Double-blind in light of the internet: A note on author anonymity

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Double-Blind in Light of Internet
– Note on Review Processes

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Abstract:
This paper analyses the credibility of author anonymity provided by double-blind review processes. It is argued that authors have strong incentives to disseminate information about their papers before publication. A sample from two economics journals, both using double-blind review processes provides evidence that author revealing information of most accepted papers is available on the Internet before the review processes are finished. The difficulty and cost of identifying authors of anonymized unpublished manuscripts are examined in an experiment where subjects are paid according to their identification performance. The vast majority of authors can be identified within 60 seconds. (JEL-codes: C91, D80, O30, Keywords: Review Process, Scientific Publication, Experiment)

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“You know, the one with all the well meaning rules that don't work out in real life”

Matt Groening (through Homer in The Simpsons).

1. Introduction

The scientific publication process plays a crucial role in modern society by clarifying what the scientific community regards as “good” or “accepted” science. At the same time, scientific publication is used as a measure of success in the academic meritocracy, which means that considerable amounts of individual incentive and effort are linked to it. This makes it particularly appropriate for economic analysis.¹ One important issue in scientific publishing is whether the anonymity policy in peer-review-processes should be double-blind.² This paper argues that economic principles may be applied to explain why author anonymity in double-blind review processes is not credible today.

International research journals very often rely on some form of peer review process (PRP), which may differ with respect to the degree of anonymity between the author and the reviewer. Two common anonymity policies applied by journals in the social sciences are single-blind and double-blind. In the former, the reviewer is anonymous to the author, but the reviewer knows the identity of the author. Double-blind means that both the reviewer and the author are anonymous to each other. The most obvious reason for giving the author an anonymity shield is to avoid the risk that irrelevant information (e.g., gender, ethnicity and status) about the author might bias the reviewer’s decision. To maintain this anonymity shield, the author is typically requested to remove from his manuscript any information that might identify him. The purpose of

¹ The potential of economic analysis to better understand different aspects of scientific publication has been realized by relatively few scholars this far, but there are some notable exceptions (see e.g., Bergström, 2001, Ellison, 2002 and Azar, 2004).
² Those who believe that double-blind is not an issue anymore are referred to the recent Nature (2008) editorial which raises the question.
This paper is to analyze, given the prevailing incentive structure and information technology, whether the author anonymity shield provided by double-blind PRP can be credible enforced today.

The effects of double-blind compared to single-blind are studied empirically in an impressive natural field experiment conducted by Rebecca Blank (1991), where papers submitted to the American Economic Review are randomly assigned to either a single-blind or a double-blind process. One result of specific interest to this study is that “only” 45.6 percent of the reviewers were able to correctly identify the author in the double-blind process. Blank then correctly makes the conclusion that “It is not true that ‘you can always guess who wrote the paper.’”(Blank, 1991, p.1064, quotation marks as in original). Hence, based on the result from this study it is possible to claim that author anonymity is at least partially maintained and therefore has some credibility. However, the study by Blank is based on data from 1987 to 1989, which is before the breakthrough of Internet. The thesis in this paper is that author anonymity cannot be credibly enforced anymore due to the authors’ dissemination of information on the Internet and the reviewers’ possibility of effectively seeking such information. Lacking access to the type of data available to Blank, an indirect method, based on a combination of economic analysis and empirical data is applied to support this thesis.

To understand the thesis, it is necessary to look at the incentive and cost structure of both the author and the reviewer. When the incentives of authors are analyzed, it becomes obvious that they (both famous and less famous) have strong incentives to make their research results available before they are published in a journal. An empirical analysis is undertaken to check if this is true. By studying papers in two journals with
double-blind referee processes, it is found that information revealing the identity of the authors of almost all accepted papers is available on Internet before the review processes are finished. In the majority of cases such information is also available before the journals receive the papers. Thus, despite some journals’ efforts to maintain author anonymity, this information is typically publicly available to reviewers on Internet. This confirms that authors have strong incentives to disseminate their research results before publication and that the cost of doing so today is small due to on-line services (like web pages for publishing of working papers etc).

From the economics of information and search it is well-known that available information will not necessarily be gathered (see e.g., Stiegler, 1961 and Hirschleifer and Riley, 1992). More precisely, information will be gathered if it is valuable to the information seeker and if the cost of obtaining it is sufficiently small compared to its value. Hence, the fact that author-information about a paper is publicly available to a reviewer does not necessarily mean that the reviewer will gather it. An analysis of author incentives and a small economic experiment are therefore conducted to study the cost of identifying authors based on “anonymized” information about unpublished papers. The theoretical analysis reveals that the reviewer has some but not strong incentives to obtain information about the author of a paper. Hence, if it is costly to identify authors one would expect most reviewers to refrain from it. However, the experiment demonstrates that the subjects (in this case junior and senior post-docs) are able to identify almost all of the unpublished papers’ authors very quickly. To give an example, the subjects are always able to identify the authors of working papers provided that they are given the
title and the abstract of the paper. The average time it takes for subjects to do this is 24 seconds, which is hardly a deterrent.

The plan of the paper is as follows. It starts by analyzing author behavior theoretically and empirically. A corresponding analysis, which also includes an economic experiment, is then carried out for reviewers. The paper ends by concluding remarks.

2. Authors: Incentives and Behavior

2.1 Why do authors want their papers to be known before publication?

By not presenting the paper at conferences or seminars and by not posting it as a working paper the author can make it difficult for reviewers in a double-blind process to identify the origin of the paper. Analyzing the incentives that the author himself has to disseminate information about an unpublished paper is therefore crucial to understanding the problem of identification. Below, it is argued that the author has strong incentives to inform others about the paper before it is published.

The first reason for disseminating information about unpublished research is that a researcher may find pleasure per se (triggered by self-interest or altruism) in seeing that his finding expands the existing knowledge, can be used in education and/or applied in various ways. Second, new findings are cited, which gives credit to the author and is likely to benefit his carrier. Third, related to this, publicly announcing a finding may prevent others from claiming originality of the same finding. Hence, publicly announcing a paper makes it more problematic to “copy” it without citing it.

