

# Are Women Economists at a Disadvantage in Publishing Journal Articles?

MARIANNE A. FERBER and MICHELLE TEIMAN\*

Many researchers have found that highly educated women are rewarded less than men with comparable characteristics and achievements.<sup>1</sup> Most of these, as well as some other studies, have also found that women do not have the same characteristics and achievements.<sup>2</sup> They obtain their terminal degrees somewhat later, they are less likely to obtain the highest degree available in a field, they tend to have accumulated less experience per unit of time since their terminal degree, they are likely to have published less, etc.

\*The authors are Professor of Economics, University of Illinois at Urbana-Champaign.

<sup>1</sup>For instance, Alan E. Bayer and Helen S. Astin "Sex Differentials in the Academic Reward System," *Science*, Volume 188 (May, 75); John A. Centra, *Women, Men and the Doctorate* (Princeton, N.J. Educational Testing Service, 1974); Marianne A. Ferber and Betty Kordick "Sex Differentials in the Earnings of Ph.D.'s" *Industrial and Labor Relations Review*, Volume 31, No. 2 (January 1978) pp. 227-38. Nancy M. Gordon and Thomas E. Morton with I. E. Braden. "Faculty Salaries: Is There Discrimination by Sex, Race and Discipline?" *American Economic Review*, Volume 64, No. 3 (June 1974) pp. 419-27.

<sup>2</sup>For instance, Marianne A. Ferber, Jane W. Loeb and Helen M. Lowry "The Economic Status of Women Faculty: A Reappraisal," *Journal of Human Resources*, Volume XIII, No. 3 (Summer, 1978) pp. 385-401; Richard A. Lester, *Antibias Regulation of Universities: Faculty Problems and Their Solutions* (A report for the Carnegie Commission on Higher Education, 1974); Stephen E. Baldwin, Salary Differentials by Sex among Doctoral-Level Cell Biologists, BLS Working Paper 88, March 1979. Myra H. Strober and Barbara B. Reagan, Sex Differences in Economists' Incomes, Stanford University Research Paper Series, No. 396, August 1977.

Much attention has been focused on the fact that women are disadvantaged in acquiring credentials, or in the current jargon, accumulating human capital, because of their traditional role as wife and mother.<sup>3</sup> While some consideration has been given to the question whether discrimination also plays a part in this respect,<sup>4</sup> a good deal more needs to be done. This note attempts to make a small contribution to our knowledge of this subject by focussing on one subgroup, namely economists, and one type of credentials, namely publications in scholarly journals.

There are two crucial steps in becoming a successful author that we shall examine. The first step, which is not indispensable, but is becoming increasingly common, is to find a collaborator. Even though men constitute a large majority of all economists, women will not be at a disadvantage in finding a collaborator if an individual woman is as likely to be

<sup>3</sup>See, for instance, Saul A. Feldman, *Escape from the Doll's House: Women in Graduate and Professional School Education*. (A report for the Carnegie Commission on Higher Education, 1973); George E. Johnson and Frank P. Stafford, "The Earnings and Promotion of Women Faculty," *American Economic Review*, Volume 64, No. 6, (December 1974), pp. 888-903.

<sup>4</sup>E.g., Myra H. Strober and Barbara B. Reagan, Sense and Nonsense in the Residual Method of Measuring Discrimination as Illustrated by the Analysis of Sex Differences in Economists' Incomes. (Unpublished Paper, August 1978), and Isabell V. Sawhill, "The Economics of Discrimination Against Women: Some New Findings," *Journal of Human Resources*, Volume 8, No. 3 (Summer 1973) pp. 383-95.

TABLE 1 Number of articles co-authored by two men, two women, one man and one woman\*

	MM	MF	FF
Actual	407	43	7
Expected	402	53	2

\*There were 13 articles with more than two co-authors. They were omitted from our count.

asked to collaborate with a male scholar as an individual man.<sup>5</sup>

The second, and indispensable step in publishing is having the article accepted by a journal. If manuscripts by female authors gain acceptance as readily as those of comparable quality written by males, women should have no greater difficulty in publishing rather than perishing than men do.

*Men and Women as Co-authors.* To test whether women economists have equal opportunity to find a collaborator, we can set up and test a simple hypothesis, using in good economic tradition revealed preference.

Whatever the proportion of men and women among published authors, if pairing were random with respect to sex, we should find about the same proportion of men and women as co-authors of men, and similarly about the same proportion of men and women as co-authors of women.

A simple numerical example will illustrate this point. If there were 100 women and 1000 men paired as co-authors, we would expect about ten times as many male-female pairs (M-F) as female-female combinations (F-F) and about ten times again as many male-male collaborations (M-M). If F-M's occur significantly less often than would be expected, we would conclude that men and/or women are more inclined to work with each other than with colleagues of the opposite sex.

<sup>5</sup>Co-authorship of articles may also be symptomatic of the kind of informal exchange of ideas which is so crucial to scholars, but which is not readily subject to direct measurements.

