

Rejections and the importance of first response times

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Abstract

Previous studies about the academic publishing process consider the publication delay as starting from the submission to the publishing journal. This ignores the potential delay caused by rejections received from previous journals. Knowing how many times papers are submitted prior to publication is essential for evaluating the importance of different publication delays and the refereeing process cost, and can improve our decisions about if and how the review process should be altered, decisions that affect the productivity of economists and other scholars. Using numerical analysis and evidence on acceptance rates of various journals, I estimate that most manuscripts are submitted between three and six times prior to publication. This implies that the first response time (the time between submission and first editorial decision) is much more important than other parts of the publication delay, suggesting important policy implications for editors and referees.

Keywords: academic-publishing-process; turnaround-time; academic-journals; review-process; publication-delay; rejections.

INTRODUCTION

Research on the academic review process has received increased attention recently (see for example Laband, 1990; Blank, 1991; Hamermesh, 1994; Laband and Piette, 1994a, 1994b; Engers and Gans, 1998; Azar, 2002a, 2002b; Ellison, 2002a, 2002b). Indeed, the review process is an important research topic because gaining insights about the strengths and the weaknesses of the process can help us change the process in a beneficial way. Research about the advantages of double-blind review, the optimal payment to referees, and similar issues, clearly has policy implications, and these implications are of great importance because they affect the productivity of all academics. The current editor of *Econometrica*, Glenn Ellison (2002a), makes a similar point: he cites Lucas (1988) who said of economic growth, “the consequences for human welfare involved in questions like these are simply staggering: Once one starts to think about them, it is hard to think about anything else.” Ellison then adds, “Journal review processes have a large effect on how much progress growth economists make. They also affect the productivity of all other social and natural scientists. One could thus argue that they are an even more important research topic.”

One of the important aspects of the review process is the delay in the dissemination of new research, which can be measured by the time it takes an article from first submission to being published; I refer to this time as the publication delay. This time can be divided to four stages:

1. “Rejection-and-revision time”: the time between the submission of a manuscript to the first journal and its submission to the journal that eventually publishes it. This time includes both the time in the review process of the journals that reject it and the time it takes the author to revise the manuscript and submit it to additional journals. The rejection-and-

revision time ranges from zero (if the article is accepted by the first journal to which it was submitted) to several years.

2. “First response time in the publishing journal”: the time between submission and first decision in the journal in which the manuscript is eventually published – usually around three to six months. This time includes both the time that the editors spend finding referees and later reaching editorial decision and the time it takes the referees to return their reports.

3. “Revision time”: the time between the first editorial decision and the acceptance of the article – this time ranges from zero (if the article is accepted immediately without changes) to several years. It includes the time it takes the author to revise the manuscript, as well as the time it takes referees and editors to evaluate the re-submission. The revision time may include more than one round of revision (see Ellison, 2002a for empirical evidence about the number of revisions in economics journals).

4. “Forthcoming-article delay”: the time between acceptance of the article and its actual publication in print.

Previous studies about the delay caused by the review process ignored the rejection-and-revision time and looked on the life cycle of an article starting at the point at which it is submitted to the journal that eventually published it (Yohe, 1980; Trivedi, 1993). This may be the result of lack of data – even with cooperation of journal editors, one cannot know how many times an article was rejected previously and how much time these rejections took. In fact, in the studies of Yohe and Trivedi there are no sufficient data to even differentiate between the first response time and the revision time. Ellison (2002a) provides more detailed data: he presents data on first response times in several major journals, and even provides evidence that there is some difference between the first response time of rejected manuscripts and accepted manuscripts. Yet, he does not mention the rejection-and-revision stage or the fact that the first response time is more important than other parts of the publication delay

because a paper may go through initial review much more than once (in different journals), as opposed to the other parts of the review process.

An interesting project regarding rejections of articles was taken by Shepherd (1995) (see also the summarized version in Gans and Shepherd, 1994). Shepherd asked prominent economists about instances in which articles that later became seminal were first rejected by a journal, and included the responses in the book, together with some additional discussion. Yet, this project, while entertaining and interesting, is anecdotal in nature and provides no idea about the number of times an average article is rejected before being published. Indeed, the focus of the book is on illustrating that even excellent articles are being rejected; it does not discuss the delay in the publication process that rejections create.

