estimate three equations (for the number of initial interviews, campus visits and job offers) as a function of the appropriate personal and productivity characteristics. The sequence of the events in the interview process implies a recursive system of equations. We report generalized least squares results from the seemingly unrelated regression technique in Table 6. This technique is appropriate in our case due to the likelihood of correlated error terms across the equations. For example, interview and bargaining skills are important in each step (equation) of the interview process but we do not have measures of these personal traits. Due to this omission it is likely that the error terms from the three equations are correlated with each other. Zellner (1962) argues that the seemingly unrelated regression technique is appropriate for a recursive system under these conditions.\textsuperscript{11}

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**TABLE 5**

Summary Statistics for the Subsample Used in the Recursive Regression of the Job Search Sequence

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent:</td>
<td></td>
<td></td>
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<tr>
<td>Initial Interviews</td>
<td>9.58</td>
<td>.86</td>
</tr>
<tr>
<td>Campus Visits</td>
<td>2.40</td>
<td>3.12</td>
</tr>
<tr>
<td>Job Offers</td>
<td>1.41</td>
<td>1.67</td>
</tr>
<tr>
<td>Independent:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEMALE</td>
<td>.55</td>
<td>.43</td>
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<tr>
<td>NETWORK</td>
<td>.33</td>
<td>.67</td>
</tr>
<tr>
<td>PUBL</td>
<td>1.64</td>
<td>3.82</td>
</tr>
<tr>
<td>ABD</td>
<td>.32</td>
<td>.60</td>
</tr>
<tr>
<td>TOP20</td>
<td>.90</td>
<td>.40</td>
</tr>
<tr>
<td>EXP</td>
<td>3.01</td>
<td>4.32</td>
</tr>
</tbody>
</table>

Z Vector of Personal Characteristics:

| MAR  | 42    | .50 |
| KDD  | 15    | .32 |
| ASIAN| 16    | .27 |
| BLACK| 04    | .19 |
| HIS  | 03    | .13 |

\( \sum N = 115 \)

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**TABLE 6**

Recursive Regression Results for Job Search Sequence. Generalized Least Squares Regression Results for Seemingly Unrelated Equations

<table>
<thead>
<tr>
<th>Variable</th>
<th># Initial Interviews</th>
<th>Job Search Sequence (1)</th>
<th>Job Search Sequence (2)</th>
<th>Job Offers</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textsc{lambda}</td>
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</table>

\( (\text{-statistics in parentheses}) \)

The summary statistics for the subsample used in this estimation are reported in Table 5. This sample is larger than the sample used in the estimation of the accepted salary because the current set of respondents were not required to report salary information.\textsuperscript{12} However, these averages are similar to those of our overall sample and to the subsample used in the estimation of the accepted salary. The exceptions are that the current subsample has slightly fewer respondents that networked and who attended upper-tier Ph.D. programs, but includes individuals with slightly more experience.

When the network variable was added to the accepted salary equation, \textsc{top20} lost its statistical significance. This is not the case in the recursive system which indicates that networking and attendance at an upper-tier graduate program are
associated with more interviews, visits and offers. These results are significant at
less than the .07 level based on one-tailed tests. These findings are consistent with
the results reported in Tables 1 and 2 which were based on sample averages. How-
over, these regression results provide a measure of the additional effect of networking
(or of top 20 attendance). For example, those from top tier graduate programs
receive more initial interviews (4.58), but if they also engaged in networking they
receive additional interviews (3.06). While upper-tier attendance is associated with
1.16 more employment offers, networking increases the number of offers by .51.

In other words, networking by itself does not result in another job offer, but atten-
dance at an upper-tier program does. Taken together, the results from the estimation
of the salary equation and from the recursive system suggest that during the early
stages of the job search process networking and degree quality act independently to
increase the number of interviews and job offers an applicant receives. However, at
the level that salary offers are made, those who have attended upper-tier programs
rely on networking to secure high-paying positions.

