Forecasting Job Placements of Economics Graduate Students

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Abstract: This article seeks to identify the characteristics of applicants to graduate school in economics that predict successful job placement after completion of graduate school. Although there is considerable uncertainty in predicting the success of prospective Ph.D. students, the results indicate that GRE scores, reference writers, and admissions committee ratings are significant predictors of job placement.

Keywords: graduate education, admissions, job placement, GRE

JEL codes: A23, I20

Each year, academic departments must decide which applicants to admit to their graduate program. Although departments try to maximize a complex set of objectives through their admissions process, one important consideration is the eventual job placement and professional success of their graduates. Research on predicting successful graduate students from the pool of applicants is sparse, and in practice economics departments are often forced to base admission decisions on *ad hoc* procedures, partial information, and intuition. In this article, we perform a statistical analysis of the determinants of success among over 300 graduate students who applied for admission to one particular "top five" economics department. Graduate student success is measured by the students' job placement 7 years after they would have begun graduate study. Although the results are relevant only for the pool of applicants to this particular graduate program, the application pool consists of many, if not most, of the applicants to top Ph.D. economics programs in the U.S., so the results may be generalized beyond this one school.

Our main findings are that, although there is considerable uncertainty in predicting which applicants will be placed in high-ranking jobs, the Math Graduate Record Examination (GRE) score, Economics GRE score, and ratings of the admissions committee are useful predictors of the applicants' subsequent job placement. Perhaps more surprising, a statistical model based on the quantifiable information in the students' application folders (including GRE scores, undergraduate college, and the prominence of the reference writer) provides a slightly better forecast of successful students than the subjective ratings of the admissions committee. Nonetheless, the human ratings of the committee are useful predictors of eventual student placement conditional on the information in the admissions folder, suggesting that an optimal strategy would combine the two sources of information.

Our findings on the efficacy of GRE scores conflict with Sternberg and Williams's (1997) conclusion that the GRE is not a useful predictor of student achievement in the field of psychology. However, their sample of students includes only those who attended Yale University's graduate program in

Psychology, and they measure student success by first- and second-year course grades and subjective faculty ratings of student performance. As we show below, if we limit our sample of economics graduate students to those who attended the top five department, and measure their success by course grades, we also find that the GRE is a poor predictor of student success. Thus, we think it is premature to conclude that the GRE is not a useful tool for predicting successful applicants to graduate school. Indeed, combined with other information and human judgment, our results suggest the GRE can be a useful input in admissions decisions.

CONSTRUCTING THE DATA

An unusual feature of our analysis is that we measure the success of applicants to graduate school by their eventual job placement. Specifically, we have attempted to find the whereabouts of all the applicants to a given class. Although this approach has its merits, it also poses some potential obstacles.[1] For the most part, we focus on the 344 students who applied for admission to a particular top five economics department in 1989.[2]

In the summer of 1996 we attempted to track down the job placements of all of the students who applied for admission to the program.[3] Determining students' whereabouts turned out to be a major challenge. Many of the applicants may never have attended graduate school, or may have done so in a foreign country, or may have dropped out of their graduate program, or may still have been enrolled. After much effort, we were able to track down the job placements of two-thirds of the admitted students, but only one third of the entire applicant pool. Despite the low overall identification rate, we are confident that we found all applicants who were hired by top 25 economics departments because we searched each of their faculty rosters from their college catalogs.[4] In a follow-up analysis conducted in 1999, we updated our original search and found some additional individuals who completed their degrees and obtained jobs within the last two years. There were only a few students who had not completed their graduate work by the end of 1998. Given

that they have had a full nine years to complete, the likelihood that these students will eventually obtain outstanding job placements seems quite low. Of the remaining applicants who were not found, we suspect that many of these students were not strongly committed to pursuing graduate education in economics, or were not admitted to a Ph.D. program.

