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OPEN ACCESS JOURNALS AND ACADEMICS' BEHAVIOR

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The rising star of scholarly publishing is Open Access (OA). Even some traditional journals now offer this option on author payment, and many full freely accessible journals are now available to scholars, providing relief to research institutions increasingly unable to afford the escalating subscription rates of serials. However, proper recognition of full OA journals by the community remains a major obstacle to overcome if they are to become a viable alternative for scholarly communication. Through a survey, this work investigates economics scholars' attitudes to OA, and attempts to outline the state of practices and norms governing individuals' publication choices. (*JEL* L17, L86, O33)

I. INTRODUCTION

Every year, millions of peer-reviewed scientific articles are published around the world. This is just a fraction of all the papers written through which researchers try to promote their ideas.[1] Scholars in all disciplines take part in this activity, which has become central to modern scientific practice.

Yet, in recent decades technological change seems to be challenging the consolidated organization of scholarly communication, through the innovation of Open Access (OA) publishing. The change is not merely a technological substitution, but rather involves the complex economic and social organization that governs the world of scholarly publishing, and especially that of research. Various inertias constrain the behavior of the different stakeholders in research, with important—and also potentially distortive—effects on the adoption of new technology.

Against this backdrop, researchers are an interesting object of study because their multiple roles—as authors, readers, referees, and editors of journals—means that they occupy a central position in the system, significant to understanding its dynamics. In particular, their actual behavior is essential for identifying the incentives that govern academic practice and individual choices. A growing number of contributions and reports have studied the communities of life sciences, physics, chemistry, and other disciplines. However, we still lack a perspective for what concerns economic sciences. This paper seeks to fill this gap, specifically with respect to the perception and use of OA journals that follow the so-called golden road,

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1. The estimated number of papers published in 2006, based on Ulrich's database, is 1,350,000 in approximately 23,750 scholarly journals (Björk, Roos, and Lauri 2009). The average annual growth rate between 1995 and 2007 was +2.5% (http://www.nsf.gov/statistics/seind10/c5/c5h.htm). According to Ulrich's, the number today is more than 2.5 million.

ABBREVIATIONS

BE: Berkeley Electronic
DOAJ: Directory of Open Archive Journals
JCR: Journal Citation Report
OA: Open Access
RA: Restricted Access
TE: *Theoretical Economics*

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meaning that they offer unrestricted digital access to all published papers, selected through a peer-review system in the same manner as traditional journals.

The data, collected from a survey conducted among the international community of academic economists, paint a picture of the current state of the practices and social norms that govern individual choices, and enable us to define the contours of policy actions that could help integrate OA journals into the scholarly publishing system.

The paper is organized as follows: Section II maps out the basic features of scholarly publishing. Section III focuses on the OA revolution, presenting its characteristics and the attitudes of scholars to OA journals observed thus far. Section IV sketches out the current situation of OA publishing in economics to help further identify relevant issues pertaining to the discipline, while Section V describes the survey conducted and the empirical strategy employed, presenting the variables and descriptive statistics for the sample. Section VI sets out and comprehensively discusses the results, while in Section VII we draw the conclusions.

II. SCHOLARLY RESEARCH AND PUBLISHING: MAIN CHARACTERISTICS AND ORGANIZATIONAL STRUCTURE

The principal function of scientific research is to produce and circulate knowledge advances, and the scientific community has spontaneously organized itself—in more or less complex ways—to carry out this task (Stephan 2010). In addition to disseminating scientific advances, scholarly journals have a central role in the selection and validation of results, as well as in producing incentives for researchers (Clemens et al. 1995). Moreover, the peer-review system, citations, and rankings have for some decades formed the framework of research activity and furnished (though subject to much criticism) the benchmark for measuring scholars' productivity and determining their remunerations (Davies 2009; Hamermesh, Johnson, and Weisbrod 1982; Leahey 2007).[2]

On the whole, peer-reviewed journals provide an immediate, even if imperfect, signal that can be converted into reputation, prestige, and the entire attendant benefits for individual researchers. Generally, as far as publication choice is concerned, scholars tend to favor "safe investments"—either by virtue of their history, or because they are regarded as such by the scholar's scientific community (Clemens et al. 1995; Park and Qin 2007). This gives rise to a self-perpetuating rigidity and inertia in the prestige of journals, and so also in researchers' publication choices, which can only be broken by some external intervention, random shock, or purpose-designed policy that has the effect of altering perceptions and hence the decisions of individuals.

More specifically, such an outcome can be achieved in two ways: indirectly, by using a sort of "brand extension" to transfer prestige established elsewhere (e.g., endorsements by scientific societies, links with other journals or prestigious universities)[3] to a new journal; or directly, by altering the existing system of incentives. In the latter case, for example, an institution that funds research could impose ex ante constraints relating to publication choice, or a research department could create a reward system, either direct (a bonus) or indirect (higher consideration of certain publications when evaluating research, moral suasion), that makes it rational to deviate from the previous conformist route of choosing well-established and "safe" journals.[4]

Naturally, to be able to do research and publish, scholars must have access to existing knowledge, i.e., to already-published papers. This poses a problem because, up until very recently, the business model on which journals relied was exclusion of readers through price—known as the *subscriber-pays* model (and hereinafter also denoted as Restricted Access, or RA)—as commonly practiced in markets for a wide array of goods and services.

Various compromises have been arrived at over time to minimize readers' exclusion while

2. One effect is to augment the competitive pressure of academic environments, thereby increasing scientists' productivity but also their bias (Fanelli 2010), and stimulating violations of the ethical norms and procedures of science such as plagiarism, double publishing, data manipulation, and more (Neil 2008; Nosek et al. 2012).

3. For example, in the case of the new AEA journals, it was the association's established reputation which imparted credibility to the new journals, while for the new BE (Berkeley Electronic) press journals it was the prestige of an indirect link with a well-known institution, combined with a high-profile editorial board (cf. also Ellison 2011).

4. An example is provided by the widely discussed National Institutes of Health Public Access Policy, known as the "NIH mandate" (see http://publicaccess.nih.gov/). On moral suasion by a well-known institution see the *Faculty Advisory Council Memorandum on Journal Pricing* of Harvard University (see http://isites.harvard.edu/icb/icb.do?keyword=k77982&tabgroupid=icb.tabgroup143448).

at the same time producing sufficient incentives to publishers. Generally, the approach taken has been to make journals a club good (Cornes and Sandler 1996). For example, scientific associations have often included their own journals in their membership fees, thereby making them accessible to all members. On their part, libraries have likewise played a fundamental part in making journals accessible to users located in the geographical vicinity of the library. This practice in effect solved the financing problem through an unprecedented form of price discrimination, which imposed on the subject best able to bear the financial burdens—i.e., the libraries—the high costs of purchasing journals, while providing access at a much lower price (or sometimes for free) to the individual users of the library (Liebowitz 1986). The system worked so well that, from the point of view of academics, the online accessibility of paid-for journals was often perceived as a form of OA.[5]

However, in recent times the above mechanism started to falter. Commercial publishers, also thanks to a process of concentration, increased their market share. This, combined with an essentially rigid demand, led to steep increases in price, further favored by the bundling practices made possible by selling large catalogs of journals in electronic format, known as the Big Deal (McCabe 2002).[6] Compounding this was an unconnected—but not for this less important—contraction in the budgets of universities, and consequently of libraries, which began to force some dramatic choices, culminating in what is now referred to in the literature as the "serials crisis" (Panitch and Michalak 2005).