Other results reported in Table 6 indicate that women and those who are ABd
receive significantly more attention throughout the interview process. Blacks receive
fewer initial interviews (significant at the .07 level for a one-tailed test) and Asians
are invited to fewer campuses (the difference is significant at the .06 level, one tailed
test). Both of the equations correct for selectivity bias in the same manner as em-
ployed in the salary equation. For example, LAMBDA from the initial interview
equation corrects for the bias resulting from the sample containing only those who
received interviews. Similarly, LAMBDA from the other equations correct for bias
from samples based on only those visiting campuses and receiving job offers.

The specifications of the recursive model meet the requirements of Zellner estimation by
having the same sample size across equations, not using dependent variables from
previous equations in subsequent ones and having at least one different independent
variable (LAMBDA) in each equation. 

CONCLUSION

There is no opportunity like the first opportunity in the job market for academic
economists. Yet typically graduate students enter the market with very little advice
on, or knowledge about, the search process. Information gathering is often informal
and difficult. Previous graduates who had a successful search are not available for
guidance. Further, dissertation advisors are too busy and the experiences of new hires
to a department are not always representative of the expected experiences of their
graduate students. Given the importance of the first job search experience and of
networking, it is vitally important to the success of graduates that departments de-
velop formal structures of job search advice and referral. A graduate program that
better prepares its students for success in the market is likely to improve its ability to
attract new enrollees.

Notes:
The authors would like to thank Jane Morrison, three anonymous referees and the editor of this
Journal for their constructive comments and suggestions. We assume sole responsibility for remaining
errors.

1. Due to a change in circumstances, USD withdrew the opening and another hired air interviewed
candidates in the Fall 1993 - Spring 1994 hiring cycle. This is the wording of the ad:

UNIVERSITY OF SAN DIEGO, San Diego, CA

AF - Any Field

The school of Business Administration anticipates one tenured track position at the asso-
ciate/associate professor level starting September 1994. Ph.D. required. A strong commit-
tment to undergraduate teaching and professional development is necessary. The Univer-
sity of San Diego is an independent Roman Catholic university. There are approximately
1,000 undergraduate and 390 graduate students in the School of Business Administration,
which is fully accredited by the AACSB at the bachelors and masters level. The successful
applicant must have a desire to teach undergraduate statistics and principles of economics,
as well as courses in lies or have expertise in either the undergraduate or graduate
level. We will interview at the AEA meetings in Boston. Send letter of application with
curriculum vitae, evidence of teaching effectiveness, and three letters of reference. Closing
date is December 15, 1993. An equal opportunity, affirmative action employer.

In Spring 1994 a survey questionnaire was developed and sent to each applicant to assess their
views of the job market for economists and to evaluate job search strategies. A copy of the survey and
additional information regarding the sample are available from the authors upon request.

2. There are no official measures of the number of job seekers in a particular year. The nearest proxy is
the yearly output of Ph.D. programs. Siegfried and Stock (1989) report that the output of U.S. gradu-
ate programs was 289 in 1994. Using this level of output as an indicator of the number of job seekers
in 1994 suggests that the USd ad attracted approximately 40 percent of applicants and that our 169
respondents represent about 17 percent of those on the market.

3. The top 20 designation (as used by Casman and Narvaez (1988)) is from a composite of rankings
compiled by Ladand (1986). The top 20 departments used were Chicago, Columbia, Cornell, Harvard,
Johns Hopkins, MIT, Michigan, Minnesota, NYU, Northwestern, Pennsylvania, Princeton, Radnor-
ter, Rutgers, Stanford, UC-Berkeley, UC-Los Angeles, UC-San Diego, Wisconsin, and Yale.

4. With respect to distribution by race, the USD sample compares with other reports. For example,
Siegfried and Stock (1989) report that 79 percent of the class of 1989-1992 was white, 18 percent
Asian, 4 percent Hispanic, and 3 percent black. For the USD sample, 69 percent is white, 34 percent
Asian, 8 percent Hispanic, and 3 percent black.