Another issue concerns the ranking of the various job placements. For our analysis, we assumed that one goal of admissions and graduate training in economics is to place students in leading research jobs, although we recognize that different departments have different objectives. In ranking academic institutions, we relied primarily on the ranking of the top 100 economics departments based on faculty publications in elite journals produced by Scott and Mitias (1996).[5] Students who were placed in business school jobs were given a rank equal to their university's economics department ranking plus five. (A lower rank signifies a more prestigious job placement.) The World Bank, IMF and Federal Reserve Board received a ranking equivalent to the 40th best economics department. Consulting jobs (e.g., NERA, Abt, DRI) were given a rank equal to the 120th best economics department. Finally, applicants who could not be found were assigned a rank of 150, the worst rank we gave, and treated as censored observations in much of the analysis. Students who held multiple jobs after leaving graduate school were assigned the best rank of all their jobs. Our ranking system is undoubtedly subjective, but we conducted the entire analysis using an alternative ranking scheme taken from a survey by the National Research Council and we also experimented with using different rankings for consulting jobs, business schools, and government jobs to test the robustness of our findings. Using these alternative rankings, we obtain extremely similar results and thus the conclusions of our study are not sensitive to the choice of ranking system.

From summaries of the applicants' admissions files retained by the department, we were able to obtain information on several relevant predictor variables. Most importantly, we were able to obtain data on the applicants' Math, Verbal and Analytical GRE scores, undergraduate college, country of

origin, and other graduate schools they listed that they applied to. For a subset of applicants, we also had the Economics Subject GRE score. In addition, most of the application folders were read by two members of an admissions committee, and we use the sum of their rating scores as a variable in some of the analysis that follows. Unfortunately, some pertinent information was not retained in the department's files, such as the students' undergraduate GPA, relevant coursework, and letters of reference. The folders did list the names of the applicants' letter-of-reference writers, however, so we categorized the letters of reference into three admittedly subjective groups: (1) at least one reference writer was a prominent research economist (i.e., someone whom we deemed to be a well-known and respected researcher in the profession); (2) at least one was an active economist (i.e., an economist who had published in the not too distant past or was known for other reasons); and (3) the reference writers were unknown to us.[6]

WHO IS ADMITTED?

Before analyzing the determinants of job placements, it is useful to describe features of the data and to model the admissions decision. The means of key variables for all applicants as a whole, for the subsample that was found, for the subsample that was admitted and the subsample that matriculated to the department are reported in Table 1. There were 344 applicants in 1989, 108 (31 percent)of whom were eventually found, 65 (19 percent) of whom were admitted, and 27 of whom chose to attend (a matriculation rate of 42 percent). Fully 58 percent of applicants to this department were foreign born, which is somewhat higher than Aslanbeigui and Montecinos's (1997) estimate that 52 percent of graduate students in economics were foreign born in 1995-96. The "sum of ratings" variable is the sum of the scores given by the two readers of the admissions committee.[7]

Attiyeh and Attiyeh (1997) provide a careful analysis of the determinants of admission to graduate school using data from 48 different institutions and five fields of study, including economics. Specifically, for each field they

estimate probit models in which admission to the graduate program is a function of GRE scores, undergraduate performance, country of origin, and other variables. Column (1) of Table 2 reports their estimated probit equation for applicants to economics graduate programs. For comparison, in column (2) we try to replicate their model as closely as possible with data from our sample. Although we do not have exactly the same set of variables as they have (most importantly, we lack information on undergraduate grades), the results are notably similar. For example, the top five department in our sample and Attiyeh and Attiyeh's sample of departments all tend to place a great deal of weight on the math GRE in admissions; the probit coefficients imply that a 100 point increase in the Math GRE is associated with a 10 percentage point increase in the probability of admission in Attiyeh and Attiyeh's sample of economics departments, and a 12 percentage point higher probability in our sample.[8] The Verbal and Subject GRE's have a smaller effect on admissions in both samples. Interestingly, the Verbal GRE does not appear to be given less weight for foreign applicants in either sample. Black and Hispanic students and women are more likely to be admitted to graduate school in both samples. The similarity of most of the coefficients suggests that our sample is fairly representative of other economics departments because they all seem to use a similar set of criteria in determining admissions decisions.