The current article is therefore the first to incorporate the rejection-and-revision time as part of the publication delay. Incorporating this stage is very important because it changes completely the relative magnitude of the different causes of the publication delay. In particular, the importance of the time it takes journals to make their first decision (the first response time) is much higher than could be inferred from previous studies. Without accounting for the rejection-and-revision stage, the first response time seems like a small part of the overall publication delay (this is discussed in more detail in the following sections). This may lead editors to make the most effort in reducing the forthcoming-article delay, reducing the number of revisions required from the author, or evaluating revised articles themselves rather than sending them back to the referees, in order to save time. It may also lead referees to underestimate the effect of the delay they cause on the total publication delay. Realizing that the first response time is much more important may suggest that editors should stress the goal of reducing the first response time more than is done today in most journals, and that referees should send their reports faster. The first response time of a journal affects not only the publication delay of articles that appear in that journal; it also affects the

publication delay of papers that are rejected in the journal but later appear in other journals. It is this externality that the previous studies failed to acknowledge.

The natural next step is to estimate the effect of rejections on the publication delay by asking how many times an average article is being rejected before it is published. I am not aware of any study that asked this question before[1]. To address this question, I use evidence on acceptance rates and rankings of different journals to compute the average number of rejections that manuscripts with different qualities should expect under different submission strategies. A submission strategy is a list of journals that describes to which journal to submit first, to which to submit if the first rejected the manuscript, and so on.

The numerical analysis suggests that most articles are submitted between three and six times prior to publication (i.e. they receive between two and five rejections). This number is important because it enables to analyze correctly the contribution of different stages to the overall publication delay, allowing editors to focus their efforts on the important parts as was mentioned earlier. Moreover, this number gives an idea about the cost of the review process. The time that referees and editors dedicate to evaluating a paper is a significant cost from social perspective. Estimating this cost is important for different policy issues, such as choosing the optimal submission fees. The number of times a paper is rejected before publication is a measure of the costs of the review process per article. The higher this number is, the more costly is the process, and the more beneficial are steps that may reduce its cost. For example, if the average paper is rejected once before being published, this may be reasonable, but if on average it is rejected five times, we might want to take steps such as limiting the number of times a paper can be submitted (using a central database and allowing papers that received too many rejections to be published only on the Internet, for example).

The number of rejections that an average article receives is also interesting from a personal perspective: most of us submit articles to publication and know how many rejections

we receive, but know very little about rejections of others. Knowing the average number of rejections that others receive can help us evaluate whether our submission strategy is “normal,” and whether we receive more or less rejections than others.

SOME DATA ON DIFFERENT PARTS OF THE DELAY

According to Ellison (2002a), the mean submit-accept time in 1999 in the five top general-interest journals (*AER*, *Econometrica*, *JPE*, *QJE* and *REStud*) is between 13 and 28.8 months (21.9 months on average). In five other general-interest journals the average time is 16.7 months, and in 13 field journals the average is 15.3 months. This is only the time from submission to that journal to acceptance (stages 2 and 3 of the division in the introduction). Trivedi (1993) provides data about the forthcoming-article delay (from acceptance to publication); in his sample the average delay is 9.4 months. Thus, the delay caused by stages 2-4 is around 31 months in the top five journals and about 25 months in other journals. Yohe (1980) provides earlier data and divides the publication delay in a different manner (lag between receipt of original manuscript and revision upon which acceptance was based; lag between receipt of accepted revision and publication). The total delay in his sample ranges from 4.9 months (*Economic Letters*) to 28.7 months (*Journal of Urban Economics*), with a median of 18 months and a mean of 19 months. Out of 25 journals in his sample, 23 have total delay of 13.9 months or more. The combined result from Ellison and Trivedi, however, probably reflects more accurately the delay today because as Ellison points out, the publication delay increased over the years.

What portion of this delay is caused by the first response time? Not many journals provide this information. Going over dozens of journals, however, I found several journals that do; Ellison (2002a) and websites of various journals provided me some more information. The results are presented in Table I, ranked according to the median first

response time for new submissions (the mean when the median is not available). I include in the table also first response times in journals in accounting and finance; the difference in the first response time between these fields and economics is puzzling and explaining why it exists is an intriguing topic for future research.