These tensions, which made it harder to access journals, prompted a wide-ranging debate on the need to alter the status quo through policies designed to favor a shift toward an open system (Bergstrom 2001), and in some cases prompted more drastic reactions, such as the abandonment of certain journals on the part of editorial boards or scientific societies—as happened, for example, to the *European Economic Review* (Ramello 2010)—or the boycotting of certain publishers by declining the various possible forms of collaboration (*The Economist* 2012).

III. OA PUBLISHING: KEY ISSUES

Against this backdrop, the innovation of free electronic journals emerged in the late 1990s. These journals were widely regarded as the disruptive innovation that could solve the existing problems and return scientific advances to a sphere more compatible with the nature of knowledge as a public good. Many contributions have pointed out the advantages that these new publications offer compared to journals based on the *subscriber-pays* model, and have urged their extensive adoption (Bergstrom 2001; Parks 2002; Willinsky 2006).

Today, even though there are ample signs of an increasing presence of OA journals and papers in the world of research, the market of traditional RA journals continues to flourish (Laakso et al. 2011).

Therefore, despite the OA model's disruptive potential to better disseminate scientific advances and lower production, printing, and distribution costs (Houghton et al. 2009), the scholarly communication system exhibits structural rigidities tied to the existing system of incentives, essentially stemming from social norms and prudential attitudes on the part of researchers (Migheli and Ramello 2013). The puzzle to unravel, therefore, concerns the signals produced by the existing RA system, which are not easily replicated in the OA realm without the help of some exogenous intervention or shock.

An ancillary puzzle concerns the financing of OA journals.[7] A variety of models have been proposed; however, the one most commonly adopted to date has been to transfer the financial burden to the party that most directly and immediately benefits, that is to say, the author. This introduces a novel conception of the market, termed the *author-pays model*, whereby researchers pay for the service of having their results selected and circulated, rather than for accessing the work of others. Such a model has the advantage that, for an equal amount of expenditure, it eliminates the exclusion through price of part of the audience,

5. Interestingly, McCabe (2002, p. 259) observes that "while professors worry about their job security (publish *well*, or perish), others—their librarians—are charged with maintaining 'free' access to all relevant journals."

6. On the welfare implications of the Big Deal, see Armstrong (2010).

7. It is in any case worth noting that the financial problem is principally connected to the costs of setting up and operating the platform, since a considerable share of the other costs, starting from production of the content (the papers), to the review process and much of the editorial work, follows the model extensively practiced in the RA world of "free labor for costly journals" (Bergstrom 2001).

and lets research results remain a public good. It is therefore a cost-effective solution (Bergstrom and Bergstrom 2004; Houghton et al. 2009).

Over the past two decades, there have been a number of studies investigating scholars' attitudes to scientific publications in general, and to free access publications in particular, with a view to understanding the trajectory of scholarly publishing and the likelihood of an OA take over. Such investigations have been conducted at very different times, in a variety of different contexts, and following widely disparate methodologies. However, none of them have specifically studied the uptake of OA among economists. Xia (2010) and Davis and Walters (2011) opportunely systematized a set of empirical studies based on interviews with small samples and on surveys conducted on larger populations. Those surveys and studies were generally focused on Europe, North America, and Australia, and thus provide a Western-oriented perspective. Although the samples investigated are fairly diverse and present structural limitations (opportunely noted by Xia 2010 and Davies and Walters 2011), they still make it possible to detect broad correlations and extract insights for further research. From these works, it emerges that two important factors driving publication choice are the expected number of citations, both individually and for the journal, and the visibility of published papers.[8] Both these metrics ought to be correlated with the number of downloads, which is today the most common method of consuming both OA and RA journals. However, we do not as yet have any clear indication on the effect of downloads on citations and the findings on this question have been sometimes contradictory (Davies and Walters 2011). This suggests the hypothesis that, in the absence of clear indicators, the choice of preferring traditional journals (generally RA) is a behavior aimed at minimizing risk under the currently existing social norms. Such a hypothesis could provide a reasonable explanation for an intriguing ambivalence observed in various studies, which might be termed the "Open Access Paradox": scholars generally express strong support for OA, but do not subsequently transfer this enthusiasm to their publication choices (Hubbard, Hodgson, and Fuchs 2011; Park and Qin 2007).

This pattern of behaviors seems to reveal that many scholars believe the collective interest would be served better if most journals were OA, but that they also currently believe that the quality of OA journals where they are likely to be published is (on average) inferior to that of the RA journals in which they could appear. Thus, any policies or shocks designed to change the status quo must necessarily follow the route of altering those individual incentives. In other words, we can reasonably expect OA journals to gain market share and become substitutes for other titles, provided that a self-enforcing prophecy is triggered which causes an ex-post outcome in the reference scientific community that is compatible with the incentives that existed ex ante.

It is therefore a question of identifying the factors that determine how individual researchers choose and evaluate journals. These include the researcher's gender, position in the academic hierarchy, and work setting (including the geographical location), as well as the expected impact of OA journals in yielding visibility, reputational capital, and so forth.

IV. OA JOURNALS IN ECONOMICS

In order to better understand economists' attitudes toward OA journals, this section provides an overview of the OA titles in economics and their main characteristics, examining how well they conform to the standards generally required for a scientific journal to be regarded as such by the scientific community. To this end, a useful vantage point for observation is the Directory of Open Archive Journals (DOAJ), an ever-expanding list of self-registered OA journals that offer all their content free of charge.[9] The DOAJ lists more than 8000 titles[10] published in 120 different countries, and of these around 15% are published in the United States. If we then consider all Anglo-Saxon[11] countries together, they account for the lion's share, with over 2000 titles. Europe and Latin America also have substantial numbers of OA titles, whereas in the rest of the world distribution is more fragmented.

8. On this topic see the article by McCabe and Snyder in this issue.

9. See http://www.doaj.org/.

10. 8,631 as of February 21, 2013.

11. Note that, in the present discussion, we use the term "Anglo-Saxon" to refer to the dominant culture in the academic community of the country in question, irrespective of the respondent's social or ethnic origins. This category comprises the United States, the United Kingdom, Canada, and Australia. The idea behind this categorization is that the prevailing social norms in the academia of those countries are of an Anglo-Saxon stamp. Scholars who work there implicitly accept these norms, independently of where they (or their parents) were born.

The "economics" category amounts to a relatively small subset of the DOAJ, with a total of 221 journals,[12] published in 55 different countries. The oldest well-known OA journal, *Economics Bulletin*, edited by John Conley, was established in 2000 by the Association for Public Economic Theory (operational from 2001), and is archived by the University of Illinois at Urbana-Champaign, USA (Conley and Wooders 2009).

In Appendix S1 (Supporting Information), we provide a table listing all the OA journals on economics registered in the DOAJ and their main characteristics in terms of country of publication, language, whether they charge a publication fee, and other details.[13] From this table, we can easily see that the disparate characteristics of these journals make it difficult to draw generalizations, except to say that many seem to be unknown newcomers, not as yet very attractive in reputational terms to the bulk of economists. The majority of these journals use English as the sole (58.82%) or possible language (84.16%), which can be taken as a rough measure of a publication's willingness to address the international scholarly community.

Table 1 presents the geographical distribution for the top 20 countries in terms of number of OA journals in the economics category. The picture is difficult to interpret, with a few countries publishing a large number of OA titles, especially considering the ratio of number of journals to economics departments (figures in parentheses). The most noticeable cases are Romania, with 31 journals (0.25), and Croatia 5 (0.31), followed by the Czech Republic 8 (0.19) and Colombia 11 (0.11). The Anglo-Saxon world on the whole publishes the highest number of OA journals (36), although this figure is not that large once it is weighted against the number of departments (0.0083).

All in all, this opaque landscape may easily cause scholars to be puzzled by OA journals, which could in turn account for their general distrust toward the OA category when it comes to publication choice.