In column (3) we include some additional variables that are available in our sample. The results indicate that being a foreign student or attending an Ivy League or other elite college (e.g., Stanford, MIT, etc.) does not have a statistically significant effect on the admission rate, other things being equal. On the other hand, students' who had more prominent economists write their letters of recommendation have a higher probability of admission, irrespective of the content of the letter.[9] Lastly, we do not report models that include the sum of the admissions committee’s ratings, but it is unsurprising that this variable is a strong predictor of admission to the graduate program.

PREDICTING SUCCESS IN THE JOB MARKET

We next turn to the central issue of the article: the ability of various variables to predict whether applicants to graduate school in economics will be successful economists. As mentioned, we measure success by the eventual job placement of the student. Although this is clearly an imperfect measure of success, and one might like to also measure success by the long-term job placement, publication record, and other contributions of economists, the students' initial placement is nonetheless of interest because a primary goal of top graduate programs is to train students so they can be placed in academic research positions. Moreover, initial job placement is probably highly correlated with future job placement and other measures of success, and is a *market-based* indicator.

Tables 3a and 3b present various Tobit estimates where the dependent variable is the rank of the students' job placement as of 1996. Applicants whose job we could not identify or who have yet to complete graduate school were treated as censored observations, with the censoring point equal to a job rank of 150. Although more sophisticated methods could be used to analyze the job rank data, the Tobit models provide a straightforward way of summarizing the relations in the data, and in our case generally yielded similar results to categorical-dependent-variable models. Table 3a presents results including a variable that measures the sum of the admission committee's rating scores, whereas Table 3b omits this variable. The sample size falls considerably when the Economics GRE score is included because applicants were not required to take a subject exam. In addition, the Analytical GRE is a less central requirement for admission. Consequently, we also present models without these variables. In interpreting the Tobits, it is important to note that a lower value of the dependent variable signifies a better ranked position.

The results of the analysis show that students who were rated more highly by the admissions committee tend to be placed in better jobs. This result holds whether or not we condition on the applicants' observed characteristics. The coefficient of –6.9 in column (4) of Table 3a, for example, implies that if

a student moves from the 25th percentile to the 75th percentile of the committee's ratings (a movement from 4 to 10), his or her predicted job placement would improve by 41 places.

Another result in Table 3a is that the admissions committee ratings do not reflect all the observable information in the file that can be used to predict job placement. Most importantly, the Math GRE and the quality of the references have explanatory power after conditioning on the rating scores of the admissions committee. All else equal, a 50 point increase in the Math GRE is associated with an improved job placement of 23 spots. We discuss possible interpretations of this result in the conclusion. Also notice that applicants whose reference writers were leading economists obtained jobs that were ranked 60 places better than those whose reference writers were less prominent, all else equal. One possible interpretation of this result is that a match takes place at the undergraduate level whereby students who are more likely to become successful economists are paired with more accomplished research economists. Additionally, more successful research economists could convey more human capital to their students. The results in Table 3a also indicate that women and foreign students tend to be placed in slightly better ranked jobs, though neither of these effects is statistically significant.

Notice that there is still a large amount of unexplained variability in placements despite the finding that some variables and the committee's ratings are useful predictors. Even with the variables from the application folder and the rating scores, the pseudo-R^2 of these equations are less than 10 percent. Evidently, there is a great deal of uncertainty in predicting the future success of applicants to graduate school. This finding should engender some humility among members of admissions committees, and should hearten students who are rejected from top programs. There is undoubtedly a good deal of randomness in the application process.

In results not reported here, we interacted members of the admissions committee's ratings of the applicants with eight dummy variables indicating the identity of the faculty member who rated the file. These interactions were

jointly statistically insignificant, suggesting that the raters as a whole were equally effective at predicting the success of the applicants. Nevertheless, the interaction term for the chairman of the committee was individually statistically significant, suggesting that he had particular insight into forecasting the applicants' eventual placement, or that this interaction was significant because he rated a high proportion of the files (which may also have contributed to his insight).