3 Of course, this does not mean that it is impossible to identify the author. For instance, if the author has a reputation for pursuing a highly idiosyncratic research agenda the referee might be able to guess the origin of the paper.
The reasons above are relatively straightforward and ought to motivate the author to inform the scientific community of the paper and its origin at an early stage. There are also more subtle reasons for disseminating information about the paper. For instance, knowing that the paper is written by an author who previously has published extensively in top ranked journals may make the reviewer confident that the paper is a good one.\(^4\) If the well published author realizes this, he can increase the probability of getting the paper accepted by signalling his authorship of the paper at an early stage. If this argument is taken a bit further to an equilibrium situation, one can expect that papers whose authors have not been Signalled through working paper series or conferences, and are consequently unknown may decrease reviewer’s confidence in them. In fact, Blank (1991) finds that, of the papers that receive a double-blind review process, those whose authors are unidentifiable by the reviewers (i.e., they are “truly blind”) have an acceptance rate that is below one third of the rate for papers whose authors are identified despite the double-blind process (i.e., “pseudo blind”). Thus, if being unidentifiable is a “bad signal”, less well published authors may have little to lose by signalling their authorship.

2.2 Is information about papers disseminated before publication?

It is argued above that the author has strong motives to disseminate the paper or information about it before its publication. The obvious question is whether this can be confirmed empirically. To answer this question this paper analyzes a sample of 87

\(^4\) General information about the author’s home institution may also signal quality. Without going into the causality of the observation, it can be noted that Blank (1991) observed that papers from top universities (ranked 1-5) have an overall acceptance rate that is more than four times higher than papers from lower ranked universities and colleges (ranked below 50).
recently published articles from two issues (June and December 2008) in two economics journals that use a double-blind review process.\textsuperscript{5} One is the American Economic Review (AER), which is a top journal and ranked number one in the European Economic Association’s (page adjusted) impact ranking (see Kalaitzidakis et al., 2003). The other is the Journal of Economic Organization and Behavior (JEBO), which is considerably lower ranked, but still ranked among the top quartile (number 32 out of 159) of journals in the same ranking.

A search was made on the Internet to investigate if information about papers is available before publication. The search engines used were Google Scholar and ordinary Google. A common procedure to disseminate information about a paper before its publication is to post it as a working paper. It can be concluded that most of the papers in our sample were available as wp:s (working papers) before they were published. Of the 44 articles in AER:s June and December issues 2008, 36 or 82 percent were available as wp:s before that date.\textsuperscript{6} The corresponding numbers for JEBO were 30 out of 43 articles (or 70 percent).\textsuperscript{7} The average “AER working paper” was available 33 months before publication. The average JEBO working paper was available 47 months before publication. The substantially earlier availability of JEBO papers may have many explanations, one being that some of these papers may have been rejected by other higher

\textsuperscript{5} The purpose this analysis is not to analyze a representative sample of a certain type of journal article, but to get a coarse indication of how authors behave with regards to dissemination of information about their papers.

\textsuperscript{6} In the AER June issue the three first articles were written by the 2007 Nobel laureates in Economics and are excluded from the sample since these articles were obviously not processed in the normal way.

\textsuperscript{7} The wp versions may differ somewhat from the published version, but in most cases the title and main message of the paper are very similar to those of the final published paper. In a few cases, the final version and the published version are different in that e.g., the title has been changed substantially. These have been included if the main message of the two versions appear (result, purpose etc) to be the same.
ranked journals before, which prolonged the period from the posting of the working paper to its publication.\textsuperscript{8} It may also be due to different lengths of the publication processes.

After some searching on the Internet it became evident that information about a published paper comes in various forms. A working paper contains almost complete information about a published article. In this form, information about authors, the month posted and the content of the published paper (although in earlier versions) is usually provided. However, other more fragmented pieces of information about papers that identify authors are sometimes also available on the Internet. For instance, first drafts or memos may be available, and the names of the authors and titles of the papers may be mentioned on conference and seminar homepages, in references of other papers, in newsletters etc. If these more fragmented pieces of information are added to the working paper data, one gets a more inclusive set of information that ought to be the most relevant one when discussing the possibility for a reviewer to identify the author of a paper. If this larger information set is used, all 44 AER papers and all but one of the 43 JEBO papers were mentioned on the web before publication.\textsuperscript{9}

Before the estimated dates of when information about papers is available are presented, some problems about dating such information will be addressed. In many cases it is easy to determine that certain information “at least” was available by a certain date (e.g., by dates of seminar presentations, conferences etc.). A (limited) retrospective search on Internet does not rule out the possibility that some information may have been available about the paper before the earliest dates suggested by the retrospective search.

\textsuperscript{8} Azar (2004) estimates that a manuscript is normally submitted three to six times before it is accepted.
\textsuperscript{9} The reader should be reminded that the figures concern papers that are eventually published. Information about rejected papers is for natural reasons not publicly available. Thus, we do not know if information about rejected papers was available. However, since information was lacking for only one of all 87 published papers before they were published, it is safe to conclude that if information of a paper is not available on the Internet it is not likely to be published soon in either of these two journals.
Information may be removed (e.g., publishers may ask authors to remove old versions of published papers), obsolete links not visited often will not be given priority by search algorithms etc. This would lead to a systematic underestimation of the time information has been available. In some cases when there is no clearly given date, it may be difficult to determine when information about a paper was “at least” available. This means that some dates should be interpreted with care.\(^{10}\) However, even if there is uncertainty about the dates of some of the papers, it cannot hide the general observation that information about papers is often available long before the date of publication. The fact that there may be a systematic underestimation of this time for some of the papers only strengthens this observation.

The estimated dates of when information about the published AER and JEBO papers were available are provided in Figure 1. Information about the average AER paper was available 39 months before its publication and the corresponding figure for the average JEBO paper is 48 months.

**FIGURE 1**

In section 2.1 it was conjectured that an author has a strong motive to disseminate information about his paper before it is published. This has been strongly confirmed in this section. The data reveals that information about papers is available years before they are published.

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\(^{10}\) Links to information about the papers and short comments when information about the date is not obvious are provided in the appendix.
2.3 Is information available during the review process?