To help clarify the picture, we can turn to the metrics provided by traditional journal ranking systems such as the Thomson-Reuters Journal Citation Report (JCR). The JCR assigns journals an "impact factor"—an index reflecting the average number of citations received per article published in the journal during the two (or five) preceding years—which is used as a proxy for the relative importance of the journal within its field. Journals that are not listed by the JCR are either very new or perceived to be very obscure and very little cited. To corroborate this assertion, we used a different ranking system—called Scimago 2012—to calculate and compare the average number of citations per article for journals listed and not listed in JCR 2012.[14] We found 606 economics journals listed in Scimago, for which the overall average number of citations per article was 0.8412. Out of these 606 journals, the 246 journals that were also listed in JCR had an average citation per article of 1.1494, compared to 0.6306 for the 360 journals not listed in JCR. This difference is significant according to the t-test (p value $< .0001$).

Table 2 shows a list of the OA economics journals that also have a JCR impact factor. They include some journals not listed in the DOAJ, but which can still arguably be classed as open access.

Yet even within this JCR group the picture appears somewhat blurred. This small sample again displays broad variance in many parameters, although it also illustrates that

TABLE 1
Top 20 Countries Publishing OA Economics Journals

Country	# Journals	Share (%)	*N* Depts*	# Journals/ Depts
Romania	31	14.03	126	0.246032
Spain	19	8.6	425	0.044706
USA	18	8.14	3,175	0.005669
Brazil	17	7.69	221	0.076923
Colombia	11	4.98	95	0.115789
Mexico	10	4.52	138	0.072464
Germany	9	4.07	674	0.013353
Canada	8	3.62	361	0.022161
Czech Republic	8	3.62	42	0.190476
Italy	7	3.17	410	0.017073
UK	7	3.17	565	0.012389
Pakistan	6	2.71	71	0.084507
Turkey	6	2.71	197	0.030457
Chile	5	2.26	70	0.071429
Croatia	5	2.26	16	0.3125
Australia	3	1.36	229	0.0131
Serbia	3	1.36	25	0.12
Poland	3	1.36	137	0.021898
Egypt	3	1.36	41	0.073171
Russia	3	1.36	321	0.009346
Anglo-Saxon	36	16.29	4,330	0.008314

*Data from RePec at http://ideas.repec.org/
Source: DOAJ.

12. Dataset downloaded from DOAJ on July 16, 2013.
13. As of July 16, 2013.
14. The Scimago Journal Rank provides journals' scientific indicators calculated from the Scopus database (Elsevier). For details see http://www.scimagojr.com/.

TABLE 2
OA Economics Journals Listed in Journal Citation Report

Title	# Articles 5 Years JCR	Cites per Article 5 Years JCR	Language	Publisher	Listed in DOAJ	Country
Amfiteatru Economic	290*	0.541*	English	Self-owned, non-profit	Yes	Romania
Baltic Journal of Economics	39	0.077	English	Stockholm School of Economics in Riga	No	Latvia
Cepal Review	144	0.25	Spanish	Self-owned, non-profit	No	Chile
Econ Journal Watch	74	0.973	English	Self-owned, non-profit	Yes	USA
Economia Chilena	92	0.033	Spanish	Banco Central de Chile	No	Chile
Economia Mexicana	48*	0.0625*	Spanish	Self-owned, non-profit	Yes	Mexico
Economics	146*	0.76*	English	Kiel Institute for the World Economy	Yes	Germany
Ekonomska Istrazivanja—Economic Research	187	0.176	Croatian	Self-owned, non-profit	Yes	Croatia
Estudios de Economia	57	0.158	Spanish	Universidad de Chile Country	Yes	Chile
Hitotsubashi Journal of Economics	60	0.167	English	Hitotsubashi Academy	No	Japan
Iktisat Isletme Ve Finans	328*	0.189*	Turkish	Aelfe	No	Turkey
International Journal of Central Banking	130*	1.046*	English	U.S. Federal Reserve Board	No	USA
Investigacion Economica	107	0.084	Spanish	Universidad Nacional Autónoma de México	Yes	Mexico
Investment Analysts Journal	48	0.313	English	SA ePublications	Yes	South Africa
Inzinerine Ekonomika—Engineering Economics	273	0.828	Lithuanian and English	University published non-profit	Yes	Lithuania
Journal of Economic Perspectives	221	5.864	English	American Economic Association	No	USA
Journal of the Spanish Economic Association—SERIEs	43	0.326	English	Springer	Yes	Spain
Panoeconomicus	144*	0.257*	English	National Library of Serbia	Yes	Serbia
Revista de Economia Aplicada	94	0.170	Spanish	Universidad de Zaragoza	Yes	Spain
Revista de Economia Mundial	152	0.178	Spanish	Universidad de Huelva	Yes	Spain
Romanian Journal of Economic Forecasting	260	0.335	English	Self-owned, non-profit Society	No	Romania
Theoretical Economics	73*	1.548*	English	Wiley Blackwell	Yes	USA
South African Journal of Economic and Management Sciences	171	0.135	English	University published non-profit	Yes	South Africa
Monthly Labor Review	202	0.802	English	U.S. Government Printing Office	Yes	USA
Zbornik Radova Ekonomskog Fakulteta u Rijeci—Proceedings of Rijeka Faculty of Economics	70	0.314	English	Rijeka Faculty of Economics	Yes	Croatia

*Figure calculated including data missing in JCR.
Source: Thomson-Reuters Journal Citation Report Social Sciences Edition 2012, DOAJ 2013 and journal websites.

some OA journals are indeed quite effective in terms of attracting scholars' attention. The JCR 2012 5-year impact factor (average number of citations)—in economics most of the citations that an article gets will happen within such a time span—shows that a subset of OA journals performed well, with some peaks of excellence. The majority of top performers were U.S.-based (*Econ Journal Watch*, *Journal of Economic Perspectives*, *International Journal of Central Banking*, *Theoretical Economics*, *Monthly Labour Review*), and a handful were EU-based (*Amfiteatru Economic*, *Economics*, *Inzinerine Ekonomika*). This demonstrates that there are OA economics journals whose quality, as measured in terms of standard indicators, is comparable to that of RA journals.

Interestingly, the *Journal of Economics Perspectives*, which in the past few years switched from RA to OA, does not appear in the DOAJ

TABLE 3
Comparison OA/RA Journals in Two Selected Groups

Title	Year Founded (Repec)	Cites/Articles (Average 2 Years) (Scimago)	5 Years Impact Factor (JCR)	Simple Impact Factor (Repec)
Economic Theory				
Theoretical Economics[b]	2006	1.52	1.548[a]	4.421
Journal of Economic Theory	1969	3.95	1.522	14.256
International Journal of Economic Theory	2005	0.63	0.412[a]	1.617
The BE Journal of Theoretical Economics	2001	0.85	0.442	2.51
Mathematical Social Sciences	1980	0.59	0.497	2.187
Economic Theory	1985	0.86	1.063	5.637
International Economic Review	1960	1.14	1.922	12.418
Review of Economic Studies	1933	2.99	4.111	30.833
Econometrica	1933	4.09	5.702	48.864
Letters				
Economics Bulletin[b]	2001	0.17		0.609
Economics Letters	1978	0.55	0.682	3.888
Applied Economics Letters	1987	0.35	0.302	1.377

[a]Figure calculated including data missing in JCR.
[b]Open Access Journals.
Source: Thomson-Reuters Journal Citation Report Social Sciences Edition 2012, Scimago 2013, Repec as February 19, 2014, journal websites.

and does not even define itself as OA. Instead, this publication simply asserts that its content is freely supplied: "compliments of the American Economic Association."[15]

To gain an insight into the relationship between OA/RA journals, we can attempt to make a comparison of selected titles within homogenous categories or fields. Table 3 provides two examples, for the field of "economic theory" and for the category "economics letters." While the former is essentially selected in terms of subject matter, the latter groups together journals with the same aim of publishing short papers on economics.