Take in Table I

Table I suggests that first response times in most economics journals are between three and six months; the average of the mean first response time in the ten economics journals is 135 days (taking the figure for new submissions when more than one figure is presented). How many times does the average article suffer this delay? The next section addresses this question.

HOW MANY TIMES ARE PAPERS SUBMITTED BEFORE PUBLICATION?

We can compute the expected number of submissions (or of rejections) if we know the sequence of journals that the paper is being submitted to and the acceptance chances of the paper in each of these journals. Assume that the author submits the paper sequentially (i.e. not simultaneously) to at most n journals (if the author receives rejections from all these journals he gives up). Denote the acceptance chances of this particular paper in the first journal it is sent to as P_1 , in the second journal as P_2 , and so on. The expected number of submissions (including the submission that is accepted) is then given by:

$$(1) \quad E(s) = P_1 + 2(1-P_1)P_2 + 3(1-P_1)(1-P_2)P_3 + \dots + n\prod_{i=1}^{n-1} (1-P_i).$$

Notice that the last term does not involve P_n because if the paper is rejected from the first $n-1$ journals, it is submitted n times regardless of the acceptance decision on the last submission.

The acceptance chances of a certain paper in a certain journal are determined by the qualities of the journal and the paper (assuming that the subject area of the paper is appropriate for the journal). I assume that the quality of the paper is given by a number

between 1 and 10 (10 being the highest quality). I also assume for simplicity that there are three levels of journals and that journals are homogeneous in terms of acceptance chances within each level. In order to base the acceptance rates of the journals in the three levels on empirical evidence, I use a ranking of economics journals and take the true acceptance rates of the different journals. I adopt the ranking that appears in Table 2 in Laband and Piette (1994b). This table ranks journals according to impact-adjusted citations per article, meaning that it gives higher weight to citations received from higher-quality journals. I take the most recent period presented – citations in 1990 to articles published in 1985 – 1989. The table ranks 130 journals, of which I take the top 90 and divide them to three levels as follows: level 1 are journals ranked 1-30, level 2 are journals ranked 31-60, and level 3 are journals ranked 61-90.

The next step is to find the average acceptance rates in each level. I consulted Miller and Punsalan (1988) and Cabell, English and Abernethy (2001) to get the acceptance rates of these journals. The information in Cabell, English and Abernethy is more recent but the acceptance rates are less accurate because they are given only as a range (e.g. 6-10 percent), so when I had data from both sources (this was the case for most journals), I took the average of the two (taking the midrange when a range is reported). The average acceptance rates for the journals in levels 1, 2 and 3 are 11.5, 21.5, and 26.6 percent, respectively, and these are the basic acceptance rates I used in the numerical analysis[2].

These numbers reflect the expected acceptance rate for the average paper submitted to the journal. The average quality of papers submitted to a journal is generally an increasing function of the quality of the journal. Therefore, the average paper submitted to a level-2 journal is likely to be above average if submitted to a level-3 journal. As a result, a paper that has 21.5 percent to be accepted in a level-2 journal has in fact more than 26.6 percent to be accepted in a level-3 journal. To incorporate this observation, I assume that the acceptance

chances of a paper with quality q that is submitted to a journal with average submission quality j is given by:

$$(2) \quad p(q, j) = \min (r^{q-j} p, 1),$$

where p is the average acceptance rate of the journal and r is a parameter that measures the returns to quality. The higher the value of r , the higher is the difference in acceptance chances between good and bad papers. In a sense, r can be thought of as measuring the accuracy of the refereeing process. High value of r means that the process is very accurate and therefore good papers have much higher acceptance chances; low value of r implies a lot of “noise” in the process and a smaller difference in acceptance chances of good and bad papers. Notice that a paper with the average quality submitted to the journal ($q = j$) has acceptance chances of p , the average acceptance rate of the journal.