Concerning the question of whether information is available for reviewers it is important to know something about the timing of the review process. It is painfully well-known that the review process in disciplines like Economics is very time consuming and a paper that is accepted is often sent to the reviewers in more than one round (see Ellison, 2002). Data on when reviewers start and end the review process is not publicly available. Still, the process obviously can not start before the manuscript is received by the journal and it has to be ended before the manuscript is accepted. These two dates give an indication of the length of time of the review process for each individual paper. JEBO, but not AER, provides information about dates when a paper has been received and accepted. For AER more aggregate information on reception and acceptance dates is available though. The question of whether information is available during the review process is therefore analyzed separately for the two journals.

*AER:*

The AER editor’s report provides information on the average time it takes between receipt to acceptance and between acceptance to publication. The first time lag is 62 weeks for articles published during 2008.\(^\text{11}\) The second is 38 weeks. Hence, the overall time period between receipt to publication is 23 months. The average papers published in June and December 2008 were therefore received in July 2006 and January 2007, respectively, and accepted in September 2007 and March 2008, respectively. By comparing these dates with those obtained in the previous section, it may be concluded that information about the AER papers was available for 39 of the 44 papers by the

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\(^{11}\) See Moffitt (2009, p. 3).
average reception month. Most likely this is an underestimation of the proportion of papers available during the review process since these processes take a long time. First, there is a time lag before the reviewers get the paper for the first time. After the journal has received the paper, an associate editor is normally assigned to look at the paper and decide about reviewers who, in turn, might accept or reject the review assignment. The reviewers will then have a couple of months to write their reports. However, the process typically does not end here for papers that are accepted. A common decision for these papers is a so-called “revise and resubmit”, which means that the reviewers may be consulted again after the paper is resubmitted. The final decision to accept a paper is made after the reviewers have given their comments to the (associate) editor. The author should be unknown to the reviewers during the whole time period when they are consulted. Hence, information about papers not available at the beginning of the review process may be available later. This seems to be the case since information was available for all 44 papers before the average acceptance date. Actually, there was no paper that was not identifiable at least five months before the average acceptance time. It should be recalled that acceptance and reception dates for the individual AER papers are not available, but given that the distributions of these dates are reasonably symmetric, the average figures suggest that there was information available about the vast majority of papers already at the beginning of the review process and most, if not all, the accepted papers could be identified before the review process ended.

12 It is important to recall that the review process considered here concerns papers eventually accepted. Rejected papers receive on average a much more swift process that not necessarily even involves a review process (see Moffitt, 2009).
The analysis for JEBO is much more straightforward due to the availability of receipt and acceptance dates for each paper. Figure 2 shows the number of months for which information was available before receipt by JEBO. Receipt dates were available for all but one paper, which means that there are 41 observations. Of those 41 papers, there were only three for which information on the month of receipt was not available. These papers correspond to the negative numbers in Figure 2. Information about seven papers became available the same month as the receipt date. If one takes into account the time it takes for a paper to become subject to the first review, it should be obvious that it was possible to identify almost all the papers during the first round of the review process. Furthermore, information about the papers was available no later than 11 months before the acceptance date. This suggests that information about all these 41 papers was available at the end of the review process.

FIGURE 2

Comparison of exposure between AER and JEBO

It is clear that on average the JEBO paper had longer exposure time before it was accepted. This suggests that, compared to top journals, lower ranked journals may have an especially problematic situation in providing credible author anonymity. At the same time it should also be noted that it is not only time that matters for the exposure of a paper, but also how actively its author presents it at conferences and seminars and

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13 In all 43 papers were published in the two issues. For one paper the journal provided no information available about reception and acceptance dates and then there was one paper (as mentioned before), for which no information was available on the web before it was published.
updates revisions of the wp etc. Two coarse indications of exposure are the number of versions available on the Internet and the number of citations around the time of publication according to Google Scholar. The number of versions of the paper available for the average AER paper was 10.7, which is more than twice as many as the average JEBO paper (4.8 versions). Even if these figures also reflect potential differences in automatic generation of versions when the paper is accepted, the general impression is that the authors of AER papers are more active in exposing their manuscript prior to publication. The number of citations around the time the paper is published suggests that the authors of such papers are also more successful in exposing their papers. According to Google Scholar the average AER paper has 23.8 citations, which is more than six times the 3.8 citations for the average JEBO paper. Obviously, these differences also reflect other differences of the papers. The conclusion from this comparison is that while lower ranked journals may have longer exposure of author-revealing information, top ranked journals are likely to have this information more intensively exposed.

3. Reviewers: Incentives and Costs

3.1 Why may reviewers want to know the identity of an author?

While the incentives for authors to disseminate information about their papers prior to publication appear obvious and strong, the incentives for reviewers to identify the author of a paper in a PRP are less clear and probably weaker. One conceivable motive is that knowing the author’s identity simplifies and speeds up the review process. A recent editorial on double-blind vs. single-blind in Nature points out that knowing the author

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Note that these figures are based search on Google Scholar a couple of months after the papers were published. See Appendix for exact dates.
may stimulate the reviewer to ask appropriate questions about the manuscript (see Nature, vol. 451, issue 7179, 2008). For instance, if the paper is written by a researcher recognized for his mathematical skills and rigour but not for his ability to find relevant topics, the reviewer may decide to spend less time on checking mathematical proofs and more time on scrutinizing the motivation of the paper. Furthermore, knowing the author also makes it easier for the reviewer to check on how the paper under review compares to the author’s earlier contributions.

More questionable reasons for a reviewer to identify the author also exist. Knowing the author’s identity may increase her confidence in how to evaluate the paper. If the reviewer is uncertain about the quality of the paper, knowing that the author is unknown and from a less known research organization may increase her subjective confidence in that the correct decision is to reject the paper. By a similar logic, knowing that the author is famous and from a top university may increase the reviewer’s confidence that the correct decision is to accept the paper. The reviewer may also have reasons to identify the author if she is curious or corrupt. In case of corruption, one can imagine a scenario where the reviewer needs to identify the author to let him know that she is currently reviewing a paper and expects something in return for a positive review.\footnote{While curiosity may be common among researchers, there is no obvious reason to expect that corruption as described above is especially common among reviewers in the scientific community.}

It should also be mentioned that there may be a disutility associated with identifying the author. This disutility is related to a conceivable “moral cost” of violating the intended anonymity policy of a journal or that a reviewer simply prefers to make the review without knowing the identity of the author. It will differ between reviewers, but it is difficult to imagine that this disutility is substantial to the average reviewer. One reason
is that single-blind policies without author anonymity are at least as common among journals as double-blind, which means that most reviewers are used to and can “live with” single-blind processes.

