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E D I S O N

Law + Technology

The Open Access Advantage for
American Law ReviewsJames M. Donovan¹

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Abstract

Open access legal scholarship generates a prolific discussion, but few empirical details have been available to describe the scholarly impact of providing unrestricted access to law review articles. The present project fills this gap with specific findings on what authors and law reviews can expect.

Articles available in open access formats enjoy an advantage in citation by subsequent law review works of 53%. For every two citations an article would otherwise receive, it can expect a third when made freely available on the Internet. This benefit is not uniformly spread through the law school tiers. Higher tier journals experience a lower OA advantage (11.4%) due to the attention such prestigious works routinely receive regardless of the format. When focusing on the availability of new scholarship, as compared to creating retrospective collections, the aggregated advantage rises to 60.2%. While the first tier advantage rises to 16.8%, the mid-tiers skyrocket to 89.7%. The fourth tier OA advantage comes in at 81.2%.

Citations of legal articles by courts is similarly impacted by OA availability. While the 15-year aggregate advantage is a mere 9.5%, new scholarship is 41.4% more likely to be cited by a court decision if it is available in open access format.

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Introduction

Law reviews serve as the primary vehicle for dissemination of legal scholarship. The customary process of distribution included not only the routing of subscription copies to members of an institution, but also the gifting of offprints provided to each author to anyone thought to be interested in its subject. Researchers would also rely upon a number of indexing services such the *Index to Legal Periodicals* and *Current Law Index* to direct them toward relevant publications. This network of information sharing served well for many years when the legal community was relatively small and number of publication outlets even smaller.

Since those quaint times, the number of journals has grown dramatically, from sixty titles indexed in 1960, to over 616 general and specialty periodicals by 2010.¹ The plethora of venues inevitably results in fiercer competition for readers of any given article. Mere publication is no longer sufficient to attract an

audience; something more is required to draw attention to an author's work. Among the possible strategies – including use of social media and promotion in blogs – perhaps the single most effective action is to make the item available in open access format. This article examines the success of law reviews in their principle undertaking to promote the thoughtful analyses required to support a fair and reasoned rule of law. To what extent should authors and journals look to open access initiatives to augment the promotion of scholarship traditionally distributed in print?

“Open access” [OA] refers to the ready availability of content on the internet unfettered by payment, licensing restrictions, or the need to subscribe to a service.² Like all conceptual game changers, the rise of open access calls upon members of the academy to reevaluate comfortable patterns. For faculty, librarians, and publishers, a major debate concerns whether OA should replace or supplement traditional print texts and journals.³ A related conundrum for authors centers on the relative prestige of a digital-only ver-

¹ Alena L. Wolotira, *From a Trickle to a Flood: A Case Study of the Current Index to Legal Periodicals to Examine the Swell of American Law Journals Published in the Last Fifty Years* 9 (2011), <http://ssrn.com/abstract=1869328>.

² Scholarly Publishing and Academic Resources Coalition [SPARC], *Why Open Access*, <http://www.arl.org/sparc/open-access/why-oa.shtml>:

By Open Access, we mean the free, immediate, availability on the public Internet of those works which scholars give to the world without expectation of payment – permitting any user to read, download, copy, distribute, print, search or link to the full text of these articles, crawl them for indexing, pass them as data to software or use them for any other lawful purpose.

³ On the one hand, the 2009 *Durham Statement* argues that law libraries should push to end the paper publication of all law journals, in favor of OA versions. Berkman Center for Internet and Society, *Durham Statement on Open Access to Legal Scholarship*, <https://cyber.law.harvard.edu/publications/durhamstatement>. A competing view recognizes that, at least for non-law disciplines, “information is not free, and that any transition to an OA model from the current print subscription model would be funded by the imposition of new “author payment charges,” “in which authors pay journals when their work is published and all content is offered free to readers.” An unfairness of reading scholarship would then be replaced by an unfairness of opportunity to publish scholarship. American Historical Association, *AHA Statement on Scholarly Journal Publishing* (Sept. 24, 2012), <http://blog.historians.org/2012/09/aha-statement-on-scholarly-journal-publishing/>.

sion as compared to the august paper editions.⁴ Whose responsibility should it be to collect and post these files, and to determine which publishers permit which versions?⁵ Publishers must weigh the economics of continuing print publication with diminishing subscriptions in an increasingly digital society.