The next aspect that has to be determined is the sequence of journals to submit to. In the model, a sequence of journals is defined by the levels of the journals chosen, since all journals at the same level are assumed to have the same acceptance rate. Generally, authors go down in the level of journals to which they submit as they get more and more rejections. Authors differ significantly, however, regarding the journal level they try first and how fast they give up and try submitting to lower-quality journals. I therefore analyze several different submission strategies, which I denote by letters as follows:

A: Trying first one level-1 journal, then (if rejected) one level-2 journal, and then trying up to additional three level-3 journals. We can write this submission strategy shortly as 1, 2, 3, 3, 3.

The rest of the submission strategies analyzed are as follows:

B: 1, 1, 2, 2, 3, 3, 3, 3.

C: 1, 1, 1, 2, 2, 2, 3, 3, 3.

D: 1, 1, 1, 1.

E: 2, 2, 2, 3, 3, 3, 3.

F: 1, 1, 2, 2, 2.

Table II presents the expected number of submissions for these different strategies and for various paper qualities assuming that the average quality of papers submitted to journals in levels 1, 2, and 3 is 6, 5, and 4, respectively (i.e. these are the values of j for the different journal-levels), and assuming that $r = 1.4$. It also presents the probability that a paper is published in each journal-level. Table III compares the results of Table II regarding the average number of submissions to two other scenarios: in one, the value of r is taken to be 1.8 instead of 1.4, giving a much higher advantage to good papers over bad papers. The other scenario uses $r = 1.4$ but assumes that the average quality of submissions to journals in levels 1, 2, and 3 is 7, 5, and 3, respectively, rather than 6, 5, and 4 as was assumed before. This increases the difference in the quality of submissions to the different journal-levels. The results presented in the tables follow from the application of equations (1) and (2) to the submission strategies, acceptance rates and parameter values that were discussed above.

Take in Tables II - III

The results under the different scenarios are relatively similar, except for the effect of high value of r on submissions of very high quality ($q = 10$), that are now accepted in the first journal to which they are submitted. Surprisingly, the different submission strategies are not extremely different from one another in terms of the expected number of submissions. Given that the upper bound on the number of submissions is different in the various strategies (between four and nine, depending on how many journals the strategy lists), and that the strategies differ also in the level of journals the paper is sent to, we might expect the difference between the strategies to be big. Yet, if we examine for example a paper of average quality, $q = 5$, under all three scenarios, the minimal number of submissions is 3.2 (strategy A, $r = 1.4$ and j -values of 7, 5, 3) and the maximal is 5.5 (strategy C, $r = 1.4$ and j -

values of 7, 5, 3 or $r = 1.8$ and j -values of 6, 5, 4). Without strategy C, the maximal number is only 4.6 (strategy B, $r = 1.4$ and j -values of 6, 5, 4).

Of course, one can take strategies that yield very different number of submissions. To take the most extreme examples, sending a paper to only one journal (and discarding it if rejected) obviously results in one submission, whereas sending a paper of quality $q = 5$ to eight level-1 journals and then to seven level-2 journals (with $r = 1.4$ and j -values of 6, 5, 4) results in expected value of eight submissions[3]. But I believe that the strategies considered above (A – F) represent a broad range of reasonable submission strategies and therefore the ranges offered by the analysis are likely to be close to the true number of submissions. Taking the numbers from all three scenarios, this means that a paper with a quality above average ($q = 7$) is likely to be submitted 1.4 – 4.1 times before publication (including the submission to the publishing journal), a paper of average quality ($q = 5$) is likely to be submitted 3.2 – 5.5 times, and an author of a low-quality paper ($q = 3$) can expect to submit to 3.8 – 7.6 journals.

These numbers reflect the fact that better papers, given a fixed submission strategy, are submitted fewer times before acceptance. If we allow the submission strategy to depend on the quality of the paper, the difference in the number of submissions between papers of different qualities is likely to be smaller than suggested above, because authors of low-quality papers will choose to submit to lower-quality outlets than authors of high-quality papers. For example, with $r = 1.4$ and j -values of 6, 5, and 4, an author of high-quality paper ($q = 7$) may choose the strategy F (1, 1, 2, 2, 2), resulting in 3.2 submissions, whereas an author of a paper with $q = 3$ may choose the strategy A, resulting in 4.1 submissions.