From the reasoning above it should be clear that the reviewer may derive some benefits from identifying the author, but also a disutility of getting this information. Different reviewers will consequently have a positive or negative net benefit of identifying the author and those with a positive net benefit will be prepared to do it if the identification cost is smaller than this benefit. The identification cost consists mainly of the time it takes a reviewer to identify the author. Since the incentives mentioned above are not obviously strong, the magnitude (both positive and negative) of the net benefit is limited. As a consequence, one can expect that the average willingness to identify an author is sensitive to small changes in the identification cost. The next section estimates this identification cost by means of an experiment.

3.2 Is it possible to identify the author and how costly is it?

This section analyzes if it is possible to identify an author and how costly it is. To do so, the ideal sample would be papers submitted to journals with double-blind review processes. Furthermore, the ideal sample of subjects to identify authors would be reviewers selected by editors of such journals. Such a method would require extensive collaboration with journal(s) (regarding sensitive information, like who reviews what paper etc.) and pose substantial practical problems. The study by Blank (1991) is close to the ideal with respect to the samples used and the way it is conducted as a natural experiment. By extensive collaboration with the editors of AER, she obtained both a real
sample of papers submitted and also real assigned AER reviewers. Blank asked the reviewers if they could identify the author after seeing the paper (with names and obvious identifiers removed) and 46 percent were able to do so. Furthermore, ten percent of the reviewers who thought they knew the author pointed out the wrong author(s). Hence, in this study the author(s) could not be correctly identified more than half the time, and even if the reviewer believed that she could identify an author, she was wrong 18 percent of the time. Three things suggest that there is a value in complementing Blank’s study. First, Blank’s experiment was conducted before the Internet exploded. Hence, one can expect that both the possibility and the cost of identifying authors have substantially changed since then. Second, the experiment does not tell us anything about the cost of finding out the identity of the author. Third, since no monetary incentives were offered it is not entirely clear what incentives the reviewers had to identify the author(s).

3.3 Experimental Method

The method chosen in this paper is guided by practical limitations and the intention to address issues, which have not been addressed before concerning the possibility and cost of identifying authors. The method employed can be described in two steps.

Step 1: A sample of 32 information sets about unpublished articles was collected from the Internet. This sample consisted of titles and abstracts or only abstracts from recently posted wp:s or papers that were to be presented or had been recently been presented at conferences. Table 1 contains a characterisation of the information sets. To

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16 There are also studies of methods (and not real human reviewers’ ability) to identify authors. For instance, Hill and Provost (2003) design algorithms that identify authors based on e.g., self-citations.

17 The data collection was from May 1987 through May 1989.

18 The sample of abstracts is available upon request from the author.
obtain variation in the sample, half of the abstracts of the wp:s were selected from
institutions that were ranked among the top 200 in the world (according to the ranking by
Kalaitzidakis et al., 2003) and the other half from unranked institutions. Furthermore, to
get geographical variation (of both the ranked and unranked institutions) the wp:s came
from institutions in the US, Europe and Asia.\textsuperscript{19} The papers from conferences were
selected from four different conferences that took place in August and September of 2008.
Two of them were small and rather specialized conferences while the other two were
bigger field conferences.\textsuperscript{20}

\begin{table}[h]
\centering
\caption{TABLE 1}
\end{table}

Step 2: To ascertain if it is possible to identify the authors related to these
information sets, and if so, how costly it is in terms of time, the sets were sent to four
post-docs who were paid according to their performance in identifying the authors of the
papers.\textsuperscript{21} More exactly, each subject was exposed to the 32 different information sets
about papers. Each set was sent out separately in an e-mail to the subject, who was in
telephone contact with the experimenter and on-line with a computer the whole time. The

\textsuperscript{19} The wp abstracts came from the following institutions: Aarhus University, University of Heidelberg,
Bureau d'Economie Théorique et Appliquée (ULP, Strasbourg), University of Bonn, Oxford University,
Lund University, Princeton University, University of Connecticut, Duke University, George Mason
University, University of California-Irvine, Middlebury College, Hebrew University, Hitotsubashi
University, Indian Council for Research on International Economic Relations, Korea University.
\textsuperscript{20} The two smaller conferences were the ones for “Empirical Methods in Energy Economics” (Zürich,
August 28-29) and “Factor Structures for Panel and Multivariate Time Series Data” (Maastricht University,
September, 19-20). The two bigger ones were the conferences for the International Association of
Economic Psychology (Rome, September 5-9) and the European Regional Science Association, (Liverpool,
August 27-31).
\textsuperscript{21} The reason for using post-docs is that these are one typical category of reviewers. Two of the post-docs
were junior and had finished their doctoral theses within a year before the experiment and two were senior
who had finished their theses more than three years ago. It can be mentioned that there were no notable
difference in the subjects’ performances of the tasks.
subject acknowledged the receipt of the e-mail and after a search with a freely chosen search engine stated the name(s) of the author(s) connected to the information set. The experimenter timed the period from acknowledgement to the naming of the author(s). If the time it took the subject to identify the author was less than 60 (90), [150] seconds, the subject was paid SEK 15 (10), [5] per paper. If the author(s) was not identified within 150 seconds, the subject received zero. After the identification tasks the subject was asked about the methods used to identify authors.

3.4 Results

The experiment was conducted in four sessions in August 2008. Each session took 60 to 75 minutes and the average earning was SEK 422, which at the time of the experiment corresponded to USD 65.

