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Discrimination in Scientific Review - A natural field experiment on blind versus non-blind review

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Abstract

This paper analyzes the impacts of gender, as well as other author characteristics, on reviewers' grading of papers submitted to an international conference in economics in Sweden in 2008. Correcting for other variables, including country and research field as well as researcher academic level, we focus on the difference in grades between blind and non-blind review treatments. We find little effect of non-blind reviewing and no significant evidence of gender or any other type of discrimination. Furthermore, we do not find any significant difference between the average grading by female and male reviewers.

Keywords: Gender discrimination, review

JEL codes: C93, J16.

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1. Introduction

Many occupations that were once exclusive male domains are today either dominated by women or have a more or less equal gender distribution. This applies to lawyers, medical doctors, veterinarians, politicians, and in some countries even clergymen. In academics, this is true for many social sciences, but economics still appears to be a bastion of male dominance. In a recent paper by Jonung and Ståhlberg (2008), the authors point to the limited number of female economists – particularly at the top level. They look at five countries, Australia, Canada, Sweden, the UK, and the US, and find that in spite of some progress in the last few decades, for example approximately a third of all PhDs nowadays are female in the countries studied, the figures are still low compared to in other disciplines. This is particularly true at the level of full professorship, where the female representation ranged from five to nine percent in the countries studied. The importance of identifying potential discrimination in economics is strengthened by the fact that the economics profession seems to be an outlier, with fewer women in top positions compared to other social sciences.

As thoroughly discussed by Jonung and Ståhlberg (*ibid*), there are several potential reasons for gender discrimination.[1] Also in subdisciplines such as labor economics and experimental economics, considerable effort has been devoted to explaining gender differences; see, e.g., Cain (1986) for an overview on labor market discrimination and Croson and Gneezy (2009) for an overview on gender differences in economic experiments. One of the reasons generally emphasized for gender discrimination – not only for economics and academia – is simply that men are preferred in recruitment and promotion.[2] For example, Ginther and Hayes (1999) find that while gender differences in salaries (in the Humanities) can, to a large extent, be explained by academic degree, there are also significant gender differences in promotion to tenure, i.e., women get tenure to a lower degree than men (controlling for individual characteristics). This is corroborated by McDowell et al. (1999), who find that the promotion

[1] The authors divide the reasons into four broad categories: "(1) discrimination—those responsible for recruitment and promotion prefer men; (2) preferences and family obligations—women take the larger share of family and child-care which restricts their input at work and lowers their productivity or makes women choose career tracks that are less demanding; (3) societal institutions—the combination of labor markets, wage setting, family policies, social policies, tax policies creates differential incentives for men and women and may encourage a gender division of labor; and (4) institutional factors internal to a profession or an organization. All of these explanations have in various forms been put forward to explain the lack of women at the top positions in economics as well." (Jonung and Ståhlberg, 2008, page 183)

[2] Jonung and Ståhlberg (2008) sparked a lively debate on potential causes, consequences and remedies; see Jones (2008), Hakim (2008), Johnson (2008), May (2008), McCloskey (2008), and Jonung and Ståhlberg (2009). Explanations such as genetic differences in mathematical skills (Jones, 2008) and differences in preferences (Hakim, 2008) are among those put forward.

prospects in economics are lower for women than for men (with comparable merits). Since the number of papers published by a researcher is an important determinant for promotion, it seems that the review process might be an important source of discrimination.

We would therefore like to know whether or not judgment of paper quality is affected by the gender of the author(s). The necessary data to test this hypothesis is however generally difficult to access. As organizers of a large conference, we had the opportunity to conduct a natural experiment on gender discrimination in the review process by testing for the effect of a blind and non-blind review process on paper grades.