While extreme cases in the analysis yield average number of submissions as low as one or as high as eight, in most cases the average number of submissions is likely to be between three and six (i.e. two to five rejections)[4]. This number may seem high to some

readers. One possible reason is that our impression about the number of rejections the average paper receives is affected by information we get from our colleagues. But our colleagues are more likely to talk about their good papers that were accepted by the *AER* without being rejected from any other journal, than to talk about their bad papers that were published in the *Pakistan Review of Environmental Economics* (a fake journal) after being rejected from seven other journals.

This number may also seem high to authors who either write very good papers and therefore suffer less rejections than the average author, or who do not submit papers to journals they have small acceptance chances in (see Shepherd, 1995 for examples of several leading economists with such policy). But this is not the behavior of the average author; if most authors did not submit to journals they have small acceptance chances in, we would see acceptance rates in journals being 60 or 80 percent, not 10 or 20 percent. Even in level-3 journals, the average acceptance rate is 26.6 percent. Some papers have higher acceptance chances because they are of high quality. This implies that many submissions face acceptance chances of less than 26.6 percent in level-3 journals, and less than 11.5 percent in level-1 journals. It is not surprising, when considering this information, that an average paper is likely be submitted three to six times before it is published.

THE IMPORTANCE OF THE FIRST RESPONSE TIME

We can now address the question of how important is the first response time in the overall publication delay. The average first response time in Table I is 135 days (using the mean in each journal). As explained in the comments to the table, this is a lower bound for the correct number, because of the censored sample in most journals and the way I treated the tail of the distribution. A reasonable guess seems to be that the average first response time is around five months. While there is some evidence that rejected papers receive a decision

faster than accepted papers, at least in the *QJE* and the *JPE* (Ellison, 2002a), all the journals in Table I have acceptance rates below 20 percent (Cabell, English and Abernethy, 2001), some of them even below 10 percent. This implies that the delay computed in Table I is already based mostly on rejected papers. If the difference between first response times of accepted and rejected articles is about two months (in Ellison, 2002a the gap in the *QJE* is about a month and in the *JPE* a little more than three months), then the discussion above implies that it takes about five months to make a rejection decision and about seven months to make a positive decision (e.g. revise and resubmit).

As was discussed before, the average total delay from submission to publication is around 31 months in the top five journals and about 25 months in other journals. Since there are many more journals in the second group, suppose that the average delay is 26 months. Examining the life cycle of a paper only starting in its submission to the journal in which it is published, as was done in previous studies, suggests that the first response time accounts for only 7 out of 26 months, or 27 percent of the total delay. If, however, we take into account that the average paper is submitted to more than one journal, this number changes. Given n submissions on average, the first response time accounts for about $[5(n - 1) + 7]/[5(n - 1) + 26] = (5n + 2)/(5n + 21)$ of the total delay. With three submissions (i.e. two rejections prior to publication) for an average paper, the first response time accounts for 47 percent of the total delay, and with six submissions, for 63 percent. That is, the first response time accounts for about twice what seemed to be its effect in previous studies once we account for the rejection-and-revision stage that was ignored before.

If we instead assume that rejected and accepted papers have the same first response time of five months, the first response time accounts for $5n/(5n + 21)$ of the total delay, which is equal to 19 percent ignoring the rejection-and-revision stage, but is equal to 42 and 59

percent of the delay with $n = 3$ and $n = 6$, respectively. In this case accounting for the rejection-and-revision stage almost triples the magnitude of the first response time.

CONCLUSION

The article claims that the delay in the publishing process should be measured from the first submission of a manuscript, and not from its submission to the journal that accepts it, as was done in previous studies. As a result, the first response time may delay the process more than once, because manuscripts are often rejected from one or more journals before they are accepted for publication. I estimate the average number of journals to which a manuscript is submitted before being published using empirical evidence about acceptance rates of journals at different levels. The results suggest that for most manuscripts, submission strategies and parameter values, a manuscript is likely to be submitted to three to six different journals before it is accepted for publication.