Table 3b presents results without controlling for the admissions committee's ratings. Our purpose in presenting these models is that they provide the maximum likelihood coefficients that a department could apply to quantitatively rate application files without actually reading them. These models may be a useful input in the admissions process. Qualitatively, most of the explanatory variables have the same direction of effect in the models without the ratings as in the models with the ratings. Foreign students, particularly those from Europe, Australia, Canada and Latin America, tend to have comparatively better job placements in the model that does not control for the admissions committee's ratings (see column 3 of Table 3B).

Table 4 presents logit models where the dependent variable is 1 if the applicant obtained a top 10 job, and 0 otherwise. We limited attention to placement in top 10 jobs because we were confident that every applicant who obtained a job in a top 10 department was correctly identified. In addition, many departments are most concerned about placing students at the top of the distribution. Because these models might be used for prediction, we estimate relatively parsimonious specifications. Interestingly, the results of the top-10 logits are similar to the Tobit equations. For example, highly rated students by the admissions committee are more likely to be placed in a top job. The Math GRE also has some explanatory power in predicting top placements, even after conditioning on the admissions committee ratings. The Verbal GRE, however, is inversely related to the likelihood of placement in a top 10 job. Interestingly, the pseudo-R^2 is higher in the model based exclusively on the characteristics in the application folder than in the model based on the

subjective ratings of the admissions committee.

As a final approach, we divided job placements into six ordered categories: (1) top 10 job; (2) 11-25 job; (3) 26-50 job; (4) 51-100 job; (5) 101-120 job; (6) not placed or placement not found. We then fit ordered logit models to these categories. As in the Tobit models, a lower value of the dependent variable in this categorization signifies a better job. Results are reported in Table 5. The model in column (1) uses the committee's rating as the only predictor variable, while the model in column (2) excludes the human ratings and predicts placement from the other explanatory variables from the admissions file. Finally, the model in column (3) includes both the human ratings and the measured characteristics from the application folder. The human ratings are highly significant predictors of placement in better jobs. Once again, however, the Math GRE has predictive power after controlling the human rating scores. It is also interesting to note that applicants who had prestigious letter-of-reference writers and applied to relatively more top economics departments were placed in better-ranked job categories.

As in the earlier logit model, the pseudo-R^2 is slightly higher in column (2) (based on ratings) than in column (1) (based on measured characteristics from application), suggesting that a model based solely on the applicants' characteristics does a better job explaining placement than the model that is based on the human ratings alone. But because the human ratings are a useful predictor of applicants' job placement conditional on their measurable characteristics, an optimal strategy for selecting students may be to combine the two sources of information.

GRADES OF MATRICULANTS

Lastly, we analyze grades in graduate courses for the small sample of matriculants. The results of a bivariate regression of the students' second-year cumulative GPA on their Math GRE scores:

$$(1) \qquad \hat{GPA} = \underset{(2.075)}{1.241} + \underset{(.003)}{.002}\ \text{Math GRE} \qquad R^2 = .038 \qquad n = 22.$$

At least for this sample, the Math GRE does not have a statistically significant association with GPA. Moreover, when we included dummy variables indicating whether they attended an Ivy League school, other elite college, and a dummy variable for foreign students we continued to find an insignificant effect of the GRE score. These results, however, are not inconsistent with previous finding that the GRE score is a useful predictor of job placement. In particular, to study grades one must restrict the sample to matriculants, so the sample selection rule may distort the predictive ability of GRE scores. Moreover, course grades may be a poor predictor of job performance. In light of these results and our earlier findings of the efficacy of GRE scores for predicting job placement, we regard Sternberg and Williams's (1997) finding that GRE scores are not useful predictors of success with considerable caution, because their sample is limited to matriculants of one school and their measure of success is based on course grades and subjective evaluations.