Most of these questions will resolve themselves as relevant market forces interact to bring about the adoption of a new standard for scholarly publishing and preservation. Although the details of this emerging paradigm have yet to be determined, little doubt remains that the current traditional print model with its associated spiraling subscription costs is not sustainable,⁶ and that open access principles will play an influential role in the creation of an alternative. Sound reasons exist to support implementation of broad OA policies and practices, and to work to attain that end sooner rather than later.

The most practical of those reasons concern the realization of the early promise of the Internet to put information in the hands of those most in need and to serve the greater public good. In theory OA bridges the information divide that currently separates those who can afford the often prohibitive publisher fees,

and those who cannot. “[W]ithout open access, large portions of the planet will be excluded from sharing the benefits of the research of the industrialized West, consequently consigning them to permanent ‘third world’ status.”⁷ This deprivation is especially pressing if one accepts that there exists a human right “to know.”⁸

Closer to the interests of the individual author, however, is the argument grounded in the primary justifications for the scholarly endeavor. The Western intellectual tradition is based on incremental advances over time rather than the revelation of received truths or an unquestioned acceptance of claims handed down through the generations. This new approach, of which the scientific method is the prototypical example, requires that past conclusions be made known so that they can be tested and, if found worthwhile, incorporated into the collective knowledge on that problem. In other words, communication of one’s findings is a necessary step of any project that would be recognized in our society as scholarship.

This requirement holds true for law as well. Just as communication is a component of science, publicity is a formal requirement for the rule of law.⁹ This

⁴ Richard A. Danner, Kiril Kolev, & Marguerite Most, *Print or Perish? Authors’ Attitudes toward Electronic-Only Publication of Law Journals* 10 (July 2011), <http://ssrn.com/abstract=1886445> (“The results suggest the importance of prestige and that publication in print becomes more important to authors’ decisions regarding where to publish, even among lead journals at top-ranked law schools, if the article is not accepted at one of the journals they consider most prestigious.”).

⁵ One tool to ascertain the diverse publishers’ policies for self-archiving are collected is SHERPA/RoMEO, <http://www.sherpa.ac.uk/romeo/>. Law journals are sparsely represented within this directory, leading to inconsistencies in treatment and procedures across law school repositories.

⁶ According to one analysis by the Association of Research Libraries, from 1986 to 2004 the cost of serials rose 273% while the CPI rose only 73%. MARTHA KYRILLIDOU & MARK YOUNG, *ARL STATISTICS 2003-04* 17 (2005). Similar measures looking only at legal periodicals show an increase of 406% from 1973-74 through 1995-96, during a CPI increase of 253%. KENDALL F. SVENGALIS, *LEGAL INFORMATION BUYER’S GUIDE & REFERENCE MANUAL* 18 (New England Law Press 2014).

⁷ James M. Donovan & Carol A. Watson, *Citation Advantage of Open Access Legal Scholarship*, 103 L. LIB. J. 553, 554 (2011). See also JOHN WILLINSKY, *THE OPEN ACCESS PRINCIPLE* 25 (William Arms ed., MIT Press 2006).

⁸ WILLINSKY, *supra* note 7, at 143. See also Richard A. Danner, *Applying the Access Principle in Law: The Responsibilities of the Legal Scholar*, 35 INT’L J. LEGAL INFO. 355, 365-66 (2007); Cheryl Ann Bishop, *Access to Information as a Human Right* (2011), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1264666.

⁹ Immanuel Kant, *Perpetual Peace: A Philosophical Sketch*, in IMMANUEL KANT, *KANT SELECTIONS* 427, 453 (Lewis White Beck, ed., 1988) (“the possibility of [publicity] is implied by every legal claim, since without it there can be no justice....”); LON L. FULLER, *THE MORALITY OF LAW* 33, 39 (rev. ed. 1969).

claim uncontroversially applies to primary legal sources, but it should also be extended to secondary materials. Due to the influence of law on daily life, and the influences of secondary materials on those who make and interpret the law, the requirement of publicity for these materials should be recognized and enforced as well.