The review process is not a new concern in economics, but the attention has mostly focused on journal review. In the mid-1980s, the American Economic Association's Committee on the Status of Women in the Economics Profession was concerned that non-blind reviewing would reduce the acceptance rates for female authors. Ferber and Teiman (1980) reported that female acceptance rates were higher with blind reviewing, but they did not control for other potentially relevant variables. This led to a well-known experiment starting in 1987 in which Blank (1991) evaluated the effects of blind reviewing in the American Economic Review. The experiment did find that blind reviewing led to comparatively harsher overall judgments (actually, this result only applied to male reviewers; the effect was the opposite for female reviewers, but their small number made the behavior of male reviewers dominant). It was also found that blind reviewing made little difference to authors from the top-5 universities or from low-ranked universities or colleges, but that those from institutions just below the top (ranked 6-50) were indeed adversely hit by blind reviewing. These authors were in other words positively discriminated via non-blind reviewing. The paper did however not find significant gender discrimination.

Yet, there are a few drawbacks of the seminal paper by Blank (1991). One of these – also mentioned by Blank in her paper – is that the experiment was publically known. This may have had some influence on the behavior of the involved authors, reviewers, and editors (for whom the process was furthermore not blind, for obvious reasons). Although a number of changes have been made since the 1980s, the issue of blind reviewing is still a widely discussed topic. However, the speed of computers and the widespread use of Internet search engines have greatly facilitated author identification in case the reviewer so desires. Already Blank (1991) raised the issue of whether reviewing really is blind, showing that almost half

(45%) of the reviewers in her study could successfully identify authors (by recognition or guesswork) even if the review process was designed to be blind. In case there is discrimination against some individuals or groups, this could of course be bad news. The fact that reviewers can easily uncover the identity of authors makes it more difficult and less rewarding to test for discrimination.

While our experiment, described in detail in the next section, is somewhat similar in design to Blank (1991), there are also a number of differences: First, reviewers were asked to provide a grade (from D (1) to A (4)) rather than a review report, which facilitates the statistical analysis. Second, no reviewer knew that the review process for the conference was designed as a natural field experiment. Third, we have access to relevant background data on authors and reviewers, such as gender, academic degree, and affiliation. Fourth, reviewing for a conference is a faster and less thorough procedure than for a journal. For this reason, the role of prejudices and discrimination might be stronger than when there is careful scientific consideration of merit. Fifth, the likelihood that reviewers will attempt to identify authors in the case of blind submissions is presumably lower than when writing a full review report for a journal. Even more importantly, conference papers are potentially more difficult to find on the web than, e.g., working papers. Finally, we have a fairly large (though far from equal!) number of female reviewers.

The rest of the paper is organized as follows. Section 2 describes the experiment and the review process. Section 3 presents the data. Section 4 presents the results of the econometric analysis, and Section 5 concludes the paper.

2. The experiment

The experiment was conducted at the European Association of Environmental and Resource Economics (EAERE) annual conference, held in Gothenburg, Sweden in June 2008. Submission of papers was open between November 15, 2007 and February 1, 2008. The Webmeets (http://www.webmeets.com) software was used for the whole submission and review system, in which submitters of papers had to register themselves (including co-authors). In addition, authors were asked to submit an anonymous version of the paper.[3]

[3] Not all submissions complied fully with instructions. A small number were not anonymous, in which case the author information was simply removed by our staff. Furthermore, some people did not enter all the necessary information during submission. In these cases, we again complemented the information (mainly by accessing the

We had a list of 150 potential reviewers, consisting of people who had served as reviewers before and a number of new reviewers recruited through the Association (mainly because the number of submissions was much larger than expected). By February 11, 2008, all reviewers had been assigned and the papers were sent out. Each paper was assigned to two reviewers. The deadline for the review was February 29th. One advantage of the Webmeets software is that it assigns reviewers to papers based on systematic subject codes (either JEL or special EAERE-codes). We made a few changes to the proposed assignments, mainly to even out the number of papers sent to each reviewer. The reviewers were asked to grade each paper from D (1) to A (4). The instructions given to the reviewers regarding grading read as follows: "A. I would definitely accept: very good paper. B. I would probably accept: good paper. C. I might accept: OK paper. D. I don't think this paper can be accepted."