In the "letters" category, despite the OA title (*Economics Bulletin*) being long established (12 years), all the available indicators show that it considerably trails the other two titles. This OA journal has not yet been included in the JCR, and its lag in terms of citations/articles and RePec impact factor remains significant. On the other hand, this is not at all the case for the OA title (*Theoretical Economics, TE*) in the "economic theory" group. This title is in fact listed in JCR, which makes it more "similar" to the other serials. What is more, despite being a relatively new title (6 years, against 43 for the oldest and best-known title), *TE* has caught up impressively for all the metrics. Given the absence of a long reputational track record (only since 2006), it is plausible to assume that, in this case, the effects of "brand extension"—emanating, initially, from the journal's very distinguished executive and editorial boards, and subsequently (since 2010) from its main sponsor, the Econometric Society—indeed proved crucial in attracting the attention of authors and readers.[16] Both these aspects tend to indicate that the *TE* journal is well connected within the U.S. academic community.

It is also worth noting that commercial publishers are now experimenting with a hybrid OA formula in which the author pays a fee to the publisher in exchange for making the paper OA. An example of this, again with reference to the journals listed in Table 3, is the *Journal of Economic Theory*, which offers the OA option in exchange for a lump sum payment of U.S. $1800. To date, only two papers (one in 2013 and another in 2014) have been published according to this option.

The results presented thus far show that the quality of RA and of OA journals, as measured by traditional indicators, does not necessarily differ. Of course, the latter are generally new entrants, and this makes it difficult for them to compete with journals with an already-established reputation. Nonetheless, leapfrogging is sometime possible, as the case of *Theoretical Economics*

15. See http://www.aeaweb.org/jep/.

16. For details on the history of *TE* see http://econtheory.org/history.php.

illustrates. Hence, it seems relevant to understand how economists perceive OA journals and what factors orient their choices as authors, readers, and reviewers. The survey presented in the next section was carried out to provide a deeper insight into the economics scholarly community.

V. THE SURVEY: METHODS

The survey was conducted between April 19 and June 6, 2012 via the internet using the LimeSurvey Open Source software.[17] Potential respondents were sent an e-mail inviting them to complete a questionnaire, which they could access directly by clicking a link. Names were selected through the various national scientific societies and, since the target was economists, by collecting part of the data available on the RePec website, country by country.[18] The outcome of the above operations was a sample of 560 valid responses from some 20 different countries (of which 524 were complete, meaning the person answered the entire questionnaire, and not just some of the questions).

The decision to focus on a single discipline yields a more homogeneous sample, in terms of respondents' characteristics such as education and their scientific and academic practices, thereby allowing us to concentrate on specific factors internal to the community (such as geographical location, gender, position in the academic hierarchy) rather than on other uncontrolled factors. That said, it is reasonable to assume that even within a single discipline field there will be some variability, ascribable to geographical-cultural factors, and which is reflected in publication choice. For this reason, and based on the findings of previous studies (cf. Xia 2010; Davies and Walters 2011), we decided in our analysis to try to capture this variability using four geographical-cultural categories. The first of these, the Anglo-Saxon world, is geographically dispersed across different continents but shows greater cultural (and also academic) uniformity within the discipline, also because as a whole it constitutes the scientific heartland of economics. The other three categories instead correspond to specific geographical regions, and namely Europe, Asia, and Africa.

17. See http://www.limesurvey.org/.

18. RePec is a collaborative project started in 1997 that, among other things, provides a database of economists all over the world.

The questionnaire was divided into three parts. The first collected demographic information about the respondent's age, gender, country of birth and residence, academic position and seniority, and working-context information relating to the importance of publication in the respondent's department. The second part asked about respondents' publication choices, in their capacity as authors. Most of the questions called for a subjective evaluation, and more specifically a comparison between RA and OA journals. Respondents were also asked to state the reasons which determine their publication choices, and to express their individual preferences for RA or OA journals. Finally, the third part asked respondents to answer questions in their capacity as readers and referees. Here, the questionnaire focused on two aspects: the reasons why it is acceptable to pay to access RA journals (individually or through institutional subscriptions) and the possible impact of a journal's RA or OA status on paper review and citation decisions.

The variables considered were essentially of two types: subjective quality evaluations and number of papers published for each type of journal. The subjective quality variables were analyzed by ordered probit, and the numbers of papers by negative binomial regression. As control variables we used the respondents' demographic information, their personal views concerning the importance of research, their subjective evaluations of the quality of OA and RA journals, and finally the importance of the number of publications for academic career advancement. The inclusion of these variables allowed us to conduct an analysis based on individuals' preferences and evaluations of the OA phenomenon and its importance for both scientific dissemination and academic careers.

In particular, the following four aspects connected with OA publications were examined:

- The total number of papers respondents had published in OA journals.
- Whether respondents had published at least one paper in an OA journal during the course of their careers (dummy given the value 1 if they had, 0 otherwise).
- The respondents' subjective opinion about how the quality of OA journals compares with that of RA journals.
- The average quality (subjectively self-assessed on a scale from 1 to 10) of the papers which respondents had submitted to OA journals.

TABLE 4
Descriptive Statistics

	Post-docs (15.10%)	Assist. Prof. (26.96%)	Associate Prof. (21.99%)	Full Prof. (35.94%)
Seniority (years)	3.20	5.99	12.11	24.42
Publishing is important (mean)[a]	7.81	8.29	8.63	8.51
RA is better than OA (mean)[a]	5.62	6.28	6.06	6.37
Anglo-Saxon	5.80%	22.46%	25.36%	46.38%
Continental Europe	20.50%	27.70%	17.63%	34.17%
Referees are stricter for RA	41.18%	47.54%	42.00%	48.41%
Referees are stricter for OA	4.41%	1.64%	1.00%	2.55%
Ever published in an OA journal	44.12%	40.98%	52.53%	45.57%
Number of paper published in OA	2.13	3.14	3.85	4.35
OA better than RA for career	32.35%	38.84%	47.00%	48.70%
OA wider audience than RA	77.94%	77.69%	74.00%	73.86%
OA provides more citations than RA	50.00%	56.20%	57.00%	45.45%
First choice OA	29.41%	37.10%	39.60%	39.24%
Quality submitted to OA (mean)[a]	5.53	6.28	6.62	6.06
Same quality of journal prefer RA[a]	3.81	3.60	3.48	3.84

[a] 1–10 scale.

Some of these variables and those used as regressors are dichotomous, others are infinite discrete variables (e.g., the number of papers published in OA journals), and others still are ordinal evaluations on a 10-point Likert scale. Although this type of scale may suggest focal points to respondents, it is a standard psychometric tool used in this type of investigation whose attendant risks are well known and easy to identify/isolate during data analysis. Moreover, even the presence of focal effects should not compromise the quality of the results: if anything, one could argue that the presence of focal points could entail a standardization of variables (see for example, Green et al. 1998).

Table 4 presents the descriptive statistics.[19] In particular, we can already see that associate professors' average academic seniority of a dozen years broadly coincides with the age of the OA era in economics, officially ushered in by *Economics Bulletin* in 2001. The importance of publishing is recognized at every level of the academic hierarchy (average values of approximately 8 or more on the 10) as is also, though to a lesser extent, the superior quality of RA journals compared to OA journals. Over 40% of respondents across the academic hierarchy had already published in OA journals, while a proportion that varies with seniority from one-third to around half considers publishing in OA journals to be better for career advancement. A similar pattern of values emerges for the question about whether OA is the respondent's first choice for submitting papers.