In this view OA is only the latest step in the longer history of putting information into the hands of intended consumers. New problems arise as to scale and execution, but OA presents little that is novel in principle. Scholars who post their findings on the Internet are doing what they have always recognized as their duty.¹⁰

From an author's perspective, however, such abstract principles can seem far removed from the motivations behind the creation of scholarship in the first place. With little monetary remuneration resulting from most academic work, the major reward for authors is the hope to reach their intended audiences and to contribute to the development of policies in the real world, all of which can be transmuted into tangible benefits of status, scholarly esteem, and rewards in the profession and at the local institution. They want, in other words, to make a difference, to be an exception to that fabled scholar isolated in the ivory tower – removed from the concerns of ordinary life, writing only for other similarly cloistered academics¹¹ – and to be recognized for this achievement.

For that reason, strategies to earn support for the creation of institutional OA repositories from an otherwise reluctant faculty¹² typically include the claim that by allowing their writings to be freely accessed on the Internet the faculty can maximize the opportunity for work to be discovered. Discovery becomes the first step in a sequence whose outcomes include having the discovered article perhaps read and, finally, possibly cited. In short, OA increases scholarly impact beyond that expected from simple print publication.

“Scholarly impact” is a nebulous concept. Gesturing broadly toward the uptake of an article's key arguments, it allows the author to believe that her work is worth doing, and has practical significance. While impact evaluations are not unfamiliar to academics, in an early phase of institutional life the proxy signifiers may have been productivity measures such as the number of articles published, and the reputational quality of the journals in which the pieces were placed. More sophisticated tracking tools, such as the *Web of Science*,¹³ and for law, *Shepard's*,¹⁴ use subsequent citation as an indication of scholarly impact. To the extent such work warrants mention in the literature – either in support or rebuttal – to that extent a publication may be deemed “important,” or at least noteworthy.

¹⁰ See CHRISTINE L. BORGMAN, *SCHOLARSHIP IN THE DIGITAL AGE: INFORMATION, INFRASTRUCTURE, AND THE INTERNET* xviii (MIT Press 2007) (“The ‘open-access movement’ to expand the availability of scholarly publications, data, and other information resources is grounded in several centuries of Western thought about ‘open science.’”).

¹¹ ALBERTO MANGUEL, *THE TRAVELER, THE TOWER, AND THE WORM: THE READER AS METAPHOR* (University of Pennsylvania Press 2013).

¹² See Jingfeng Xia, *The Open Access Divide*, 1 PUBLICATIONS 113, 121 (2013) (“Scholars are known for their reluctance to self-archive raw data and publications in digital repositories with exceptions for disciplines where a culture of information sharing has long been in existence, such as physics and economics.”).

¹³ <http://wokinfo.com>

¹⁴ <http://www.lexisnexis.com/en-us/products/shepards.page>

Obvious weaknesses can be seen in this association.¹⁵ Not all works influencing a new paper receive citation, and often articles cited have not been actually read, as suggested by the analyses of citation errors perpetuating themselves within a topical literature.¹⁶ Because of these limitations, the operationalized proxies for “scholarly impact” continue to evolve,¹⁷ the latest being the appearance of interest in “altmet-

ric” statistics that measure mentions of a piece in online social media.¹⁸ The h-index offers a well-received attempt to provide correction to the more glaring shortcomings of the scholarly impact measured by raw citation counts.¹⁹ Law has popularized its own statistic, the Leiter score, calculated by running a search of an author’s name (first name w/2 last

¹⁵ See, e.g., Douglas N. Arnold & Kristine K. Fowler, *Nefarious Numbers*, 58(3) NOTICES OF THE AMS 434, 437 (2010) (“the citations that form the basis of the impact factor and various other bibliometrics are inherently untrustworthy.”). See also Adam Eyre-Walker & Nina Stoletzki, *The Assessment of Science: The Relative Merits of Post-Publication Review, the Impact Factor, and the Number of Citations*, 11(10) PLOS BIOL. e1001675. Comparing post-publication assessor review, number of subsequent citations, and impact factor of the publishing journal—all elements of a tenure dossier review—the authors found that

Assessor score depends strongly on the journal in which the paper is published, and that assessors tend to over-rate papers published in journals with high impact factors. If we control for this bias, we find that the correlation between assessor scores and between assessor score and the number of citations is weak, suggesting that scientists have little ability to judge either the intrinsic merit of a paper or its likely impact. We also show that the number of citations a paper receives is an extremely error-prone measure of scientific merit.