The reviewers were randomly assigned to being either blind or non-blind. This was done before assigning any papers to them. The reviewers received an e-mail with information about the process and how to access the papers.[4] Those in the non-blind group could see the names and affiliations of all authors when they accessed the paper and on the review sheet, while the blind group could only see the title of the paper. The grades were reported online.

3. Data

We received 1,074 submissions, and 940 of these were sent out for review. Each submission received at least one review, and 825 received two. This leaves us with 1,765 observed grades. The average grade was 2.6, and out of the 940 papers, 483 were accepted to the conference.[5] Table 1 presents descriptive statistics for the whole sample and the blind and non-blind subsamples.

authors' homepages). In addition, we checked all the information on all authors by accessing the department, institution, and personal homepages.

[4] The complete letter to the reviewers is provided in Appendix 1.

[5] The average grade for the accepted papers was 3.27 and the average grade for the rejected papers was 1.95.

Table 1. Variable definitions and mean values

Variable	Description	Whole Sample (n=1765)	Non-blind (n=895)	Blind (n=870)
Grade	Grade 1-4, (4 best)	2.579	2.618	2.539
		(1.05)	(1.06)	(1.04)
Non-blind	= 1 if non-blind	0.507		
At least one female	= 1 if at least one author is female	0.417	0.421	0.413
Only female	= 1 if only female authors	0.131	0.131	0.131
First author female	= 1 if first author is female	0.276	0.285	0.267
Only professors	= 1 if all authors are professors	0.056	0.060	0.051
Only students	= 1 if all authors are students	0.184	0.180	0.187
No. authors	Number of authors	2.003	1.990	2.017
		(1.1)	(1.1)	(1.1)
Student	=1 if any of authors is PhD stud.	0.465	0.466	0.464
PhD	=1 if any of authors is a PhD	0.713	0.713	0.713
Professor	=1 if any of authors is a professor	0.299	0.293	0.305
Female student	=1 if any of authors is female student	0.178	0.171	0.185
Female PhD	=1 if any of authors is a fem. PhD	0.266	0.274	0.257
Female professor	=1 if any of authors is a fem professor	0.020	0.025	0.016
Male student	=1 if any of authors is a male student	0.313	0.321	0.305
Male PhD	=1 if any of authors is a male PhD	0.560	0.546	0.574
Male professor	=1 if any of authors is a male professor	0.286	0.277	0.295
Female reviewer	= 1 if reviewer is female	0.174	0.161	0.186
Europe	=1 if any author affiliation is in Europe	0.577	0.559	0.597
North America	=1 if any author aff. is in NA	0.198	0.200	0.197
Developing countries	=1 if any author aff. is in Dev countries	0.198	0.212	0.184
Eastern Europe	=1 if any author aff. is in E Europe	0.034	0.038	0.030
Asia	=1 if any author aff. is in Asia	0.032	0.036	0.028
Latin America	=1 if any author aff. is in Latin America	0.033	0.036	0.030
Oceania	=1 if any author aff. is in Oceania	0.027	0.028	0.026
Pollution control	= 1 if paper area is on pollution control	0.248	0.220	0.276
Valuation	= 1 if paper area is on environm. valuation	0.221	0.206	0.237
Resources	= 1 if paper area is on resources & ecosystem	0.659	0.686	0.632
Growth	= 1 if paper area is on growth & environment	0.155	0.165	0.145
International issues	= 1 if paper area is on int. env. issues	0.176	0.173	0.179
Firm	= 1 if paper area is on env. and the firm	0.041	0.045	0.038
Risk	= 1 if paper area is on risk and uncertainty	0.076	0.086	0.067
Agriculture	= 1 if paper area is on agriculture	0.121	0.139	0.102
Extensions	= 1 if paper are is on extensions of theory	0.239	0.251	0.226

We report standard deviations in brackets for variables that are not dichotomous.