Table 1, based on a sample of articles published in 1974-78 in the American Economic Review, the American Economist, the Journal of Human Resources, the Journal of the American Statistical Association, Land Economics, the Nebraska Journal of Economics and Business, and the Quarterly Review of Economics and Business,<sup>6</sup> shows that fewer articles are co-authored by men and women, and more by authors of the same sex than would be expected in random pairing. A chi square test shows that the difference in distribution is significant at the 5 per cent level.<sup>7</sup>

*Getting the Manuscript Accepted.* Since it is impossible to determine the quality of manuscripts submitted, and since we cannot necessarily assume that the quality is the same for men and women, even getting the acceptance rate for manuscripts by male and female authors does not provide solid evidence on the presence or absence of sex discrimination. Therefore, we developed a rather circuitous approach to this problem.

The Committee on the Status of Women in the Economics Profession sponsored a survey of economics journals to determine how many of them use double blind reviewing (where the reviewer does not know the identity of the author, as well as vice versa) and whether this practice appears to influence the acceptance rate of manuscripts submitted by men as compared to women.<sup>8</sup>

<sup>6</sup>We attempted to get a good cross section of different journals.

<sup>7</sup>There is some question about the propriety of a chi square test since one cell is as small as 2. It should therefore be interpreted with caution.

<sup>8</sup>The authors conducted the survey under CSWEP auspices, but are solely responsible for the interpretation of the data. Some of the results were briefly reported in the CSWEP annual report, *American Economic Review*, (May 1980) Vol. 70, No. 2, pp. 470-71. During 1973 George Borts, then Editor of the *American Economic Review* did a study of the effect of double blind refereeing on the acceptance rate of manuscripts. He found little effect in this respect. The results are reported in the *American Economic Review* (May, 1974) Vol. 64, No. 2, pp. 478-479. He did not address the question we are concerned with.

TABLE 2 Acceptance rate of manuscripts with only male authors, with male and female authors and with only female authors

	Not double blind					
	Male		Male and Female		Female	
	Submitted	Accepted	Submitted	Accepted	Submitted	Accepted
Econometrica	356	46	9	2	10	1
Journal of Development Economics	367	110	2	1	16	4
Journal of Law and Economics	475	40	8	3	17	2
Journal of Political Economy	3,245	341	54	3	98	7
Land Economics	529	161	17	5	16	3
Quarterly Rev. of Econ. and Bus.	655	162	11	3	15	5
Percent accepted	15.2		16.8		12.8	
	Double blind					
Eastern Econ. Journ.	59	21	0	0	4	2
Financial Management	403	128	7	3	6	2
Journal of Economics and Bus.	1,672	194	15	8	25	8
Journal of Human Resources	391	57	44	9	41	8
Jour. of Money, Credit and Banking	823	183	11	3	22	2
Nebraska Jour. of Econ. and Bus.	306	111	7	3	7	2
Percent accepted	19.0		31.0		22.9	

Letters were sent to 36 economics journals. Twelve of these reported on the number of manuscripts submitted<sup>9</sup> by male authors only, female authors only, and those submitted by at least one male and at least one female author, and the number of manuscripts that were accepted from each of these groups.<sup>10</sup>

The results of this study are relevant to our concerns here. If the ratio of acceptances for manuscripts with female (co-) authors to those with male authors is not significantly

different for journals with and without double blind reviewing, we may conclude that there is no discrimination against women authors when their sex is known.<sup>11</sup>

Table 2 shows the number of articles submitted to each journal by men only, by at least one man and one woman, and by women only. Since some of the N's for the latter two

accepted eventually (for the most recent manuscripts this meant 18 months since they were first received) as rejected. Because of this, a tendency on the part of women to be more or less likely to rework and resubmit an article might introduce a bias.

<sup>11</sup>To the extent that reviewers can determine, or at least guess the identity of the author(s) from such evidence as footnotes, this test is not foolproof; the larger the proportion of cases where this is so, the smaller would be any possible effect of double blind reviewing.

<sup>9</sup>We requested the data for 1974-78, but not all of the journals were able to supply data for the whole period.

<sup>10</sup>Many manuscripts not initially accepted are not rejected outright. Frequently the authors are encouraged to rework and resubmit. The instructions to the editors were to consider any manuscript which had not been

TABLE 3 Acceptance rate of manuscripts with male and female authors by journals with and without double blind referencing

	<i>Not double blind</i>				<i>Double blind</i>				
	<i>Male</i>	<i>N</i>	<i>Female</i>	<i>N</i>	<i>Male</i>	<i>N</i>	<i>Female</i>	<i>N</i>	
JPE	10.5%	(3,245)	6.6%	(152)	EEJ	35.6%	(59)	50.0%	(4)
JDE	30.0	(367)	27.8	(18)	JEB	11.6	(1,672)	40.0	(40)
Econ.	12.9	(356)	15.8	(19)	NJEB	36.3	(306)	35.7	(14)
JLE	8.4	(475)	20.0	(25)	JHR	14.6	(391)	20.0	(85)
LE	30.4	(529)	24.2	(33)	FM	31.8	(403)	38.5	(13)
QREB	24.7	(655)	20.0	(40)	JMCB	22.2	(823)	36.4	(33)
	<i>Not Double Blind</i>				<i>Equal weight per journal</i>				
All including F	$\frac{39}{287} = 13.6\%$				19.07				
M only	$\frac{860}{5627} = 15.2$				19.48				
	<i>Double Blind</i>								
All including F	$\frac{50}{189} = 26.4$				36.8				
M only	$\frac{694}{3656} = 19.0$				23.35				