CONCLUSION

The results in this paper may be of some use in selecting applicants for admission to graduate programs in economics. In particular, the subjective ratings of the admissions committee, GRE scores, and the prominence of letter writers are statistically significant predictors of applicants' subsequent job placement. Nonetheless, there is considerable uncertainty in forecasting which applicants will be successful economists. Evidently, unobserved factors or pure chance play a large role in student job placements. The randomness in selecting successful graduate students should be a cause of humility for members of admissions committees and of encouragement for rejected applicants.

The positive association between GRE scores and job placement found in this study is particularly difficult to interpret. On the one hand, the test scores could predict job placement because they measure the skills that are relevant for becoming a successful economist. That is, the scores may reflect students' acquired economic knowledge, or their capacity to learn and apply skills in graduate school. On the other hand, the scores may be completely

uncorrelated with the students' abilities and capacities, and instead matter in our equations because they reflect the fact that most top graduate programs rely heavily on GRE scores in making admissions decisions, and that attending a top graduate school is often a prerequisite for obtaining a job at a top department early in one's career. In the latter case, the GRE scores only serve as a screen, without improving allocative efficiency. These two interpretations obviously have different implications for the way GRE scores should be viewed in the admissions process, and we unfortunately are unable to sort between them. The reasons why GRE scores predict successful job placement of applicants to graduate school is a worthy topic for future research.

NOTES

1. For example, in deciding which cohort of applicants to use in the sample, it is necessary to wait a sufficient period of time until the applicants have had a chance to finish their degrees and obtain jobs. But if one waits too long, the results may no longer be relevant for the current cohort of applicants.
2. To preserve confidentiality, we have not revealed the name of the department, but there is little reason to suspect that the application pool is substantially different from the pool of applicants to top economics departments in general.
3. To track down the job status of applicants we used several sources, including the American Economic Association's (AEA) 1995 Telephone Directory and 1993 Survey of Members, catalog listings of all top 25 economics departments and business schools, internet search engines, and input from colleagues at various institutions.
4. Furthermore, because Siegfried (1998; Table 3) estimates that 58 percent of all assistant professors in economics departments join the AEA, and a higher proportion of assistant professors at top ranked departments join, the AEA Telephone Directory should contain most of those placed in academic

jobs.

5. Although ranking economics departments is an inherently subjective task, the various rankings are generally highly correlated. For example, Dusansky and Vernon (1998) find that Scott and Mitias's ranking has a correlation of .73 with the National Research Council's ranking.
6. These groups were mutually exclusive. Reference writers could only be classified in group 2 if they were not in group 1. Also note that we classified the reference writers without knowing the name of placement of the applicant.
7. In the admissions process used by the department, each faculty reader assigned a score to the application file. The faculty readers were supposed to score the files independently, without knowledge of the other reader's score. We have converted this score to a 1-10 scale, with 10 indicating the best score possible. The correlation between the two raters' scores is 0.51 -- positive, but not as large as one might expect.
8. These derivatives were calculated at the mean admission rate in our sample.
9. Unfortunately, the letters themselves were not available, so the recommendations may have been positive or negative.