It is not at all clear how to distinguish between female and male papers. Given the richness of our data we decided not to limit the analysis only to papers with and without female authors. First of all, we test the three different definitions discussed by Blank (1991): (i) at least one author is female, (ii) first (primary) author is female, and (iii) all authors are female. In addition, each author of a paper is classified as: (i) student, (ii) PhD but not a full professor, or (iii) professor. For each academic category, we create a dummy variable equal to one if at

least one author falls in the respective category. In almost 46% of the observations there is at least one student author, in 67% there is at least one PhD (but not full professor), and in 36% there is at least one author who is a professor. In order to allow testing for difference between male and female authors, we also create separate categories for male and female authors for each academic category. The distribution of these variables shows that there are roughly as many female as male students in our sample, almost twice as many male PhDs as females, and only 2 % of the papers have at least one female professor as co-author, while 29 % have at least one male professor as co-author. Thus we observe, for this group, the usual gender pattern with equality at the grad level but great inequality at higher levels.

We also control for two other characteristics: (i) author country affiliation and (ii) EAERE subject code. Countries are classified into seven categories; each dummy variable is equal to one if at least one author is from the respective category. EAERE codes[6] are used to classify the observations into different research fields, note that each paper can fit into several fields.

As can be seen by visually inspecting Table 1, it is hard to find differences in characteristics between the blind and non-blind samples. Using chi-square or Wilcoxon-Mann-Whitney tests we cannot reject the hypothesis of equal distributions of characteristics between the two subsamples.

4. Results

We begin by reporting the grades for the whole sample and the two sub-samples split by various variables. Again, there are a total of 1,764 grades for the papers and the grades range from 1 or D (definitely reject) to 4 or A (definitely accept). Table 2 presents the mean grades and Appendix 2 the distribution of grades for the whole sample and by author gender and academic level.

[6] EAERE subject codes were more finely disaggregated than JEL codes. Some examples are shown in ~~t~~Table 1 as subject areas.

Table 2. Grades for whole sample and by review treatment

	All reviewers		Non-blind		Blind	
	Grade	N. obs	Grade	N. obs	Grade	N. obs
Whole sample	2.58	1765	2.62	895	2.54	870
By author gender						
At least one female	2.58	736	2.62	377	2.54	359
Only female	2.21	231	2.24	117	2.18	114
First author female	2.51	487	2.57	255	2.44	232
Only male	2.58	1029	2.62	518	2.54	511
By gender and degree						
Female students	2.44	314	2.43	153	2.45	161
Male students	2.43	552	2.50	287	2.36	265
Female PhDs	2.67	469	2.76	245	2.57	224
Male PhDs	2.65	988	2.70	489	2.61	499
Female professors	2.94	36	2.86	22	3.07	14
Male professors	2.92	505	2.98	248	2.86	257
By reviewer gender						
Female reviewers	2.59	306	2.70	144	2.50	162
Male reviewers	2.58	1457	2.60	750	2.55	707

There are no significant overall differences in grades for any of the three definitions of a female-authored paper. Nor are there any significant differences in this respect between the two treatments, apart from the finding that the average grade for papers co-authored by female PhDs is higher in the non-blind treatment; the difference in distributions is significant using a Wilcoxon-Mann-Whitney test (p-value=0.045). This would, if anything, be an example of positive and not negative discrimination of women. The result is not confirmed in the multivariate regression analysis though (see below), and is thus not worth further comment. There are, however, some differences between different categories of papers. For example, papers with students as authors received lower grades (in both the blind and non-blind treatments) than papers with PhD authors, and PhDs received lower grades than professors. The only other effect that is of interest and perhaps surprising is that the mean grade for papers authored by only females is substantially lower than the grades for other papers. The main explanation for this difference is however that very few of these papers include a female *professor* as a co-author.[7] If we look at papers with at least one female author, then only 3 percent of the papers with only female authors include a professor (who by definition is a female professor), while for the other papers 45 percent include at least one professor (male or female). The number of papers with only female authors is also lower than for other papers. For papers with only female authors, the average number of authors is 1.4, while for other

[7] Thus, there is not a similar effect for papers authored by only males.

papers with at least one female author it is 2.9; as we will see later in the analysis, there is a positive correlation between number of authors and the paper grade.