5. Heckman (1979a) argues that the estimation of wage equations from a sample of employed indivi-
duals will be biased unless information regarding the likelihood of employment is included in the wage
equation. This procedure requires the estimation of an auxiliary probit equation with a binary de-
pendent variable equal to one if the individual is employed (received an employment offer in our
test) and zero otherwise. The probit results are used to calculate LAMBDA. The auxiliary probit
equation is (5 statistics in parentheses):

Salary = \beta 1 \times .8 \times Female + .5 \times ABD + \beta 2 Whitnonce
          + .5 \times Top 20 + .01 \times Pubs + .2 \times Network

       + (1.4) (2.2) (1.4) (1.3)
6. Years of full-time experience ranges from one to 15 years.
7. Including the interaction term between FEMALE and NETWORK allows for the following partial derivative:

\[ \text{Salary} / \# Female = 2150.7 + 65.8 \times \text{Network} \]

The constant term indicates the relative earnings of females. The t-value for this term is 63. The slope coefficient for NETWORK indicates the differential earnings effect if the female applicant relies on networking. The t-value for this coefficient is 9.1.
8. Including the interaction term between FEMALE and KOPPEL allows for the following partial derivative:

\[ \text{Salary} / \# Offers = 4518 - 3379.4 \times \text{Female} \]

The constant term increases the starting salary for male applicants. The t-value for this term is 6.93. The slope coefficient for FEMALE indicates the differential (lower) effect for female applicants. The t-value for this coefficient is 2.01.
9. Fossey et al. (1993) find that economics departments do not pay higher salaries to those who come from upper-tier programs. This result does not conflict with our finding of a wage premium for upper-tier graduates. Their findings are based on a survey of buyers who would likely not adjust their offers based on the comparable educational background. Our data, based on a survey of sellers, indicate that those from upper-tier programs sort into higher-paying jobs.
10. The standard approach in the literature is to estimate the natural log of earnings. Broder (1993) reports coefficients of determination that range from .15 to .46 and Johnson and Studdard (1974) report an R² equal to .42. Our estimation using the natural log of earnings yielded a lower R² (R²) with many insignificant coefficients suggesting that the non-log model provides a better fit in this case. In addition, the histograms for salary and the log of salary indicated similar distributions.
11. The alternative recursive method involves the estimation of three independent equations, based on the assumption of independent error terms. The advantage of this technique over the seemingly unrelated approach is in the left hand side variables can appear as predictors in subsequent equations. That is, the number of initial interviews appears as a predictor in the wage equation and both of these variables appear as independent variables in the job offer equation. However, when using this technique we encountered interpretation problems due to the high correlation between the working and initial interview variables.
12. We attempted to estimate this recursive system with the same respondents used in the estimation of the accepted salary equation. However, since all members of that sample received initial interviews, campus visits, and job offers, it does not have the variation needed to estimate the auxiliary profit equations used to correct for sample selection. See text 13 for details.
13. As with the salary equation, the generalized least squares recursive system also applies the econometric procedure developed by Heckman (1979) to correct for selection bias. The auxiliary profit equations for the number of initial interviews, campus visits and job offers are (statistic are in parentheses):

*Interviews* = 5.7 + 3.4 Female - .1 Age + .5 ABD + 2.8 #Pubs

(3.1) (1) (2.9) (2.8) (1.6)

+ .5 Network + .1 TOP 20

(2.9) (1.2)

*Visits* = 12 + 1.0 Female - .3 Age + .3 ABD + .62 #Pubs

(2.2) (2.7) (4.7) (4) (4.4)

- .1 Network + .7 TOP 20 + .1 # Interviews

(.1) (1.6) (1.6)

14. In addition, we do not impose the constant of coefficient equality across equations. For example, because measured activity decreases as an applicant progresses from initial interviews to a job offer, there is no reason to assume that the effects of networking or Top 20 attendance would be equal in each step in the sequence. Also, it is likely that networking has its biggest effect early in the sequence. For these reasons we did not impose the linear constraints option available with Zellner estimation.

**REFERENCES**