Id. at 1. As explained,

The number of citations is a poor measure of merit for two reasons. First, the accumulation of citations is a highly stochastic process, so the number of citations is only poorly correlated to merit.... Second, as others have shown, the number of citations is strongly affected by the journal in which the paper is published. There are also additional problems associated with the number of citations as a measure of merit since it is influenced by factors such as the geographic origin of the authors, whether they are English speaking, and the gender of the authors. The problems of using the number of citations as a measure of merit are also likely to affect other article level metrics such as downloads and social network activity.

Id. at 6 (citations omitted). On the gendered differences on citations rates, see Robin Wilson, *Lowered Cites*, 60(27) CHRON. HIGH. EDUC. A24, A25 (Mar. 21, 2014) (“men have been 56 percent more likely than women to cite their own scholarly work”).

¹⁶ E.g., M.V. Simkin and V.P. Roychowdhury, *Read Before You Cite!*, <http://arxiv.org/ftp/cond-mat/papers/0212/0212043.pdf> (2002). Reasoning that “repeat misprints are due to copying someone else’s reference, without reading the paper in question,” the authors conclude that less than 25% of citations to a work are the result of having actually read the cited work, rather than simply copying the reference from an earlier work. That a similar study could be profitably be conducted by sifting through the legal literature is suggested by Wayne LaFave’s observation that “As many of you doubtless know, Ron is one of the Rotunda *gemelli*, being accompanied at birth by Donald, who then and since looks just like Ron. Over the years, I often inquired about Donald, but Ron’s responses were always somewhat vague. ... But some are apparently of the view that Donald, and not Ronald, should receive major credit for the publications resulting from their joint efforts.” Wayne LaFave, *Rotunda: Il Professore Prolifico Ma Piccolo*, 2003 U. ILL. L. REV. 1161, 1164, n.18.

¹⁷ E.g., James C. Phillips & John Yoo, *The Cite Stuff: Inventing a Better Law Faculty Relevance Measure* (July 19, 2013), <http://ssrn.com/abstract=2140944>.

¹⁸ Jennifer Howard, *Scholars Seek Better Ways to Track Impact Online*, 58(22) CHRON. HIGH. EDUC. (Feb. 3, 2012), <http://chronicle.com/article/As-Scholarship-Goes-Digital/130482/>.

¹⁹ Jorge Hirsch, *An Index to Quantify an Individual’s Scientific Research Output* (Sept. 29, 2005), http://arxiv.org/PS_cache/physics/pdf/0508/0508025v5.pdf (“A scientist has index h if h of his/her N_p papers have at least h citations each, and the other (N_p-h) papers have no more than h citations each.”). Hirsch suggests that, for physicists, an h of about twelve might be typical for advancement to tenure at a major research university, while a value of eighteen could mean a full professorship. *Id.* at 3.

name) in the Westlaw journal database.²⁰ Although questionable,²¹ SSRN downloads are another popular measure of scholarly impact among law professors.²²

Whatever may be meant by “scholarly impact,” it necessarily begins with the awareness of an article’s existence.²³ In that view the chain of reasons justifying the link between OA and heightened scholarly impact is imminently reasonable, but firm data on this point are difficult to come by, especially for legal scholarship. A previous attempt to quantify the open access advantage for law review articles looked at the citation reports for the 566 articles published in the three journals at the University of Georgia School of Law from 1990-2007. Over the first fifteen years after publication, articles available as open access received 58% more citations in subsequent literature than did articles in the same journals but which were not available in this format.²⁴

The major shortcoming of this initial investigation concerns the extent to which the small data sample, drawn from only three journals from one school, supports conclusions about the broader trends. The need remained to replicate that first

study, and also to test additional hypotheses concerning the nuances of the OA advantage. Based upon the existing empirical literature on the impact of open access upon citation rates, the issue is not whether there exists a significant OA advantage, but only how much of an advantage appears within a particular discipline.²⁵ As that gap is filled, further questions, ones less commonly considered, arise.