In order to analyze the difference between the blind and non-blind reviewers in more detail and control for other characteristics, we estimate ordered probit models, where the standard errors are corrected for clustering at the paper level.[8] As discussed, there are many ways of defining a female-authored paper, but here we only present the models using the definition reported in Blank (1991): a female-authored paper is a paper where at least one author is female. All the results (available upon request) hold if we use the two other definitions, i.e., first author is female and all authors are female.

Since we wish to explore a number of interactions between variables, we present five different models; see Table 3. The full set of marginal effects for Models 2 and 5 are presented in the appendix. There are four categories in the model corresponding to the four grades.

[8] The results in terms of significance are basically the same in a model without correction of standard errors for clustering, and the results in terms of sign and significance are the same in a standard OLS model.

Table 3. Ordered probit models with paper grade as dependent variable (grades 1-4, where 4 is the highest).

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
Author academic level and gender	**Coeff.**	**P-value**	**Coeff.**	**P-value**	**Coeff.**	**P-value**	**Coeff.**	**P-value**	**Coeff.**	**P-value**
At least one female author	0.002	0.985	-0.121	0.154	-0.088	0.314	-0.086	0.321		
Student			-0.239	0.005	-0.355	0.004	-0.354	0.004		
PhD			-0.138	0.340	-0.266	0.159	-0.259	0.172		
Professor			0.092	0.279	0.134	0.223	0.141	0.203		
Female student									-0.216	0.096
Female PhD									-0.149	0.218
Female professor									0.164	0.544
Male student									-0.173	0.149
Male PhD									0.058	0.694
Male professor									0.208	0.071
Only professors			0.173	0.315	0.062	0.807	0.103	0.678	0.353	0.113
Only students			-0.273	0.068	-0.197	0.308	-0.194	0.318	-0.070	(0.687
No. authors			0.114	0.003	0.106	0.047	0.105	0.049	0.068	(0.244
Reviewer characteristics										
Female reviewer							0.034	0.718	0.042	(0.648
Treatment effects										
Non-blind	0.082	0.245	0.114	0.100	-0.307	0.364	-0.331	0.332	-0.222	0.470
Non-blind × At least one female auth.	0.002	0.985	0.010	0.926	-0.073	0.525	-0.050	0.672		
Non-blind × Student					0.197	0.203	0.192	0.216		
Non-blind × PhD					0.269	0.318	0.266	0.323		
Non-blind × Professor					-0.084	0.597	-0.084	0.599		
Non-blind × Female student									0.023	0.894
Non blind × Female PhD									0.220	0.207
Non blind × Female professor									-0.208	0.469
Non blind × Male student									0.202	0.191
Non blind × Male PhD									0.113	0.589
Non blind × Male professor									-0.066	0.689
Non blind × Only professors					0.259	0.441	0.220	0.508	0.122	0.677
Non blind × Only students					-0.090	0.740	-0.083	0.761	-0.155	0.493
Non blind × No. authors					0.036	0.618	0.037	0.608	0.022	0.791
Non-blind × Female reviewer							0.119	0.469	0.060	0.666
Non-blind × Fem. rev. × At least one fem. auth.							-0.121	0.583		
Controls for paper area and country	No		Yes		Yes		Yes		Yes	
Threshold parameter 1	-0.830		-0.704		-0.943		-0.937		-0.667	
Threshold parameter 2	-0.036		0.210		-0.023		-0.016		0.253	
Threshold parameter 3	0.752		1.087		0.859		0.868		1.136	