The OA paradox is already apparent in this sample, since the data reveal that respondents actually publish few papers in OA journals, despite the fact that 70% of them say they believe OA reaches a wider audience, and that between 45.45% and 57% of respondents, depending on their position in the academic hierarchy, believe that OA has a positive effect on citations. Thus, individuals' publication choices do not seem to be swayed by the perceived opportunities OA offers for more widely disseminating their scientific work and garnering more citations.

VI. THE SURVEY: RESULTS AND DISCUSSION

The tables below report the most significant results of our analysis. From the point of view of geographical-cultural groupings, the choices and preferences of academics in Anglo-Saxon countries are generally different from those of academics located in other parts of the world. Because the latter group have behaviors and preferences that are statistically indistinguishable, to improve legibility of the tables we decided to enter only the dummy variable "Anglo-Saxon" and, where appropriate and relevant, that for residents of continental Europe.

Table 5 shows the results for the first analyzed variable: the number of papers published in OA journals. The estimates were computed by a Poisson regression, for which the odds ratios are shown; a value greater than (less than) 1

19. Further details on the distribution of responses can be found in Appendix.

indicates that, on average, the category represented by the control variable has published in OA journals a number of papers that is greater than (less than) the average for the sample. What we first notice from this is a strong geographical effect: academics residing in Anglo-Saxon countries on average publish less in OA journals than do their colleagues elsewhere in the world. This is true despite the fact, as pointed out above, that Anglo-Saxon countries have many and sometimes well-known OA journals. Even controlling for academic seniority (which obviously has a positive effect on publications), associate and full professors tend to have published, on average, more OA papers than researchers and post-docs. One possible explanation for this—also in light of the results that will be reported below, and consistently with what was presented in Section IV—could relate to the fact that OA journals are on average considered inferior to and less useful for career advancement than RA journals (see Table 4). As a result, academics who have already secured senior posts (associate or full professors) can "afford to" also publish their work in journals with a lesser impact on career advancement.[20] Conversely, academics at the start of their professional careers prefer instead to publish on RA journals. This corroborates the hypothesis that the choice of journal to which to submit a paper depends crucially on the workings of the academic job market (Clemens et al. 1995).

Another result worth noting in Table 5 is the reasons given by academics for choosing an OA journal rather than a RA journal. First of all, the number of papers published in OA journals decreases with the worsening perceived quality of OA journals compared to that of RA journals (the relative odds ratio is approximately 0.9), and this is consistent with the findings reported in the literature (e.g., Hubbard, Hodgson, and Fuchs 2011; Park and Qin 2007). Still, there are two other elements which are positively and significantly correlated with the number of OA publications: the first is the perception that OA journals provide access to a wider audience and a greater number of citations[21]; the second factor is the degree of popularity of OA journals within the researcher's department. What emerges here is a novel feature neglected by most previous studies, which explicitly points to the social context as a factor determining individual choices. This finding suggests a generally proactive role of the peer community in determining publication choices.[22]

In line with a large body of literature (e.g., Leahey 2007 and the contributions cited therein), our results reveal that, also in the OA realm, there is a gender gap in scientific productivity: males tend to publish in OA journals much more than their female colleagues. This is true even for the subset of academics who have already published in OA journals (second column, Table 2). We can feasibly account for this observed divergence in terms of differential impact on career prospects: given the general gender productivity gap, the result here seems to suggest that women

TABLE 5
Number of OA Articles (Incidence Ratios after Poisson Estimation—SE in Parentheses)

	Whole Sample	Have Published in OA
Male	2.660	1.755
	(0.503)***	(0.266)***
Anglo-Saxon	0.506	0.669
	(0.098)***	(0.109)***
Seniority	0.979	0.986
	(0.011)**	(0.011)
Assistant professor	1.478	1.498
	(0.408)	(0.291)**
Associate professor	2.409	1.816
	(0.714)***	(0.427)***
Full professor	3.097	2.431
	(1.143)***	(0.711)***
RA journals are better than OA	0.900	0.928
	(0.034)***	(0.028)***
OA provides a wider audience	1.608	1.222
	(0.375)**	(0.190)
OA provides more citations than RA	1.499	1.361
	(0.285)**	(0.226)**
OA is popular in the department	1.262	1.115
	(0.058)***	(0.046)***
Referees are stricter on OA than on RA	0.750	0.649
	(0.122)*	(0.092)***
Obs.	438	200

Significance levels ***99%; **95%; *90%.

20. This matches the results of other studies which have found that highly regarded authors and full professors can make different choices, such as not publishing in journals at all and instead leaving their writings in working paper versions (Ellison 2011), or more freely opting for OA journals (Migheli and Ramello 2013). Such authors in fact simply receive a lesser marginal benefit from their publication choice.

21. The data do not allow us to determine whether there is any causal relation between the two variables (which are, moreover, the opinions expressed by the persons interviewed rather than objective data). Nevertheless, it is likely that a greater number of readers will also correspond to a greater number of citations.

22. This is consistent with the evidence of TE, where the main driver for determining the success of the new OA journal was plausibly the quality signals perceived by the departments.

make the more prudent publication-choice investment. This result thus confirms the asymmetry that exists between the perceived average quality of RA and OA journals within the community of economists.

Finally, it is important to note that Table 5 presents the same estimates for two different samples: the left column relates to the entire sample (which also includes individuals who have never published papers in OA journals), while the right column relates to the sub-sample containing only those who have published at least one OA paper. This second estimate is necessary because the results of the first group might be distorted by some form of self-selection among those who decided to respond to the questionnaire, which could skew the results when comparing those who have published in OA journals with those who have never done so. The fact that some of the odds ratios decrease or become nonsignificant when moving from the left to the right column is an indicator of partial self-selection. However, since the overall result still stands in qualitative terms (and often also quantitatively), the values of the left column appear to be generally applicable and very little skewed by self-selection effects.

Table 6 explores the above question and reports the results of a probit, whose dependent variable is the answer to the following question: "Have you ever published any article in an OA journal?" Consistently with the results presented in Table 5, academics who live in Anglo-Saxon countries prefer to submit their works to RA rather than to OA journals. In light of the previous discussion and the data at our disposal, this preference seems to reflect a perceived quality differential in favor of RA journals, which is especially marked in Anglo-Saxon countries compared to the rest of the world.

Furthermore, associate professors are more likely than other categories to submit their papers to OA journals. This does not contradict the results of the preceding table where, as we saw, the dependent variable was the number of papers published in OA journals as of the date of completing the questionnaire. Although associate professors are indeed more likely to have published in OA journals, full professors will anyhow tend to have published more papers overall—including OA ones—due to their greater academic seniority (in Table 4, the academic seniority of full professors is twice that of associate professors).

TABLE 6
Publishing in OA Journals (Probit—SE in Parentheses)

	Coefficients	Marginal Effects
Male	0.507	0.155
	(0.167)***	(0.052)***
Anglo-Saxon	−0.353	−0.114
	(0.161)**	(0.049)**
Assistant professor	0.154	0.057
	(0.214)	(0.078)
Associate professor	0.616	0.239
	(0.245)**	(0.091)**
Full professor	0.374	0.143
	(0.282)	(0.107)
Seniority	−0.010	−0.003
	(0.009)	(0.003)
RA journals are better than OA	0.062	0.022
	(0.031)**	(0.011)**
OA journals provide wider audience than RA	0.469	0.146
	(0.173)***	(0.052)***
OA publishing popular in my department	0.127	0.046
	(0.040)***	(0.014)***
Reading OA articles	0.532	0.206
	(0.164)***	(0.063)***
Citing OA articles	0.154	0.055
	(0.034)***	(0.014)***
Constant	−2.866	
	(0.430)***	
Obs.	424	
R^2	.223	

Significance levels: ***99%; **95%; *90%.