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TABLE 1: Means

Variable	All Applicants	Found	Admitted	Attended
Eventual Job Placement	121.038	57.750	79.108	79.704
Proportion in Top 25 Job	0.084	0.269	0.246	0.148
Proportion in Top 10 Job	0.035	0.111	0.108	0.037
Math GRE	742.516	767.282	774.375	763.846
Verbal GRE	568.645	607.670	637.656	606.539
Analytical GRE	654.936	701.165	732.188	702.308
Economics GRE	729.266	771.818	784.314	759.546
Sum of Ratings	7.381	10.306	13.000	11.926
Reference Group 1	0.113	0.231	0.338	0.333
Reference Group 2	0.177	0.185	0.246	0.111
Total Schools Applied to	4.419	4.647	5.098	5.208
Top 5 Schools Applied to	1.994	2.314	2.984	2.667
Ivy League Undergrad	0.076	0.130	0.185	0.111
Other Elite Undergrad	0.084	0.083	0.123	0.074
Seven Sisters Undergrad	0.026	0.019	0.031	0.000
Female	0.259	0.241	0.292	0.222
Graduate Degree	0.399	0.364	0.354	0.519
Foreign Undergraduate College	0.519	0.481	0.431	0.593
By Region of Birth:				
U.S.	0.424	0.481	0.523	0.407
China, Taiwan	0.078	0.019	0.031	0.000
Korea, Japan	0.108	0.102	0.077	0.185
South Asia	0.070	0.074	0.077	0.111
Other Asia	0.061	0.037	0.046	0.037
Europe	0.160	0.176	0.138	0.111
Canada, Latin America	0.076	0.074	0.092	0.111
Australia	0.017	0.037	0.015	0.037
Africa	0.006	0.000	0.000	0.000
Sample Size	344	108	65	27

Notes: Eventual job placement is rank of first job. Sum of ratings is the sum of scores given by two members of the admissions committee. Reference Group 1 is a dummy variable that equals one if at least one letter-of-reference writer was deemed a prominent economist. Reference Group 2 is a dummy variable that equals one if at least one letter-of-reference writer was deemed an active economist.

TABLE 2: Probit Estimates for Admissions Decisions:
Attiyeh and Attiyeh's (1997) Sample of Economics Departments
and Our Sample

Explanatory Variable	Attiyeh and Attiyeh (1997) (1) Coefficient	p-value	Top 5 Department (2) Coefficient	p-value	(3) Coefficient	p-value
Math GRE	0.005	0.000	0.006	0.029	0.004	0.194
			(0.003)		(0.003)	
Verbal GRE	0.002	0.000	0.002	0.069	0.001	0.325
			(0.001)		(0.001)	
Foreign*Verbal GRE	0.001	0.000	0.000	0.672	0.001	0.410
			(0.001)		(0.001)	
Analytical GRE	0.001	0.000	0.003	0.038	0.003	0.090
			(0.002)		(0.002)	
Economics GRE	0.003	0.000	0.005	0.007	0.004	0.027
			(0.002)		(0.002)	
GPA	0.572	0.000	…	…	…	…
Institute SAT	0.001	0.000	…	…	…	…
Graduate Degree	0.191	0.000	0.409	0.100	0.392	0.152
			(0.248)		(0.277)	
Related Major	0.121	0.072	…	…	…	…
Other Major	-0.171	0.001	…	…	…	…
Female	0.107	0.000	0.493	0.040	0.594	0.030
			(0.240)		(0.274)	
Black or Hispanic	0.489	0.000	1.557	0.010	1.698	0.012
			(0.608)		(0.679)	
Asian American	-0.145	0.044	0.615	0.222	-0.166	-0.302
			(0.504)		(0.548)	
East Asian	0.689	0.000	-0.106	0.893	…	…
			(0.521)			
South Asian	-1.482	0.000	-0.542	0.315	…	…
			(0.540)			
English Speaking Country	0.211	0.005	0.035	0.942	…	…
			(0.480)			
Western European	0.034	0.000	0.606	0.208	…	…
			(0.481)			
Latin American	0.222	0.001	0.752	0.242	…	…
			(0.643)			
Other Foreign	0.417	0.000	0.125	0.775	…	…
			(0.436)			
Total Schools Applied to	…	…	…	…	-0.093	0.151
					(0.065)	
Top 5 Schools Applied to	…	…	…	…	0.417	0.000
					(0.101)	

TABLE 2 (continued)

Explanatory Variable	Attiyeh and Attiyeh (1997) (1) Coefficient	p-value	Top 5 Department (2) Coefficient	p-value	(3) Coefficient	p-value
Foreign Undergrad	…	…	…	…	0.340	0.732
					(0.465)	
Ivy League Undergrad	…	…	…	…	0.163	0.678
					(0.392)	
Other Elite Undergrad	…	…	…	…	-0.350	0.384
					(0.401)	
Applications/Faculty	-0.169	0.000	…	…	…	…
Reference Group 1	…	…	…	…	1.333	0.000
					(0.347)	
Reference Group 2	…	…	…	…	0.855	0.004
					(0.299)	
Age	-0.009	0.006	-0.061	0.103	-0.037	0.353
			(0.038)		(0.040)	
Sample Size	15,159		301		281	