The first model shows the difference in grades between the blind and non-blind treatments and the test of an overall discrimination of female-authored papers. The conclusion is that there is no sign of gender discrimination, the interaction term is highly insignificant, and the coefficient is small. This test is essentially the same as the non-parametric test since we do not control for other characteristics of the papers. In the second model we therefore include variables controlling for academic degree, paper subject area, and country affiliation. However, this has no effect on the significance of the interaction term between the non-blind treatment and female-authored papers. The results reveal that there is a significant difference in grades between papers with students as co-authors and other papers, and papers with only students as authors receive even lower grades. As shown in Appendix 3, the corresponding marginal effects are non-negligible. For example, a paper with at least one student as co-author has a 7 percentage point lower probability of receiving the highest grade. In the third model, we therefore add a test of difference between the blind and non-blind treatments for academic level of authors. The results show that there is no observed discrimination of papers only authored by students; nor do papers authored by only professors receive a significantly higher grade in the non-blind treatment. In the fourth model, we add information about the gender of the reviewer. Female reviewers do not give higher or lower grades than do male reviewers; nor do they give higher or lower grades to female-authored papers in the non-blind treatment.

Finally, in the last model we utilize more information about the authors, since we estimate separate effects for students, PhDs, and professors for females and males. Again, we find no signs of discrimination. All the interaction terms with the non-blind treatment are highly insignificant. We also test for discrimination of authors from various countries or continents, since some people might have a prejudice against authors from countries from which there are fewer well-known economists. Indeed there is evidence of lower acceptance of papers from some regions but we do not find any significant evidence of discrimination by author region (i.e., difference between the blind and non-blind treatments). This strengthens the impression that referees appear to undertake their task without prejudice or discrimination.

5. Discussion

Our study provides a contribution to the scarce literature that empirically measures discrimination in the review process, and the results confirm the results in Blank (1991) that

there is no gender discrimination, i.e., there is no significant difference between blind and non-blind reviews with respect to grades of female- and male-authored papers. Further, we do not find any significant difference between the average grading of female and male reviewers. Perhaps as expected, papers with students as co-authors receive lower grades than other papers, but this is true for both the blind and the non-blind treatment.

One possible objection to our results is that environmental economics is a possible outlier in economics. The argument is that there are more women in fields such as environmental economics than in other more traditional fields of economics, and therefore gender discrimination might not be present or be very strong. In a study on females in environmental economics in the US and Canada, Bhattacharjee et al. (2007) do find that departments that offer a graduate field in environmental economics have a higher share of women at the associate and assistant professor level, although the differences are rather small and only significant for associate professors. They also find that women publish fewer articles and are cited less than men. At the same time, they find that women are well represented in the economics association and at editorial positions at the Journal of Environmental Economics and Management (the leading journal in environmental economics). However, our data tells another picture when it comes to the distribution of academic levels among men and women. As we have reported earlier, there is a very uneven distribution of male and female professors, and there are twice as many papers with male PhD co-authors as there are papers with female PhD co-authors.

Finally, we would like to emphasize that our study does not say that there is no discrimination in academic economics. Rather, we believe it contributes to identifying the source of potential gender discrimination in academia. Even if more studies of the review process are needed before we can completely rule out discrimination, the currently available evidence suggests that we should search elsewhere for the origin of gender discrimination in academia.

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Appendix 1. Instructions to reviewers

Dear <Forename>,
We have received a record number of submissions (over 1000 compared to 650 last year and 850 at the World Conference). This is great fun: It shows growing interest in and awareness of the important challenges we face and it gives us the possibility to make 2008 a really good conference. It does however also hinge on your and our good work in selection. We are very keen to select the best papers and to put them into coherent sessions so as to build as good a program as possible. The large number of papers and the fact we are using double refereeing means that you will have to referee somewhat more papers. We have spent a week increasing the number of referees but still many of you will be asked to referee as much as 13 or 14 papers. (One of two of our very best friends may even have got 15).

We originally had the ambition of staying below 10 papers per person but it was not possible. I really want to thank you so much for the effort you will be putting into this: It is decisive for the conference.