At this point we need to interpret the preceding finding. Here again, what seems to matter is the context. Observations of a "sociological" stamp show that today's associate professors and OA economics journals are siblings: the advent of the latter, as previously discussed, coincides with the entry of the former into the academic world. They may accordingly regard OA with less remoteness—and perhaps less diffidence—than those who have built their careers on the RA system. Still, these results also show that the "appeal of" and familiarity with OA has not spread equally to the younger generations, who may be more rigidly constrained by the internal social norms of the community concerning career evaluation and hence publication choice.

The dichotomous choice of whether to publish/not publish OA is likewise affected by the breadth of the audience that can be reached and by the popularity of OA within the respondent's department. Here, we also find another correlation: those who read or cite papers published in OA journals are more likely to have themselves published at least one paper in an OA journal. This fact can be accounted for in two ways. One

TABLE 7
RA Journals Are Better than OA Journals

		Selected Marginal Effects	
	Coefficients	$Y = 4$	$Y = 8$
Publishing is important	0.080	−0.003	0.008
	(0.026)***	(0.001)**	(0.003)***
Seniority	−0.013	5×10^{-4}	−0.001
	(0.006)***	(3×10^{-4})*	(6×10^{-4})**
OA journals provide wider audience than RA	−0.336	0.015	−0.033
	(0.114)**	(0.008)**	(0.013)**
OA journals provide more citations than RA	−0.384	0.017	−0.038
	(0.120)***	(0.007)**	(0.013)***
RA more important than OA for career	0.423	−0.019	0.041
	(0.122)***	(0.007)***	(0.013)***
Referees are stricter in RA	0.552	−0.025	0.052
	(0.124)***	(0.008)***	(0.013)***
Pay accession fees to RA because publishers are profit-oriented	−0.494	0.013	−0.047
	(0.163)***	(0.007)*	(0.016)***
Quad fees are an incentive to improve quality	−0.243	0.008	−0.024
	(0.146)*	(0.006)	(0.015)*
$\Pr(Y = n)$		0.066	0.100
Obs.	440		
R^2	.087		

Other controls: male, Anglo-Saxon, academic rank, popularity of OA in the responder's department, other reasons why to pay accession fees to RA.

possible explanation is that OA journals are more numerous in certain sectors of the discipline, so that scholars writing on those topics will tend to read/cite more papers from OA journals, or be more likely to publish in OA journals.

Another explanation is that scholars who choose to read/cite OA papers will also have a higher quality perception of OA than their colleagues who instead do not read/cite OA publications, and so will also be more likely to choose to submit their work to such journals (with the further consequence of ending up publishing at least one OA paper). At the same time, it is worth noting that the effect of reading OA journals is greater than that of citing from them. Although familiarity with OA through citations does increase the probability of publishing OA, citation is still a more sporadic and less engaging event, whereas reading is more effective in converting OA journals into potential publishing outlets.

The perception of a quality differential between RA and OA journals is the dependent variable of the regression (ordered probit) reported in Table 7.[23] A first point which clearly emerges here is the positive and highly significant relationship between the perceived severity of referees and the perceived quality of the journal: respondents who consider RA journal referees to be more rigorous than their OA counterparts also consider RA publications to be of higher quality than OA ones. This indicates that, for academic economists, on average, the quality of a journal is implicitly determined also by how severely referees judge the submitted works, which can reasonably be taken as a proxy for the selectivity of its content.[24] Although respondents' views on referee severity are likely drawn from personal experience, it is also reasonable to assume a certain endogeneity: if referees themselves perceive an OA journal to be of lower quality than an RA journal, they might tend to less severely judge a paper submitted to an OA journal than one submitted to an RA journal.

Another important consideration affecting perceived relative quality is the breadth of audience and number of potential citations. The negative coefficients of these two control variables confirm, in line with the literature, that

23. Note that, in addition to the control variables presented in the table, others whose contribution was not statistically significant are listed at the bottom of the table.

24. There is a widespread perception that a low acceptance rate on the part of a journal and, indirectly, a high severity of reviewers, corresponds to a high quality of the journal. Heansly, Hodges, and Davenport (2009) in effect observe that in economics, accounting, and finance a low acceptance rate corresponds to more citations and a higher position in survey-based rankings.

TABLE 8
Quality Submitted to OA Journals

		Selected Marginal Effects	
	Coefficients	$Y = 4$	$Y = 8$
Male	0.045	−0.005	0.007
	(0.233)	(0.025)	(0.035)
Seniority	0.018	−0.002	0.003
	(0.011)*	(0.001)	(0.002)
Assistant professor	0.332	−0.033	0.047
	(0.258)	(0.027)	(0.037)
Associate professor	0.575	−0.054	0.073
	(0.265)**	(0.028)**	(0.036)**
Full professor	0.064	−0.007	0.010
	(0.302)	(0.032)	(0.045)
Anglo-Saxon	−0.944	0.078	−0.120
	(0.246)***	(0.027)***	(0.033)***
Continental Europe	−0.554	0.052	−0.071
	(0.212)***	(0.021)***	(0.026)***
OA journals provide more citations than RA	0.307	−0.033	0.047
	(0.176)*	(0.019)*	(0.027)*
OA journals provide wider audience than RA	−0.354	0.035	−0.050
	(0.222)	(0.021)*	(0.028)*
Importance of the editorial board for choosing	−0.090	0.010	−0.014
	(0.041)**	(0.005)**	(0.007)**
Referees of OA journals stricter than RA journals	1.138	−0.083	0.085
	(0.428)***	(0.028)***	(0.051)*
OA is popular in the department	0.064	−0.007	0.010
	(0.038)*	(0.004)*	(0.006)
RA is better than OA for career	−0.664	0.064	−0.092
	(0.169)***	(0.021)***	(0.028)***
$\Pr(Y = n)$		0.098	0.165
Obs.	200		
R^2	.071		

Significance levels: ***99%; **95%; *90%.

readership and citations are two fundamental aspects that determine the perceived quality of a journal (e.g., Clemens et al. 1995; Xia 2009). Yet the rigidity of publication choice evinced in the preceding tables shows that these benefits are not sufficient to reorient authors' choices, so that some trigger is needed that can convert this potential into a self-enforcing prophecy. The above is also consistent with the OA paradox.

The table also shows a strict positive correlation between perceived quality and the opinion that RA journals are on average better than OA journals for career advancement. It is likely that the link between these two variables works both ways: scholars might expect more career benefits from journals perceived as being of higher quality; conversely, academics who have built their careers chiefly through RA publications might tend to consider them superior to OA. The available data do not enable us to test which of these two effects prevails, but we can still extract some further information from the regression reported in the following table.

Finally, Table 8 shows the results of an ordered probit, in which the dependent variable is the quality (subjectively self-evaluated on a 10-point scale) of papers the respondents had submitted to OA journals. Within the academic hierarchy, associate professors are the group that on average sends OA journals the papers of highest quality, supporting our hypothesis of their "special" relationship with this publishing model. Academics in Anglo-Saxon countries and continental Europe on average send OA journals papers which they consider to be of lesser quality, compared to their colleagues elsewhere in the world. The sign and significance of the coefficient imply that, even though continental Europeans disdain OA journals less than their Anglo-Saxon colleagues, they nevertheless equally prefer to reserve their best work for RA journals. We can reasonably assume that what underpins this result is a quality judgment so that, though with looser constraints, there is once again a quality differential in favor of RA journals.