Notes: Dependent variable equals 1 if admitted, 0 if not admitted.
Means used if GRE scores are missing, and a dummy variable is included to indicate whether scores are missing. Standard errors shown in parentheses. Standard errors for Attiyeh and Attiyeh (1997) are not available.

TABLE 3a: Tobit Models for Initial Job Placement
(Dependent Variable: Rank of Job Placement)

Explanatory Variable	(1)	(2)	(3)	(4)
Sum of Ratings	-12.454	-7.847	-8.925	-6.924
	(1.764)	(2.467)	(1.986)	(2.143)
Math GRE	…	-0.248	-0.378	-0.457
		(0.199)	(0.159)	(0.176)
Verbal GRE	…	-0.039	-0.079	-0.055
		(0.102)	(0.076)	(0.089)
Analytical GRE	…	0.039	…	…
		(0.127)		
Economics GRE	…	-0.345	…	…
		(0.131)		
Female	…	-11.536	-6.036	-13.576
		(20.961)	(17.227)	(17.363)
Age 21-24	…	-82.847	-54.008	-45.332
		(79.866)	(78.497)	(78.582)
Age 25 plus	…	-46.902	-24.221	-36.522
		(80.826)	(79.039)	(80.124)
Foreign Undergrad	…	-2.475	-24.662	5.228
		(22.072)	(17.185)	(25.924)
Ivy League Undergrad	…	…	…	-11.341
				(26.487)
Other Elite Undergrad	…	…	…	22.772
				(25.713)
Reference Group 1	…	…	…	-59.887
				(22.613)
Reference Group 2	…	…	…	-22.609
				(18.677)
Graduate Degree	…	…	…	0.454
				(18.633)
Total Schools Applied to	…	…	…	1.339
				(4.475)
Top 5 Schools Applied to	…	…	…	2.558
				(6.429)
Korea, Japan	…	…	…	-13.919
				(33.349)
South Asia	…	…	…	-22.593
				(32.141)
Other Asia	…	…	…	-10.126
				(36.288)
Europe	…	…	…	-51.893
				(28.801)
Canada, Latin America	…	…	…	-65.076
				(36.521)
Australia	…	…	…	-96.655
				(49.195)
Sample Size	325	203	291	271
Non-Censored Observations	108	75	102	96
Pseudo R^2	0.036	0.054	0.045	0.053

Notes: A lower value of the dependet variable corresponds to a better-ranked job.
Standard Errors shown in parentheses.

TABLE 3b: Tobit Models for Initial Job Placement
(Dependent Variable: Rank of Job Placement)

Explanatory Variable	(1)	(2)	(3)
Math GRE	-0.445	-0.663	-0.665
	(0.206)	(0.165)	(0.176)
Verbal GRE	-0.080	-0.209	-0.148
	(0.106)	(0.077)	(0.088)
Analytical GRE	-0.033	…	…
	(0.129)		
Economics GRE	-0.411	…	…
	(0.137)		
Female	-22.980	-11.807	-21.355
	(21.388)	(18.211)	(17.689)
Age 21-24	-32.327	18.114	11.689
	(83.687)	(84.001)	(81.998)
Age 25 plus	12.823	60.448	31.678
	(84.556)	(84.324)	(83.103)
Foreign Undergrad	1.870	-24.614	14.486
	(23.316)	(18.377)	(26.624)
Ivy League Undergrad	…	…	-4.352
			(27.368)
Other Elite Undergrad	…	…	18.563
			(26.592)
Reference Group 1	…	…	-76.775
			(23.291)
Reference Group 2	…	…	-34.154
			(19.228)
Graduate Degree	…	…	-8.824
			(18.997)
Total Schools Applied to	…	…	5.021
			(4.520)
Top 5 Schools Applied to	…	…	-3.886
			(6.318)
Korea, Japan	…	…	-30.252
			(33.645)
South Asia	…	…	-24.389
			(33.142)
Other Asia	…	…	-3.198
			(37.087)
Europe	…	…	-72.410
			(28.962)
Canada, Latin America	…	…	-80.116
			(36.985)
Australia	…	…	-112.156
			(50.884)
Sample Size	209	302	281
Non-Censored Observations	75	102	96
Pseudo R^2	0.044	0.032	0.048