Table 2 contains the results of the subjects’ ability to identify the authors of the papers. The overall result suggests that the subjects were indeed able to identify the author. This is especially clear in the case when they got information about the abstract and title of a paper that had been published as a wp. Consequently, not a single wp (from ranked or unranked institutions) was missed when title and abstract were available. Considering that reviewers typically are provided with titles and abstracts in double-blind processes and that the vast majority of papers (published in the journals examined here) were available as working papers before the review processes were finished, the indication is that reviewers can identify the authors of papers that eventually will be accepted. Papers found on conference pages had an identification rate between 80 and 90

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22 The experimenter could also confirm receipt of the e-mail by the e-mail “reception sound” from the subject’s computer. Subjects were asked to turn on this sound effect before the experiment started.

23 At the time the experiment was conducted 1 USD was SEK 6.50.
percent depending on whether a title was added to the abstract or not. Even if the identification here was not perfect, it was very high and suggests that information about papers can also be disseminated through channels other than working paper series.

**TABLE 2**

Given that it is possible to identify the origin of a paper, the next question naturally concerns the magnitude of the identification cost. The results in Table 3 reveal that the cost, in terms of average time of identifying a working paper, varies between 24 and 33 seconds, depending on if a title is provided and if the department of the working paper is ranked or not. For papers obtained from conference pages the average identification time varies between 34 and 62 seconds, depending on whether a title is combined with the abstract or not. The conclusion from this has to be that the cost of identifying an author is very small indeed; on average it is no more than a one-minute search.

**TABLE 3**

One might suspect that the high identification performance can be explained by advanced search tools used by this small sample of subjects. However, this is not the case. The subjects used Google and/or Google Scholar. The first engine is known and used by almost everybody that has any recent experience of the Web and the second is widely known and used by researchers.24

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24 The sceptical reader who wants to confirm how easy it is to identify an author of a paper by himself is encouraged to copy and paste a title of a wp or a conference paper and then “google” it.
4. Concluding Remarks

The thesis of this paper is that author anonymity in double-blind review processes is not credible anymore. The reason for this is that authors have strong incentives to disseminate their research results before the paper is eventually published in a journal. These incentives, in combination with the low cost of distributing digital information by on-line services, explain that, in a sample from two journals that use double-blind review processes, information about almost all accepted papers is available on the Web before they are published. What is more crucial is that almost all papers are also available on the Web before their respective review processes are expected to be finished.

The reviewers’ incentives are also analyzed and the conclusion is that they have some, but probably relatively weak, incentives to identify an anonymous author. This means that the reviewers’ willingness to inform themselves about the author largely depends on how costly it is to obtain such information. To get some indication of the difficulty and cost of identifying the author of an “anonymized” paper, an economic experiment is conducted where the task is to identify the author of a given abstract (with or without the title) of a recently written, but unpublished, manuscript. The results of the experiment strongly suggest that this task is neither difficult nor costly.

The purpose of this paper is not to surprise, but to try to provide a systematic analysis of an issue that is often discussed informally in the research community. The author has witnessed colleagues being sceptical about the credibility of the author anonymity in double-blind processes and these will hardly be surprised by the results in this paper. However, despite this widespread scepticism, important journals, not
only in economics but also in other social sciences, maintain the double-blind process. Such a strategy may partially be substantiated by older research. For instance, Blank (1991) showed that reviewers were not able to correctly identify the author for the majority of the papers. The findings in this paper strongly suggest that something dramatic has occurred (probably due to the breakthrough of the Internet) to undermine the credibility of author anonymity. Hopefully, these findings will be more convincing than subjective views expressed at conference dinner tables, and therefore provide an input to the important decisions of how to design efficient, transparent and non-hypocritical review processes in the future.
References


Tables and Figures

Figure 1: Estimation of the number of months that information was available before publication.
Figure 2: Number of months information about a paper was available before receipt by JEBO.
Figure 3: Number of months information about a paper was available before acceptance by JEBO.
<table>
<thead>
<tr>
<th>Information to subject</th>
<th>WP from ranked department</th>
<th>WP from unranked department</th>
<th>Conference paper</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract and title</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Only abstract</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>8</strong></td>
<td><strong>16</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

Table 1. Describes the number of abstracts with or without titles in different categories of the sample. Papers were from different wp series around the world (primarily from departments in USA, Canada and Europe, but also some in Asia).

<table>
<thead>
<tr>
<th>Information to subject</th>
<th>WP from ranked department</th>
<th>WP from unranked department</th>
<th>Conference paper</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract and title</td>
<td>16 (100)</td>
<td>16 (100)</td>
<td>28 (88)</td>
<td>60 (94)</td>
</tr>
<tr>
<td>Only abstract</td>
<td>16 (100)</td>
<td>14 (88)</td>
<td>26 (81)</td>
<td>56 (88)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32 (100)</strong></td>
<td><strong>30 (94)</strong></td>
<td><strong>54 (84)</strong></td>
<td><strong>116 (91)</strong></td>
</tr>
</tbody>
</table>

Table 2. The number (percentages) of papers where the author(s) was identified for each paper category.

<table>
<thead>
<tr>
<th>Information to subject</th>
<th>WP from ranked department</th>
<th>WP from unranked department</th>
<th>Conference paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract and title</td>
<td>24</td>
<td>24</td>
<td>34</td>
</tr>
<tr>
<td>Only abstract</td>
<td>28</td>
<td>33</td>
<td>62</td>
</tr>
</tbody>
</table>

Table 3. Describes the average time (in seconds) it took for subjects to identify author(s) of the various paper categories.
Appendix: Information about the articles (Not for publication)

This part provides supplementary information about sources and links to the published papers in AER and JEBO, which Figures 1-3 are based on. For each paper, a link to the working paper version (if any) is provided. Furthermore, some brief comments about author revealing information on the web are also provided. The estimated month when information was available is given. Below, “wp” refers to working paper and “web” refers to author revealing information about the paper available on Internet.

Remarks: Concerning wp:s, the main principle applied for dating is as follows: If the date posted of the working paper is available then this date will be used. If no such date is provided other information about the paper indicating a date (i.e., the date on the paper’s front page) may be used.

AER JUNE 2008 ISSUE
(The three first invited articles by the previous year’s Nobel prize winners are excluded. Comments are also excluded. All links were last visited on September 17 2008.)