\*All manuscripts that had at least one female author are included in this category.

categories are extremely small, it would be all but meaningless to give the percentages for individual journals. But a comparison of the totals for the two groups of journals shows two interesting results.<sup>12</sup> First, the acceptance rates for manuscripts written by only women, or by at least one man and one woman are considerably higher (the difference is significant at the 5% level) than for those written by only men for journals with double blind refereeing, but not for the other journals. Second, the acceptance rate for manuscripts with at least one male and one female author is higher (the difference is significant at the 5% level) than for those with only female authors for both types of journals.

Another way of looking at the data is to combine all manuscripts that have at least one

female author, and compare their acceptance rate with that for manuscripts with only male authors, as is shown in Table 3. This approach is only acceptable if one is prepared to assume that because of the small percentage of women authors, they will be primarily noticed. The advantage of this approach is that the N's become somewhat larger, and hence percentages for individual journals become somewhat more meaningful. The percentages can then be averaged not only by weighting each journal according to the number of manuscripts, which gives results comparable to those in Table 2, but also by giving each journal equal weight. Interestingly, both methods clearly confirm the first conclusion noted in Table 2. Manuscripts that have at least one female author have a considerably higher acceptance rate, on the average, than those with only male authors (the difference is significant at the 5% level) for journals with double-blind reviewing, but not for the other journals.

<sup>12</sup>It will be noted that journals with double blind refereeing have a higher acceptance rate as a group. This is not relevant, from our point of view, since we only compare acceptance rates for different authors within each group of journals.

For those who are reluctant to accept these averages as meaningful, it may be noted that of the journals with double-blind reviewing, five have a higher acceptance rate for manuscripts with at least one female author than for those with only male authors, and the rate is virtually the same for the sixth, while four of the six journals that do not have double blind reviewing have a higher acceptance rate for manuscripts written only by men.

These results must be interpreted with some caution. It must be noted that editors always necessarily know the identity of the author(s), and it is the editor who makes the final decision. It is also the editor who chooses the referees. Thus, the acceptance rates for men and women may possibly be influenced by the preferences of the editor, whether or not there is double blind refereeing. Nevertheless, if it is reasonable to assume that referees do have some significant effect on the editor's decision, it is constructive to compare the two sets of journals, for one of which they did, the other for which they did not know the sex of the author(s).

Each of the comparisons we have used shows that women, with and without male coauthors, tend to have a higher acceptance rate than men without female coauthors when double blind refereeing is used. It is less clear why this would be the case, though there are at least two possible explanations. One is that women who made their career in a predominantly male field had to be very good. Alternatively, it may be that women have less self-confidence and are less inclined to send out manuscripts of poor quality. The latter interpretation is supported by the fact that the proportion of manuscripts submitted by women (at least in these journals) is only 6 percent, while about 10 percent of Ph.D.'s in economics are held by women.<sup>13</sup>

One may also speculate why the acceptance rate for both types of journals is highest for manuscripts coauthored by men and women. Could it be that the best scholars are the ones with enough self-confidence to work with colleagues of the opposite sex? Or is it that those with prejudices against the opposite sex are nonetheless willing to collaborate with particularly competent researchers?

Whatever the reason is for our findings, they point toward sex-discrimination among journals which do not have double blind refereeing. True, if only their acceptance rates are examined, we find no statistically significant difference for male and female authors. But women fare significantly better than men when the referees do not know the sex of the authors. Unless one is prepared to argue that editors of journals which have double blind refereeing discriminate against men, these results indicate that women tend to submit higher quality manuscripts, and that even-handed treatment tends to result in a larger proportion of acceptances of manuscripts written by women than of those written by men. Of the 28 economic journals which responded,<sup>14</sup> 17 do not have double blind refereeing.

It would therefore appear that women are at a disadvantage, both in finding co-authors and in having their manuscripts accepted. These conclusions support Strober and Reagan's claim that the usual residual measure of discrimination which takes account only of the lower pay women receive as compared to equally qualified men understates the full extent to which they are disadvantaged.<sup>15</sup> For such a measure does not take account of existing discrimination in acquiring the necessary qualifications, of which publications are among the most important.

<sup>14</sup>Sixteen journals which did not furnish information about manuscripts did provide information on their refereeing practices.

<sup>15</sup>Strober and Reagan (1978)

<sup>13</sup>Myra Strober and Barbara Reagan [1978].