Following is the information you will need in order to assess submissions for the 2008 Meeting of the European Association of Environmental and Resource Economists. I hope the evaluation system will be easy for you to use and will minimise the time required to process these papers. There is a complete online facility for the evaluation process. You will be able to view online the papers which have been assigned to you and to download the corresponding pdf files, conveniently packed in a zip file if you choose that option. To access the online evaluation facility, please go to http://www.webmeets.com/eaere/2008, and choose 'About You' from the Browser window. Login using the User Profile you created when submitting your topics of interest earlier upon invitation to join the programme committee. This will lead you to secure, online access of the Evaluation facility.

You will find instructions under the link About You/Your Assigned Papers. The direct URL is www.webmeets.com/EAERE/2005/AboutYou/howto.asp Please read them carefully. Note especially that you must re-enter your password to update your grades. If you have any problems reading a given file, please report it using the bad file report tool found in the link "View Paper Details". If you experience any other technical difficulties using the system, please report them to support@webmeets.com and include a copy of any error messages that you may have received.

The Contributed Sessions program has slots for about 320 -350 papers + a few dozen Posters. There is always some attrition, so we aim at accepting around 400 papers for contributed sessions. Given these figures, the target acceptance rate is about 40%. When you review the submissions, please provide a letter grade (A to C) as follows:

A. I would definitely accept: very good paper
B. I would probably accept: good paper.
C. I might accept: OK paper
D. I don’t think this paper can be accepted.

For simplicity we may assume that the overall distribution is such that there are OVERALL 25% of papers in each of the categories A,B,C,D (naturally your own subset of referee papers

does not necessarily have these exact proportions but I am assuming we all know something about sampling and distributions…). We will have two referees for each paper. We aim to accept all papers where both referees have an "A" and then take as many as we can fit in depending on the grades the two referees assign. We would also like you to suggest a session for each paper – there is an easy function for this on the website. (Please note in particular that there is a special category for Poster session) Given the tight time constraints that we face for the organisation of this conference, I would ask you to provide your grades before February 29-th . Please let me know immediately if you have any difficulty meeting this deadline.

Thank you, once again, for your help in this critical task for our conference.

My best wishes,

Thomas Sterner
President of the EAERE

Appendix 2. Distribution of grades for whole sample and by author gender and academic level for the blind and non-blind treatments, respectively.

Whole sample

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	172	19.77	19.77	166	18.55	18.55
2	246	28.28	48.05	243	27.15	45.70
3	263	30.23	78.28	253	28.27	73.97
4	189	21.72	100.00	233	26.03	100.00

Female students

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	30	18.63	18.63	40	26.14	26.14
2	53	32.92	51.55	42	27.45	53.59
3	53	32.92	84.47	36	23.53	77.12
4	25	15.53	100.00	35	22.88	100.00

Female PhDs

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	43	19.20	19.20	31	12.65	12.65
2	61	27.23	46.43	68	27.76	40.41
3	70	31.25	77.68	74	30.20	70.61
4	50	22.32	100.00	72	29.39	100.00

Female professors

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	0	0	0	0	0	0
2	5	35.71	35.71	9	40.91	40.91
3	3	21.43	57.14	7	31.82	72.73
4	6	42.86	100.00	6	27.27	100.00

Male students

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	74	27.92	27.92	59	20.56	20.56
2	66	24.91	52.83	84	29.27	49.83
3	80	30.19	83.02	85	29.62	79.44
4	45	16.98	100.00	59	20.56	100.00

Male PhDs

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	85	17.03	17.03	77	15.75	15.75
2	143	28.66	45.69	132	26.99	42.74
3	153	30.66	76.35	140	28.63	71.37
4	118	23.65	100.00	140	28.63	100.00

Male professors

	Blind			Non-blind		
Grade	Freq	Percent	Cum	Freq	Percent	Cum
1	25	9.73	9.73	21	8.47	8.47
2	66	25.68	35.41	56	22.58	31.05
3	86	33.46	68.87	78	31.45	62.50
4	80	31.13	100.00	93	37.50	100.00

Appendix 3. Marginal effects for ordered probit models 2 and 5.