This result implies that the first response time accounts for a much bigger part of the publication delay than was suggested by previous studies, which do not incorporate the rejection-and-revision time as part of the publication delay. Realizing that the first response time occurs three to six times in the life of an average article has important policy implications for journal editors: a reduction of a month in the first response time is much more important than a reduction of a month at any other stage of the publication delay[5]. In addition, referees should be aware of this fact, so that they do not underestimate their responsibility to respond in a timely manner. The estimated number of submissions also gives an idea about the costs of the refereeing process per article published, and provides authors with some information on how many rejections others receive.

There are many directions for future research on the publishing process. One idea that is closely related to the current article is to try to corroborate (or refute) the results in this

article by surveying economists about their rejection experiences. For the results to be meaningful, however, the study has to be systematic rather than anecdotal. It has to take a representative sample of authors, including graduate students, teachers in colleges and researchers in non-academic institutions (according to the proportion of these groups in the pool of authors in the relevant journals). The study should obtain a sufficient number of respondents who keep complete records of the submissions of their articles. All articles for which data exist should be included, to avoid a biased sample. For each article, the researcher should obtain information on how many times it was submitted before being published. Moreover, the researcher has to consider the potential selection bias: even with anonymous responses, scholars who suffer few rejections may be more willing to report their rejection record than scholars who receive many rejections.

Other interesting questions to explore are: how is the first response time divided between delays caused by referees and by editors[6]? How many hours does it take referees to review a paper and write the referee report? Do more experienced scholars write better reports, or maybe because they are busy they write less helpful reports? To what extent authors revise a rejected paper according to the referees' reports before sending it to another journal? How similar are the reports by different referees on the same paper?

Knowing more about the publishing process is essential in order to make informed decisions about if and how the process should be changed. Research about this topic is therefore of great importance because improvements to the publishing process can enhance the productivity of economists in all areas of economics, as well as scholars in other areas, increasing the contribution of the academic world to society.

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TABLE I

FIRST RESPONSE TIMES (FRT) IN VARIOUS JOURNALS (IN DAYS)

	Median FRT	Mean FRT	Period	Source / journal issue	Comments
Economics Journals					
<i>Quarterly Journal of Economics</i>	NA	82	1997	Ellison (2002a).	Papers sent to referees.
<i>Journal of Economic History</i>	103	108	2000/2001	September 2001.	Including re-submissions.
<i>Southern Economic Journal</i>	107	122	2001	October 2002.	New submissions only.
<i>American Economic Review</i>	109	122	7/1/00- 6/30/01	May 2002.	Rejected papers only.
<i>Econometrica</i>	110	122	2000	January 2002.	New submissions only.
	98	92			Revisions only.
	108	122			All papers.
<i>European Economic Review</i>	143	165	2000	May 2002.	
<i>The RAND Journal of Economics</i>	153	131	2000	Summer 2002.	Simple average of the four quarters of the year.
<i>Economic Inquiry</i>	NA	159	1/1/02- 4/15/02	October 2002.	
<i>Journal of Political Economy</i>	NA	167	2000	Ellison (2002a).	
<i>Review of Economic Studies</i>	175	171	9/2000- 2/2001	The journal's website.	New submissions only.
	194	198			First revision.
	159	138			Second revision.
Accounting Journals					
<i>The Accounting Review</i>	51	52	3/1/01- 2/28/02	July 2002.	Including re-submissions.
<i>Journal of Accounting and Economics</i>	52	53	12 months ending 4/2002	August 2002.	
Finance Journals					
<i>Journal of Financial Economics</i>	37	43	10/2001- 9/2002	The journal's website.	
<i>The Journal of Finance</i>	39	44	3/1/00- 7/31/02	The journal's website.	Including re-submissions.

COMMENTS FOR TABLE I

Months were converted to days assuming 30.5 days in an average month. The data for the *QJE* and *JPE* appear in Ellison (2002a) in Figure 2; I thank Glenn Ellison for providing me with the exact numbers used to draw the graph. The mean and median time of the following journals is computed and provided by the journals: *Journal of Economic History*, *European Economic Review*, *Economic Inquiry*, *Review of Economic Studies*, and *The Accounting Review*. In the *Journal of Accounting & Economics*, the *Journal of Financial Economics*, and *The Journal of Finance* the median is provided by the journals. The rest of the data is computed based on the distribution of first response times provided by the journals.