One example of such additional hypotheses considers the implicit assumption within the relevant literature that the benefits of OA, although described as an average effect, do not systematically vary within a corpus. That posture, however, ignores several facts about the differing journals. Some sources enjoy such a high profile that readers will take special effort to keep abreast of new developments within those pages. For law, the prototypical instance of such a journal is the *Harvard Law Review*. One reasonably imagines that legal scholars will find and cite to on-point articles appearing in the *Harvard Law Review*, regardless of the format in which it can be accessed. Such high-end periodicals, then, would be expected to realize a comparatively smaller OA advantage than that associated with lower ranked, comparatively

²⁰ Vikram David Amar, *What a Recently Released Study Ranking Law School Faculties by Scholarly Impact Reveals and Why Both Would-Be Students and Current/Prospective Professors Should Care*, Justia (Aug. 8, 2012), <http://verdict.justia.com/2012/08/03/what-a-recently-released-study-ranking-law-school-faculties-by-scholarly-impact-reveals-and-why-both-would-be-students-and-currentprospective-professors-should-care> (“Leiter-style rankings of faculty impact (with the implication that impact tracks quality) are second among law school rankings in prominence, beneath only the *U.S. News* ratings.”).

²¹ James M. Donovan & Carol A. Watson, *Will an Institutional Repository Hurt My SSRN Ranking?: Calming the Faculty Fear*, 16 AALL SPECTRUM 12 (2012).

²² Bernard S. Black & Paul L. Caron, *Ranking Law Schools: Using SSRN to Measure Scholarly Performance*, 81 IND. L.J. 83 (2006).

²³ Joseph Scott Miller, *Symposium Foreword: Why Open Access Scholarship Matters*, 10 LEWIS & CLARK L. REV. 733, at 736. (2006). (“One does not, of course, need to know who any future interested reader is, or how to target her, when depositing the work in an open access database; search technology lets that reader find the article when needed.”).

²⁴ Donovan & Watson, *Citation Advantage*, *supra* note 7.

²⁵ Recent studies include Heekyung Hellen Kim, *The Effect of Free Access on the Diffusion of Scholarly Ideas*, http://miller.arizona.edu/docs/events/2012/MIS_speakers_series_effect_of_free_access.pdf (2012) (reporting “a causal relationship between free access and citations”); Yassine Gargouri et al., *Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research*, 5 PLOS ONE e13636 (Oct. 18, 2010), <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0013636> (“the OA advantage is a statistically significant, independent positive increase in citations, even when we control the independent contributions of many other salient variables (article age, journal impact factor, number of authors, number of pages, number of references cited, Review, Science, USA author)”).

more obscure journals whose offerings would remain overlooked *but for* their OA discoverability. The present study examines this and other questions concerning the deeper contours of the OA advantage. The results should provide authors and journals with the tools to better focus their web presence.

Research Methodology

Thirty flagship law reviews were selected to represent a range of school and journal ranks (see Table 1). From each chosen journal, articles published from 1990 through 2010 were entered into an Excel spreadsheet. Only lead articles were included. All student works as well as pieces in other genres such as essays, speeches, memorials, and short replies were omitted from the analysis. Also excluded were symposia pieces. The rationale for this last omission was twofold.

First, symposium articles, while often indistinguishable from traditional lead articles, formally represent a discrete style of scholarly writing. They often include cross-citations to fellow symposia participants that are likely to inflate citation rates.²⁶ As the project's hypotheses were framed as applying to the core form published by law reviews, we drew only from this single genre. Second, we reasoned that if, on the one hand, no differences exist between symposia and articles, the systematic exclusion of the former should not impact the generalizability of patterns found; if, on the other, systematic differences do exist between articles and symposium contributions, those differences may skew the within-sample comparisons because symposium issues may not be uniformly featured within a journal's volumes. For example, if lower ranked journals published more symposium issues than higher ranked titles (as impres-

sionistically seemed to be the case), then any consistent differences between them that might be revealed could be attributed to either the ranking or the genre. To eliminate this source of uncontrolled variability, self-identified symposia were removed from the sample.²⁷

For each included article, two kinds of information were collected. First, a Google search by article title was performed to ascertain whether the article could be found on the Internet in a full-text, no-fee version. We did not attempt to ascertain the date an article became available via OA. Second, a *Shepard's* citation report was generated to record for each year from 1990 through 2012 its citation by subsequent articles and case decisions. If a *Shepard's* report was unavailable for an article cite, a *West KeyCite* search was used in its place.