The Time-Varying Volatility of Macroeconomic Fluctuations
Alejandro Justiniano and Giorgio E. Primiceri
web: Same as above.

The Difference That CEOs Make: An Assignment Model Approach
Marko Tervio
web: 200306: This title is cited as a Berkeley wp “Tervio (2003)” by a WP dated 2003 at: http://economics.uchicago.edu/Gabaix_110606.pdf. The date is obtained by linear interpolation. (The wp by Gabaix and Landier is dated dated 200607).

What's the Matter with Tie-Breaking? Improving Efficiency in School Choice
Aytek Erdil and Haluk Ergin
web:200511: This title is available at a job market paper at: http://www.sabanciuniv.edu/ssbf/economics/eng/documents/aytekerdil.pdf

Default Risk and Income Fluctuations in Emerging Economies
Cristina Arellano
wp: 200501: Date of creation is said to be “2005”. The version of the wp is stated to be 200412. The posting is therefore estimated to the beginning of 2005. See: http://ideas.repec.org/p/red/sed005/516.html and http://repec.org/sed2005/up.7325.1107103497.pdf.
Do Wealth Fluctuations Generate Time-Varying Risk Aversion? Micro-evidence on Individuals
Markus K. Brunnermeier and Stefan Nagel
web: 200411: wp refers to a first version.

Temporary Investment Tax Incentives: Theory with Evidence from Bonus Depreciation
Christopher L. House and Matthew D. Shapiro
web: 200409: Wp from Berkeley 2005 refers to first draft
http://elsa.berkeley.edu/users/webfac/auerbach/e231_sp05/house.pdf

How the Electoral College Influences Campaigns and Policy: The Probability of Being Florida
David Stromberg
web: Same as wp.

Income and Democracy
Daron Acemoglu, Simon Johnson, James A. Robinson and Pierre Yared
wp:200503: http://ideas.repec.org/p/nbr/nberwo/11205.html
web: 200502: Date of paper available at:

Do People Vote with Their Feet? An Empirical Test of Tiebout
H. Spencer Banzhaf and Randall P. Walsh
web: 200507: Date of NBER meeting where a version was presented:

Information Aggregation in Polls
John Morgan and Phillip C. Stocken
wp: not detected.
web: 200704: Date of paper presented at conference at Northwestern (in 200709)
http://www.kellogg.northwestern.edu/meds/deptinfo/2007comm_conference/Pollsters.pdf

Stability in Supply Chain Networks
Michael Ostrovsky
web: 200412: date on job market paper version at:
http://economics.uchicago.edu/download/Supply%20Chains%20-%20December%202012.pdf
Thar She Blows: Can Bubbles Be Rekindled with Experienced Subjects?
Reshmaan N. Hussam, David Porter and Vernon L. Smith
wp: none

Stationary Concepts for Experimental 2x2-Games
Reinhard Selten and Thorsten Chmura
web: 200511: same as above.

Contracts, Hold-Up, and Exports: Textiles and Opium in Colonial India
Rachel Kranton and Anand V. Swamy
wp: none

Pride and Prejudice: The Human Side of Incentive Theory
Tore Ellingsen and Magnus Johannesson
wp: 200607: http://ideas.repec.org/p/cpr/ceprdp/5768.html
web: 200607: same as above.

Historical Property Rights, Sociality, and the Emergence of Impersonal Exchange in Long-Distance Trade
Erik O. Kimbrough, Vernon L. Smith and Bart J. Wilson
web: 200609: same as above.

Credit Elasticities in Less-Developed Economies: Implications for Microfinance
Dean S. Karlan and Jonathan Zinman
wp:200510: http://ideas.repec.org/p/egc/wpaper/926.html
web: Same as above.

Reference-Dependent Preferences and Labor Supply: The Case of New York City Taxi Drivers
Henry S. Farber
wp: 200412: http://ideas.repec.org/p/pri/indrel/876.html
web: same as above.

The Interaction of Public and Private Insurance: Medicaid and the Long-Term Care Insurance Market
Jeffrey R. Brown and Amy Finkelstein
wp: 200412: http://ideas.repec.org/p/nbr/nberwo/10989.html
Estimates of the Impact of Crime Risk on Property Values from Megan's Laws
Leigh Linden and Jonah E. Rockoff
wp: 200605: Date on NBER-wp with slightly different title: https://users.nber.org/papers/w12253
web: Same as above.

Ordering the Extraction of Polluting Nonrenewable Resources
Ujjayant Chakravorty, Michel Moreaux and Mabel Tidball
wp:200609: http://ideas.repec.org/p/ide/wpaper/6205.html
web: same as above.

Strotz Meets Allais: Diminishing Impatience and the Certainty Effect
Yoram Halevy
(Change of title)
web: same as above.

Monetary Policy, Judgement, and Near Rational Exuberance
James Bullard, George W. Evans and Seppo Honkapohja
(Change of title)
web: same as above.

AER DECEMBER 2008 ISSUE
(Links visited January 10-15, 2009)

Land and Power: Theory and Evidence from Chile
Jean-Marie Baland and James A. Robinson
wp:200609: http://ideas.repec.org/p/nbr/nberwo/12517.html
web:200504: http://repositories.cdlib.org/berkeley_econ211/spring2005/16/
(Presentation at UC Berkeley).

The Costs of Remoteness: Evidence from German Division and Reunification
Stephen J. Redding and Daniel M. Sturm
wp:200505: http://ideas.repec.org/p/cep/cepdps/dp0688.html
(Draft at CEPR)

The Response of Household Saving to the Large Shock of German Reunification
Nicola Fuchs-Schundeln
wp: none
The Demand for, and Impact of, Learning HIV Status
Rebecca L. Thornton
wp: 200511:
http://www.soc.upenn.edu/courses/2005/spring/soc796_hpkohler/readings/thor05t.pdf
web: same as above

Does Job Corps Work? Impact Findings from the National Job Corps Study
Peter Z. Schochet, John Burghardt and Sheena McConnell
wp: none
web: 200310 (reports with slightly changed titles: http://www.mathematica-mpr.com/publications/PDFs/jobcorpsadmin.pdf) and also
http://www.voced.edu.au/search/index.php?searchtype=full&query=&docnum=%60TD%2FTNC+76.252%60

Consumption Inequality and Partial Insurance
Richard Blundell, Luigi Pistaferri and Ian Preston
web: 200309:

Liquidity and Insurance for the Unemployed
Robert Shimer and Ivan Werning
web: 200509: http://home.uchicago.edu/~shimer/wp/liquid-insure-screen.pdf (Paper refers to first draft (dated 200308) and to “this” version (dated 200509).