I computed the mean and median by taking the average of each range as the first response time (i.e. papers that were handled in 3-4 months were considered as being handled in 3.5 months), except for the tail, that was computed taking its lower bound, in the absence of a better assumption (i.e. papers that were categorized as taking 9+ months by the journal were considered as though they were handled in exactly 9 months). As a result, the mean is likely to be a lower bound of the true mean, but the median is correct.

Another problem is that the sample of papers reported by the journals is usually a censored sample. That is, the journals only report the time it took to handle papers that received a first decision by the time the report is written (this is also likely to be true in the journals that report the mean and median directly). The papers that are not included in the sample are likely either to have been received very late (when the report is written shortly after the period for which the data is given), or to have very long first response times. As a result, papers with very long decision times are excluded from the sample, meaning that both the median and the mean are biased downwards (especially the mean). Therefore, the mean and median reported can be considered as lower bounds of the true values.

For most journals the bias caused by the censored sample does not seem to have a large effect, except for the Journal of Monetary Economics. In the JME, 22 percent of the papers are in the category “Over 16 weeks,” and 49 percent of submissions are still in process and therefore excluded from the sample (data in October 2002 issue, manuscripts received between August 2001 and July 2002). Computing the mean and median under this severe problem of censored sample and assuming that 22 percent of the papers received a decision in exactly 16 weeks will be so biased that I chose to avoid presenting these numbers in the table in order not to provide misleading information.

In the *AER* the true first response time is likely to be slightly higher because of an additional reason: the sample only includes rejected papers, and papers that are eventually accepted tend to have longer first response times [Ellison, 2002a].

TABLE II
NUMBER OF SUBMISSIONS AND ACCEPTANCE PROBABILITIES WHEN $r = 1.4$
AND AVERAGE QUALITIES SUBMITTED ARE 6, 5 AND 4

Subm. Str.	A	B	C	D	E	F
Paper q.	1,2,3,3,3	1,1,2,2,3,3,3,3	1,1,1,2,2,2,3,3,3	1,1,1,1	2,2,2,3,3,3,3,3	1,1,2,2,2
1	4.5 2.1% 5.5% 24.3%	6.8 4.2% 10.4% 28.6%	7.7 6.3% 14.9% 20.8%	3.9 8.3% 0% 0%	5.7 0% 15.9% 28.2%	4.7 4.2% 15.2% 0%
3	4.1 4.2% 10.5% 40%	5.9 8.2% 19% 41.4%	6.8 12.1% 25.9% 29.1%	3.8 15.7% 0% 0%	4.8 0% 29.4% 40.2%	4.4 8.2% 27% 0%
5	3.4 8.2% 19.7% 54.2%	4.6 15.8% 32.3% 43.9%	5.4 22.7% 39.9% 28.2%	3.5 29% 0% 0%	3.5 0% 51.6% 40.9%	3.9 15.8% 43.5% 0%
7	2.5 16.1% 35.4% 47.6%	3.3 29.6% 46.8% 23.4%	3.8 40.9% 47.6% 11.2%	3.1 50.4% 0% 0%	2.2 0% 80.6% 19.3%	3.2 29.6% 56.8% 0%
10	1.6 44.2% 55.8% 0%	1.9 68.8% 31.2% 0%	2.0 82.6% 17.4% 0%	2.0 90.3% 0% 0%	1.0 0% 100% 0%	1.9 68.8% 31.2% 0%

The columns represent different submission strategies and the rows different paper qualities. Each cell includes the following numbers, from top to bottom: expected number of submissions, probability of acceptance in a level-1 journal, probability of acceptance in a level-2 journal, and probability of acceptance in a level-3 journal (it is easy to compute the probability of receiving rejections from all journals by deducting the sum of these probabilities from 1).