The effect of perceptions of referee severity is the natural consequence of what we have seen in the preceding table: if authors expect RA journal referees to be more severe than those of OA journals, and severity is an indicator of quality, they will prefer to submit their best work to RA journals. As we assessed, the data do not allow us to verify whether the opinion concerning referee severity is correct (though a correlation between high rejection rate and quality of a journal seems to exist; Heansly, Hodges, and Davenport 2009). Still, in light of the opinions reported by our survey, a self-selection problem seems to emerge. Authors' expectations may contribute to keeping the quality of OA journals on average lower than that of RA journals because, following their preconceptions about referee severity, authors will preselect the quality of the papers they submit in a manner detrimental to OA. The result is that OA journals are left to choose the best papers out of the worst ones that have been written, thereby relegating them to second-rate status.

Table 8 provides some further insights into the effective strategies for increasing the quality of papers submitted to OA journals. First of all, in line with the results of Tables 5 and 6, the popularity of OA journals within the respondent's department has positive effects. In other words, the working-context environment is confirmed to be an effective driver of attention and quality toward OA journals. This result is quite important from a policymaking perspective because it implies that a switch toward OA can be effected by amending the existing system of incentives. If the local scientific policy (within the department, in the scientific community) causes certain journals to become well regarded, as occurred in the case of *Theoretical Economics*, the sign of the self-enforcing mechanism could be reversed.

The second consideration relates to career and the number of citations. The quality of papers submitted to OA journals effectively increases with the perception that such journals are more effective than RA in producing citations, and this is in line with what has generally been observed in publication choice. Finally, there is the natural preoccupation with career, which is manifested as the obvious relation between the quality of papers sent to OA journals and the opinion about which type of journal is better for career. Those who consider RA publications more beneficial for career in fact submit their better quality works to those types of journals, with the obvious intent of maximizing the number of papers accepted by RA journals. This result therefore confirms the functional link between the academic job market and publication choice. Attempts to encourage a switchover from RA to OA journals therefore cannot neglect this dimensions, and OA journals will not become established unless some exogenous event—whether random or a specific policy—has the effect of altering researchers' expectations and hence reorienting their choices.

VII. CONCLUSIONS

This study surveyed the current framework of OA publishing in economics and examined the behavior and perceptions of a sample of economics scholars with respect to RA and OA scientific journals. The homogeneity of the economics field allowed us to eliminate uncontrolled factors tied to specific practices that characterize different disciplines, and to focus instead on specific aspects such as geographical-cultural location, gender, and role in the academic hierarchy.

Our findings show that, for economists, quality assessments of scholarly journals and publication choices are driven by a number of factors, some of which are strictly linked to the social norms of the context in which they work. The results are especially clear for the contraposition between RA and OA. More specifically, they show that the paradox whereby academics emotionally prefer OA journals but still choose to publish in RA journals depends on a complex trade-off between the expected rewards of a wider audience and more citations (potentially afforded by OA journals), and the perceived prestige of the journal.

In the absence of specific signals provided by the community, economists tend to believe that the average RA journal is more prestigious than the average OA journal. Because of the currently blurred framework of OA publishing, the safest choice, i.e., RA, is thus preferred by those with a weaker standing in the community—e.g., women, or researchers at the start of their careers—and by those who experience more competitive pressure from the academic system. This is the case in the Anglo-Saxon world, which publishes many OA journals but has the worst opinion of them (with a few exceptions), and also to a lesser extent in Europe.

These results suggest that a paradigm shift toward OA in the immediate future is fairly unlikely. Still, there are certain factors which

might alter (and even invert) this trend. First of all, scientific communities and departments could trigger self-enforcing prophecies and enact policies designed to enhance the perception of OA journals. Second, the fact that universities increasingly struggle to pay for costly journal subscriptions could become a rallying point for redirecting academics' choices, both as authors and as readers, toward the new OA publications. Our empirical findings show that familiarity with OA journals in effect increases the probability of submitting papers to them. In this respect, we note the interesting case of associate professors who, as siblings of OA journals, are more likely to submit their work to them. An important help in catalyzing change might come from emerging countries, where OA journals are more favorably perceived. As such nations come to play a larger role in the academic community, they could become the main supporters of OA.

APPENDIX

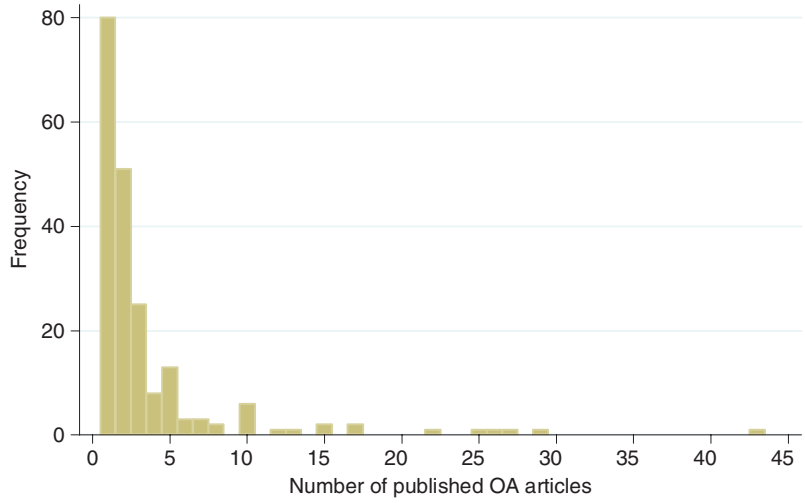
The following figures report the distributions (frequencies) of answers to the questions used as dependent variables in Tables 5, 7, and 8. We can see that the number of published articles in OA journals is mostly less than 10, with few—although notable—exceptions. The vast majority of respondents who report having published at least one paper in an OA journal have published a total of five or less (Figure A1).

Figure A2 shows that, although a large share of the sample considers OA journals to be on average as good as RA journals, the distribution is skewed toward large values. This suggests that most of the respondents consider RA outlets to be of better quality than OA ones.

Figure A3 presents the subjective quality (measured on a 10-point scale) of papers submitted to OA journals. Although the answers are clustered around the median values, the distribution is slightly skewed toward larger values. Some respondents even claim to have submitted their best articles to OA journals. While this might seem odd, it also suggests that scholars do not always match the (subjectively evaluated) quality of their submissions to what they perceive to be the quality of the outlet. In other words, it seems that OA journals are also able to attract good-quality papers. At the very least, this result indicates that the quality of papers submitted to OA journals is better than one would expect on the basis of the perceived quality of OA vs. RA.

FIGURE A1

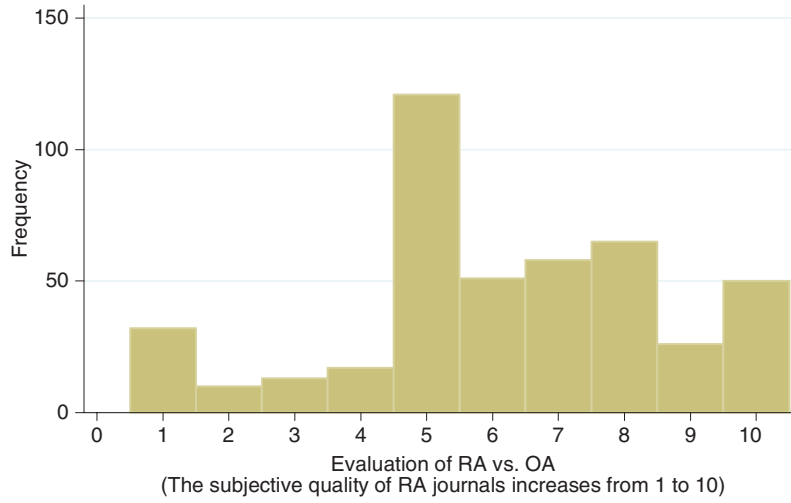
Number of OA Published Articles



Note: Respondents with at least one OA published article.