Variable	Model 2				Model 5			
	Grade=1	Grade=2	Grade=3	Grade=4	Grade=1	Grade=2	Grade=3	Grade=4
Author degree and gender								
At least one female author	0.030 (0.160)	0.018 (0.147)	-0.014 (0.169)	-0.034 (0.149)				
Student	0.059 (0.005)	0.036 (0.005)	-0.027 (0.006)	-0.068 (0.005)				
PhD	0.033 (0.327)	0.022 (0.355)	-0.014 (0.301)	-0.041 (0.351)				
Professor	-0.022 (0.271)	-0.014 (0.290)	0.010 (0.259)	0.027 (0.285)				
Female student					0.056 (0.118)	0.030 (0.057)	-0.028 (0.140)	-0.058 (0.075)
Female PhD					0.038 (0.235)	0.022 (0.189)	-0.018 (0.254)	-0.042 (0.203)
Female professor					-0.038 (0.509)	-0.028 (0.574)	0.015 (0.416)	0.050 (0.566)
Male student					0.044 (0.163)	0.025 (0.127)	-0.021 (0.177)	-0.048 (0.138)
Male PhD					-0.015 (0.695)	-0.009 (0.693)	0.006 (0.697)	0.016 (0.694)
Male professor					-0.049 (0.060)	-0.034 (0.084)	0.021 (0.043)	0.062 (0.080)
Paper charac.								
Only professors	-0.039 (0.274)	-0.029 (0.354)	0.015 (0.186)	0.053 (0.341)	-0.073 (0.055)	-0.063 (0.154)	0.023 (0.000)	0.113 (0.149)
Only students	0.073 (0.092)	0.036 (0.027)	-0.036 (0.112)	-0.073 (0.047)	0.017 (0.694)	0.010 (0.677)	-0.008 (0.701)	-0.020 (0.682)
No. authors	-0.028 (0.003)	-0.017 (0.004)	0.013 (0.005)	0.033 (0.003)	-0.016 (0.244)	-0.010 (0.245)	0.008 (0.248)	0.019 (0.243)
Reviewer charac.								
Female reviewer					-0.010 (0.644)	-0.007 (0.654)	0.005 (0.637)	0.012 (0.652)
Treatment effects								
Non-blind					0.054 (0.469)	0.034 (0.467)	-0.024 (0.464)	-0.064 (0.470)
Non-blind × Female student					-0.005 (0.893)	-0.004 (0.895)	0.002 (0.891)	0.007 (0.894)
Non-blind × Female PhD					-0.050 (0.169)	-0.037 (0.243)	0.020 (0.096)	0.067 (0.232)
Non-blind × Female professor					0.056 (0.506)	0.027 (0.364)	-0.028 (0.532)	-0.055 (0.425)
Non-blind × Male student					-0.046 (0.160)	-0.034 (0.221)	0.019 (0.103)	0.061 (0.212)
Non-blind × Male PhD					-0.027 (0.579)	-0.018 (0.600)	0.012 (0.563)	0.033 (0.596)
Non-blind × Male professor					0.017 (0.696)	0.010 (0.677)	-0.008 (0.703)	-0.019 (0.683)
Non-blind × Only professors					-0.028 (0.658)	-0 .020 (0.695)	0.012 (0.617)	0.037 (0.689)
Non-blind × Only students					0.040 (0.518)	0.022 (0.438)	-0.020 (0.539)	-0.042 (0.468)
Non-blind × No. authors					-0.005 (0.791)	-0.003 (0.791)	0.002 (0.791)	0.006 (0.791)
Non-blind × Female reviewer					-0.014 (0.657)	-0.009 (0.675)	0.006 (0.140)	0.0174 (0.672)