TABLE III

AVERAGE NUMBER OF SUBMISSIONS FOR DIFFERENT VALUES OF j AND r

j-values	6,5,4	6,5,4	7,5,3		6,5,4	6,5,4	7,5,3
r	1.4	1.8	1.4		1.4	1.8	1.4
q	Strategy A				Strategy D		
1	4.5	4.8	4.4		3.9	4.0	3.9
3	4.1	4.3	3.9		3.8	3.9	3.8
5	3.4	3.3	3.2		3.5	3.6	3.7
7	2.5	2.0	2.4		3.1	2.9	3.4
10	1.6	1.0	1.7		2.0	1.0	2.5
	Strategy B				Strategy E		
1	6.8	7.5	6.7		5.7	6.4	5.6
3	5.9	6.5	5.7		4.8	5.4	4.6
5	4.6	4.5	4.5		3.5	3.3	3.3
7	3.3	2.7	3.4		2.2	1.4	2.1
10	1.9	1.0	2.2		1.0	1.0	1.0
	Strategy C				Strategy F		
1	7.7	8.5	7.8		4.7	4.9	4.7
3	6.8	7.6	6.8		4.4	4.7	4.5
5	5.4	5.5	5.5		3.9	4.0	4.1
7	3.8	3.1	4.1		3.2	2.7	3.4
10	2.0	1.0	2.5		1.9	1.0	2.2

[1] Laband (1990), in a study about the value added of the review process, collected data about several variables, including one that is related to this question: whether published articles were submitted to a journal other than the one that published the article. Although the sample consists of articles published in top journals (the American Economic Review, Journal of Political Economy, Quarterly Journal of Economics, Journal of Law and Economics, Review of Economics and Statistics, and Economic Inquiry), 31 percent of the respondents reported submitting the paper to at least one journal before the journal in which the article was published. Obviously, articles that are published in lower-quality journals or are not published at all have a higher rate of previous rejections.

[2] The detailed data about the acceptance rates is available from the author upon request. Journals that are irrelevant for the purpose of this article because they are not refereed (i.e. they publish mainly solicited articles), such as the *Journal of Economic Literature* and *The Journal of Economic Perspectives*, were omitted from the computation. In addition, the average acceptance rate was based on those journals that are a relevant outlet for most papers, omitting those that are narrow in scope and therefore are not a potential outlet for most papers (such as many field journals). An alternative approach is to compute the average acceptance rates using all journals. The approach taken in this article seems to be more appropriate methodologically because it does not include in the computation journals that have a very small probability to be relevant for a specific paper. The results, however, are likely to be very similar under the alternative approach (using also field journals to compute average acceptance rates), since given the level of a journal, its acceptance rate is similar whether it is a general journal or a field journal. For example, field journals in level 1 include the *Journal of Finance*, the *Journal of Monetary Economics* and the *Rand Journal of Economics*. Their acceptance rates in Miller and Punsalan (1988) are 10%, 14.5%, and 11%, respectively, and in Cabell, English and Abernethy (2001) their acceptance rates are 6–10%, 6–10%, and 11–20%, very similar to the rates of general-interest journals in level 1.

[3] This follows from performing the computation presented in equation (1); it is only by chance that this is also the average of the minimal and maximal possible number of submissions in this strategy, 1 and 15.

[4] Even Akerlof's seminal "Market for 'Lemons'" article (1970) was submitted four times: it was rejected from the *AER*, *JPE* and *REStud*, before being accepted by the *QJE* four years after Akerlof first tried to publish it [Gans and Shepherd, 1994]. While it is not so common that such a seminal article is rejected three times, the analysis suggests that for the average paper, this is actually quite normal.

[5] Assuming that editors care about the profession in general and not only about the publication delay of papers that are published in their journal, or alternatively, if editors want to attract authors, and authors realize that the first response time is more important than the other parts of the publication delay. From the author's perspective, the significance of the first response time compared to the other parts of the publication delay can better be seen in a slightly different manner. A reduction in the delay caused by stages 2 – 4 (see the introduction) only helps the author if his paper is accepted, which happens with a small probability; a reduction in the first response time, however, benefits all authors, including those whose papers are rejected. Therefore, a reduction in the first response time is much more important for the prospective author than a reduction in other parts of the publication delay. For example, an author of a paper with a 12.5-percent acceptance chances should care about the first response time eight times more than about delays that are relevant only for accepted papers.

[6] Ellison (2000) presents data about the breakdown of submit-accept times in the JPE. Although Ellison (2002a) is a revised version of Ellison (2000), this data do not appear in Ellison (2002a).