Notes: A lower value of the dependent variable corresponds to a better-ranked job.
Standard Errors shown in parentheses

TABLE 4: Logit Estimates for Placement in Top 10 Job
(Dummy variable equals 1 if placed in top 10 job, 0 if not)

Explanatory Variable	(1)	(2)	(3)
Sum of Ratings	0.247	…	0.211
	(0.080)		(0.138)
Math GRE	…	0.042	0.037
		(0.025)	(0.025)
Verbal GRE	…	-0.007	-0.013
		(0.005)	(0.007)
Female	…	-0.601	-0.843
		(1.081)	(1.109)
Age 21-24	…	2.249	2.423
		(1.224)	(1.245)
Foreign Undergrad	…	0.172	-0.122
		(1.454)	(1.529)
Ivy League Undergrad	…	2.097	2.890
		(1.352)	(1.485)
Other Elite Undergrad	…	0.819	1.106
		(1.548)	(1.610)
Reference Group 1	…	1.860	1.765
		(1.174)	(1.192)
Reference Group 2	…	0.513	0.243
		(1.119)	(1.107)
Graduate Degree	…	1.160	1.500
		(1.050)	(1.095)
Total Schools Applied to	…	-0.450	-0.330
		(0.272)	(0.273)
Top 5 Schools Applied to	…	0.455	0.296
		(0.402)	(0.421)
Sample Size	270	270	270
Pseudo R^2	0.130	0.384	0.413
Log-Likelihood	-37.915	-26.629	-25.943

Note: Standard errors shown in parentheses.

TABLE 5: Ordered Logits
(Dependent Variable: Job Placement Group*)

Explanatory Variable	(1)	(2)	(3)
Sum of Ratings	-0.203	…	-0.137
	(0.031)		(0.045)
Math GRE	…	-0.011	-0.008
		(0.003)	(0.003)
Verbal GRE	…	-0.003	-0.001
		(0.001)	(0.002)
Female	…	-0.343	-0.229
		(0.325)	(0.328)
Age 21-24	…	-0.212	-1.151
		(1.303)	(1.330)
Age 25 plus	…	0.183	0.885
		(1.317)	(1.354)
Foreign Undergrad	…	-0.565	-0.524
		(0.377)	(0.386)
Ivy League Undergrad	…	-0.287	-0.380
		(0.500)	(0.504)
Other Elite Undergrad	…	0.575	0.606
		(0.514)	(0.520)
Reference Group 1	…	-1.383	-1.119
		(0.415)	(0.426)
Reference Group 2	…	-0.632	-0.495
		(0.362)	(0.370)
Graduate Degree	…	-0.047	0.006
		(0.354)	(0.360)
Total Schools Applied to	…	0.135	0.056
		(0.083)	(0.086)
Top 5 Schools Applied to	…	-0.167	-0.014
		(0.115)	(0.124)
Sample Size	270	270	270
Pseudo R^2	0.074	0.091	0.109
Log-Likelihood	-296.086	-290.882	-284.96

*Notes: Group 1:Top 10 Job (10 observations)
Group 2:11-25 Job (13)
Group 3: 26-50 Job (27)
Group 4: 51-100 Job (13)
Group 5: 101-120 Job (33)
Group 6: 150 - Not Found (174)
Standard Errors shown in parentheses.