Zombie Lending and Depressed Restructuring in Japan
Ricardo J. Caballero, Takeo Hoshi and Anil K. Kashyap
(From NBER, a preliminary version).

Trading Tasks: A Simple Theory of Offshoring
Gene M. Grossman and Esteban Rossi-Hansberg
web: 200608:

Pricing-to-Market, Trade Costs, and International Relative Prices
Andrew Atkeson and Ariel Burstein
wp: None.
Optimal Tariffs and Market Power: The Evidence
Christian Broda, Nuno Limao and David E. Weinstein
wp: 200603: http://ideas.repec.org/p/cpr/ceprdp/5540.html

Stocks as Lotteries: The Implications of Probability Weighting for Security Prices
Nicholas Barberis and Ming Huang

Trend Inflation, Indexation, and Inflation Persistence in the New Keynesian Phillips Curve
Timothy Cogley and Argia M. Sbordone
web: same as above. (It is likely that an earlier version of this paper (or at least closely related paper, called “companion” paper in the wp mentioned above) was available already in February 2004 under the title “A Search for a Structural Phillips Curve”) see http://www.econ.ucdavis.edu/working_papers/05-10.pdf.

Contextual Inference in Markets: On the Informational Content of Product Lines
Emir Kamenica
wp:none
web: 200506: (References to the paper E. Kamenica 2005, mimeo, by e.g., Fudenberg: http://www.economics.harvard.edu/faculty/fudenberg/files/Advancing_Beyond.pdf. The date is obtained by interpolation.)

Conversations among Competitors
Jeremy C. Stein
web:200606: (References to the paper JC Stein, mimeo, by e.g., (References to the paper Stein 2006, wp at Harvard, by e.g.): http://www.economics.harvard.edu/faculty/fudenberg/files/Advancing_Beyond.pdf. The date is generated by interpolation)

The Effect of Credit Constraints on the College Drop-Out Decision: A Direct Approach Using a New Panel Study
Ralph Stinebrickner and Todd Stinebrickner
web: same as above.

On the Salience of Ethnic Conflict
Joan Esteban and Debraj Ray
wp: None.
How Do Budget Deficits and Economic Growth Affect Reelection Prospects? Evidence from a Large Panel of Countries
Adi Brender and Allan Drazen
wp:200512: http://ideas.repec.org/p/nbr/nberwo/11862.html

Changes in the Consumption, Income, and Well-Being of Single Mother Headed Families
Bruce D. Meyer and James X. Sullivan
wp: 200601: http://ideas.repec.org/p/nbr/nberwo/11976.html
(Somewhat different title but similar content)
web: same as above (First version is 200408 according to: http://www.nd.edu/~jsulliv4/consumptiontrends13.pdf).

The Impact of Nearly Universal Insurance Coverage on Health Care Utilization: Evidence from Medicare
David Card, Carlos Dobkin and Nicole Maestas

Can Hepatitis B Mothers Account for the Number of Missing Women? Evidence from Three Million Newborns in Taiwan
Ming-Jen Lin and Ming-Ching Luoh
wp: None.
web: 200606: (Referred to Lin and Louh, 2006, National Taiwan University, Working Paper, http://home.uchicago.edu/~eoster/HBVfathers.pdf. The date determined by interpolation.)

JEBO JUNE 2008 ISSUE
(All links were visited on September 18, 2008.)

On the stability of Cournot equilibrium when the number of competitors increases
Tönu Puu
wp: none
web: 200507: month of conference, where the paper title is presented: http://www.econ.uniurb.it/bischi/NED05/NED05-Program.html
Minimally acceptable altruism and the ultimatum game
Julio J. Rotemberg
web: 200404: Date on first version at:

Voluntary contributions to reduce expected public losses
Claudia Keser and Claude Montmarquette
web: Same as above.

Information channels in labor markets: On the resilience of referral hiring
Alessandra Casella and Nobuyuki Hanaki
web: Same as above.

Social network structure, segregation, and equality in a labor market with referral hiring
Troy Tassier and Filippo Menczer
web: Same as above.

Identity and racial harassment
Heather Antecol and Deborah A. Cobb-Clark

Money, fame and the allocation of talent: Brain drain and the institution of science
Doh-Shin Jeon and Domenico Menicucci
wp:200502 : http://ideas.repec.org/p/upf/upfgen/805.html
web: same as above.

Individual needs and social pressure: Evidence on the Easterlin hypothesis using repeated cross-section surveys of Canadian households
Françoise Gardes and Philip Merrigan
(paper could not be detected at the wp-series but available as indicated below)
web: 200312 date on paper available at :
http://membres.lycos.fr/fgardes/needs280503.doc.

Pre-commitment and personality: Behavioral explanations in ultimatum games
Pamela Schmitt, Robert Shupp, Kurtis Swope and Justin Mayer
Minimizing selection bias in randomized trials: A Nash equilibrium approach to optimal randomization
William C. Grant and Kevin J. Anstrom
wp: None
web: 200508: Date of presentation of not identical, but similar title at a conference:

The cobweb, borrowing and financial crises
Pasquale Commendatore and Martin Currie
wp: 200501: Date on paper provided by wp-series:
http://www.socialsciences.manchester.ac.uk/disciplines/economics/research/discussionpapers/pdf/Discussion_paper_0503.pdf
web: same as above.

The dynamics of trader motivations in asset bubbles
G. Caginalp and V. Ilieva
web: 200502: Date of first version of paper, mentioned at :
http://www.pitt.edu/~caginalp/Pub96.pdf

Projection bias by investors: A market approach
Doron Kliger and Ori Levy
wp: None.
web: 200208: Date the same abstract was available at eea-esem conference at:

An experimental investigation of Hobbesian jungles
Benjamin Powell and Bart J. Wilson
wp: 200505: date on wp at:
http://www.independent.org/pdf/working_papers/61_hobbes.pdf
web: Same as above.