FIGURE A2

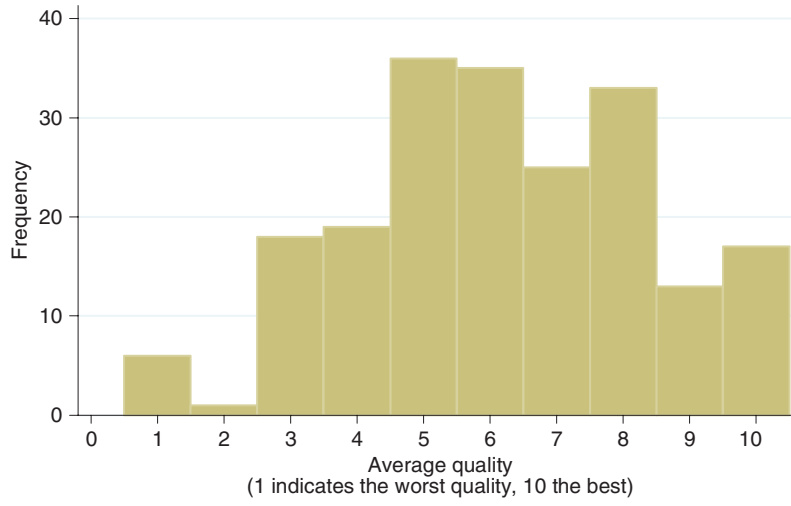
Respondents' Perceived Quality of RA vs. OA



Note: Discrete evaluation over a 10-point scale.

FIGURE A3

Quality of the Articles Submitted to OA Journals



Note: Discrete evaluation over a 10-point scale.

REFERENCES

Armstrong, M. "Collection Sales: Good or Bad for Journals?" *Economic Inquiry*, 48, 2010, 168–78.

Bergstrom, T. C. "Free Labor for Costly Journals?" *Journal of Economic Perspectives*, 15, 2001, 183–98.

Bergstrom, T. C., and C. T. Bergstrom. "Can 'Author Pays' Journals Compete with 'Reader Pays'?" *Nature Web Focus*, May 20, 2004. Accessed April 12, 2014. http://www.nature.com/nature/focus/accessdebate/22.html

Björk, B. C., A. Roos, and M. Lauri. "Scientific Journal Publishing: Yearly Volume and Open Access Availability." *Information Research*, 14, 2009. Accessed on March 4, 2012. http://informationr.net/ir/14-1/paper391.html

Clemens, E. S., W. W. Powell, K. Mcllwaine, and D. Okamoto. "Career in Print: Books, Journals, and Scholarly Reputations." *American Journal of Sociology*, 101, 1995, 433–94.

Conley, J. P., and M. Wooders. "But What Have You Done for Me Lately? Commercial Publishing, Scholarly Communication, and Open-Access." *Economic Analysis & Policy*, 39, 2009, 71–87.

Cornes, R., and T. Sandler. *The Theory of Externalities, Public Goods, and Club Goods*. New York: Cambridge University Press, 1996.

Davis, P. M., and W. H. Walters. "The Impact of Free Access to the Scientific Literature: A Review of Recent Research." *Journal of the Medical Library Association*, 99, 2011, 208–17.

Ellison, G. "Is Peer Review in Decline?" *Economic Inquiry*, 49, 2011, 635–57.

Fanelli, D. "Do Pressures to Publish Increase Scientists' Bias? An Empirical Support from US States Data." *PLoS ONE*, 5(4), 2010, e10271.

Green, D., K. E. Jakowitz, D. Kahneman, and D. McFadden. "Referendum Contingent Valuation, Anchoring, and Willingness to Pay for Public Goods." *Resource and Energy Economics*, 20(2), 1998, 85–116.

Hamermesh, D., G. Johnson, and B. Weisbrod. "Scholarship, Citations and Salaries: Economic Rewards in Economics." *Southern Economic Journal*, 49, 1982, 472–81.

Heansly, P. J., P. H. Hodges, and S. A. Davenport. "Acceptance Rates and Journal Quality: An Analysis of Journals in Economics and Finance." *Journal of Business & Finance Librarianship*, 14, 2009, 2–31.

Houghton, J., B. Rasmussen, P. Sheehan, C. Oppenheim, A. Morris, C. Creaser, H. Greenwood, M. Summers, and A. Gourlay. *Economic Implications of Alternative Scholarly Publishing Models: Exploring the Costs and Benefits*. Loughborough, UK: Loughborough University, 2009.

Hubbard, B., A. Hodgson, and W. Fuchs. "Current Issues in Research Communications: Open Access—the View from the Academy." Centre for Research Communications, University of Nottingham, 2011. Accessed March 4, 2012. http://eprints.nottingham.ac.uk/1480/1/RCS_March_2011.pdf

Laakso, M., P. Welling, H. Bukvova, L. Nyman, B.-C. Björk, and T. Hedlund. "The Development of Open Access Journal Publishing from 1993 to 2009." *PLoS ONE*, 6(6), 2011, e20961.

Leahey, E. "Not by Productivity Alone: How Visibility and Specialization Contribute to Academic Earnings." *American Sociological Review*, 72, 2007, 533–61.

Liebowitz, S. J. "Copyright Law, Photocopying, and Price Discrimination." *Research in Law and Economics*, 8, 1986, 181–200.

McCabe, M. J. "Journal Pricing and Mergers: A Portfolio Approach." *American Economic Review*, 92, 2002, 259–69.

Migheli, M., and G. B. Ramello. "Open Access, Social Norms & Publication Choice." *European Journal of Law and Economics*, 35, 2013, 149–67.

Neil, U. S. "Publish or Perish, but at What Cost?" *Journal of Clinical Investigation*, 118, 2008, 2368.

Nosek, B. A., J. R. Spies, and M. Motyl. "Scientific Utopia. II, Restructuring Incentives and Practices to Promote Truth Over Publishability." *Perspectives on Psychological Science*, 7, 2012, 615–31.

Panitch, J. M., and S. Michalak. "The Serials Crisis." UNC-Chapel Hill Scholarly Communications Convocation, January, 2005. Accessed March 4, 2012. http://www.unc.edu/scholcomdig/whitepapers/panitch-michalak.html

Park, J. H., and J. Qin. "Exploring the Willingness of Scholars to Accept Open Access: A Grounded Theory Approach." *Journal of Scholarly Publishing*, 38, 2007, 55–84.

Parks, R. P. "The Faustian Grip of Academic Publishing." *Journal of Economics Methodology*, 9, 2002, 317–35.

Ramello, G. B. "Copyright and Endogenous Market Structure: A Glimpse from the Journal Publishing Market." *Review of Economic Research on Copyright Issues*, 7, 2010, 7–29.

Stephan, P. "The Economics of Science, " in *Handbook of the Economics of Innovation*, edited by B. H. Hall and N. Rosenberg. Amsterdam: North Holland, 2010.

The Economist. "Scientific Publishing: The Price of Information." February 4, 2012. Accessed February 20, 2012. http://www.economist.com/node/21545974

Willinsky, J. *The Access Principle: The Case for Open Access to Research and Scholarship*. Cambridge, MA: MIT Press, 2006.

Xia, J. "A Longitudinal Study of Scholars' Attitudes and Behaviors toward Open-Access Journal Publishing." *Journal of the American Society for Information Science and Technology*, 6, 2010, 615–24.

SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Appendix S1. List of OA economics journals.