Land, technical progress and the falling rate of profit
Howard Petith
wp: 200104 : Date on wp (with a somewhat different title, but highly similar abstract content) available at: http://pareto.uab.es/wp/2001/48501.pdf
web: Same as above.

Refinancing and decentralization: Evidence from China
Albert Park and Minggao Shen
web: same as above.
Endogenous entry and self-selection in private value auctions: An experimental study
Thomas R. Palfrey and Svetlana Pevnitskaya
wp:200308: http://ideas.repec.org/p/clt/sswopa/1172.html
web: 200302: Date on paper provided at:
http://www.hss.caltech.edu/SSPapers/wp1172.PDF

Crossholdings, concentration and information in capacity-constrained sealed bid-offer auctions
Augusto Ruperez Micola and Derek W. Bunn
wp: None.
web: 200405: Date on paper (with almost identical title and similar abstract contact) available at:
http://www.london.edu/assets/documents/PDF/2.3.4.12.1_Bunn_and_Ruperez_pdf1.pdf

Work hard, not smart: Stock options in executive compensation
John M. Barron and Glen R. Waddell
web: Same as above.

Transaction costs, industry experience and make-or-buy decisions in the population of early U.S. auto firms
Lyda S. Bigelow and Nicholas Argyres
wp: none
http://www.isnie.org/ISNIE06/Papers06/04.2%20(no%20discussant)/NS_Performance_01_26_05.pdf
The first version of this paper was submitted by the first author (see:
http://www.rotman.utoronto.ca/~baum/v23_materials/Bigelow%20Make-Buy%20Revisited%20v.4.pdf)

Repeated price competition between individuals and between teams
Gary Bornstein, Tamar Kugler, David V. Budescu and Reinhard Selten
web: Same as above.

Does R&D cooperation facilitate price collusion? An experiment
Sigrid Suetens
web: http://arno.uvt.nl/show.cgi?fid=10456
Life satisfaction and economic conditions in East and West Germany pre- and post-unification
Richard A. Easterlin and Anke C. Plagnol
wp: 200612: [http://ideas.repec.org/p/iza/izadps/dp2494.html](http://ideas.repec.org/p/iza/izadps/dp2494.html) (The 2nd author has changed name and the title is marginally changed).
web: Same as above.

The value of dwebng what you like: Evidence from the self-employed in 23 countries
Matthias Benz, Bruno S. Frey
web: Same as above.

Who are the trustworthy, we think?
Olof Johansson-Stenman
web: same as above.

Trust and gender: An examination of behavior and beliefs in the Investment Game
Nancy Buchan, Rachel Croson and Sara Solnick
wp: none
web: 200306: (Meier, 2005: [http://www.hks.harvard.edu/wappp/research/working/Meier_July05.pdf](http://www.hks.harvard.edu/wappp/research/working/Meier_July05.pdf))
cites Buchan, Nancy; Croson, Rachel and Solnick, Sara J. (2003). "Trust and Gender in the Investment Game" The data obtained by interpolation.

To deceive or not to deceive: The effect of deception on behavior in future laboratory experiments
Julian Jamison, Dean Karlan and Laura Schecht
web: Same as above.

Are smarter groups more cooperative? Evidence from prisoner's dilemma experiments, 1959–2003
Garett Jones
wp: none.

Positive- versus zero-sum majoritarian ultimatum games: An experimental study
Li-Chen Hsu, C.C. Yang and Chun-Lei Yang
wp: Link removed.
Racial stereotypes and robbery
Brendan O'Flaherty and Rajiv Sethi
web:Same as above.

On the disequilibrium dynamics of sequential monetary economies
Sander van der Hoog
wp: 200308: Former version of the paper with different title:
http://econpapers.repec.org/paper/scescecf3/188.htm
web: Same as above

Least squares learning and business cycles
Laurent L. Cellarier
wp: none.
web: 200505: Presented at a conference in May 2005:
http://economics.ca/cgi/cps?year=2005&paper=0479&task=abstract
(Full paper also available, dated 2005 March).

Optimal diversity: Increasing returns versus recombinant innovation
Jeroen C.J.M. van den Bergh
wp: none
web: 200704:
http://www.sussex.ac.uk/spru/documents/optimal_diversity_van_den_bergh1.pdf

Transaction costs and informational cascades in financial markets
Marco Cipriani and Antonio Guarino
web:200603: date on paper from :
http://www.worldeconomyandfinance.org/working_papers_publications/working_paper_PDFs/WEF0008.pdf

Entry and market selection of firms: A laboratory study
Jordi Brandts and Ayça Ebru Giritligil
wp:200609: http://ideas.repec.org/p/aub/autbar/690.07.html
web: Same as above.

The effects of intelligence on price discovery and market efficiency
Chia-Hsuan Yeh
wp:200408: (somewhat different title in an earlier version:
http://ideas.repec.org/p/sce/scecf4/106.html)
web: same as above.

The role of private benefits in information acquisition
Kazumi Hori
wp: none
web: 200605: paper with different title but similar content dated 2006 May:
+ Hori cited in

Behavioral economics and climate change policy
John M. Gowdy
wp:200701: http://ideas.repec.org/p/rpi/rpiwpe/0701.html
web: Same as above.

How much time-inconsistency is there and does it matter? Evidence on self-awareness, size, and effects
Wei-Kang Wong
wp: none.

Making sense of the experimental evidence on endogenous timing in duopoly markets
Luis Santos-Pinto
wp: 200602: http://ideas.repec.org/p/pra/mprapa/3142.html
web: same as above

The impact of economics on management
Ofer H. Azar
wp: none
web: none

Teamwork, monitoring and absence
John S. Heywood, Uwe Jirjahn and Xiangdong Wei
(It is the first paper 2006, but not dated --> interpolation 200606)
web: same as above

Mergers in durable goods industries
Amagweba Sagasta and Ana I. Saracho
wp: 200401: http://ideas.repec.org/p/ehu/dfaei/200403.html
web: same as above