For each journal, articles were sorted by whether it was available in OA (Y) or not (N). Using the average citations received for each year, an OA advantage statistic for the title was then calculated according to the following formula: $((Y-N)/N) \times 100$. This annual rate was then averaged to derive the overall advantage for the span under review. Although more sophisticated statistical measure could be employed for this purpose, the measure chosen has the virtue of being direct and intuitively comprehensible.

Results

A. Citations by Subsequent Articles

Replication of 2011 Findings

The first priority of the data analysis was to test the generalizability of the 2011 conclusions. Replicating

²⁶ Ronen Perry, *The Relative Value of American Law Reviews: A Critical Appraisal of Ranking Methods*, 11 VA. J.L. & TECH. 1 at 101-104 (2006)

²⁷ For similar justification for omitting symposium pieces from a citation analysis, see Ian Ayres & Fredrick E. Vars, *Determinants of Citations to Articles in Elite Law Reviews*, 29 J. LEG. STUD. 427, 440 (2000). They report that nonarticles were statistically different from articles, leading them to speculate that "Harvard's prestige may derive not from better articles but, rather, higher quality (or simply fewer) shorter pieces." *Id.*

the earlier results would provide a basis to use the broader sample to examine more subtle patterns.

Combining all data generated the results in Figure 1, which yielded a 23-year OA advantage of 49%. If we look only at the first fifteen years in order to make a direct comparison with the earlier reported outcome, the present data generate an OA advantage of 53%. We regard this slightly revised figure from the previous finding of 58% to represent the more accurate estimate of the OA advantage of legal scholarship for citation within subsequent scholarship. For every two citations an article would otherwise receive, it can expect a third if it is made freely available on the Internet.

The results we obtained can be put into context of those published in earlier reports. Ayres and Vars, looking at 979 articles published from 1980 to 1995 in the *Harvard Law Review*, *Stanford Law Review*, and the *Yale Law Journal*, found that “Citations to a piece peaked 4 years after its publication, declined, then flattened out. A simple tabulation reveal[ed] that half of total citations for all articles occurred before the articles were 4.61 years old.”²⁸ Our more extensive data drew upon more journals (thirty instead of three) and a greater quantity of articles (6042 instead of 979). With a total of 218,243 citations by law reviews, the half-life split for the aggregated sample occurs after the sixth year: Years 1-6 accumulated 109,942 article citations, while Years 7-23 were cited 108,301 times. Similar results are obtained when looking only at the top tier journals such as

those examined by Ayers and Vars: Years 1-6, 99,678, Years 7-23, 101,931.

The impact of OA makes those articles available freely on the Internet burn both more brightly over the short term, and more substantively over the long. Looking separately at the 2553 articles that are not available in OA format, and the 3489 that are OA, generates the results in Table 2. As suggested by the shape of the curve in Figure 1, OA articles are more heavily cited in the earlier years after publication, but also command greater attention over the lifespan of the work.

While we were able to improve on the Ayres and Vars estimates by virtue of our broader sample, the situation is reversed when considering the conclusion from Thomas Smith that 43% of all law review articles contained in the Lexis-Nexis database have never been cited – *not even once* – in other law review articles or reported cases.²⁹ Working with the vendor, he was able to analyze the entire universe of law review scholarship (“about 385,000 law review articles, notes, and comments appearing in 726 U.S. law reviews and journals” through approximately 2006³⁰). Our own comparatively smaller sample of 6042 articles had only 655 articles that received no citations in subsequent law review articles, and of these seventy-one were cited by court decisions, meaning that only 584 articles, or 9.7% of our sample, fit Smith’s description.

Part of the explanation for the improved citation rate within our data is that we limited our sample to

²⁸ *Id.* at 436. Additional variables influencing subsequent article citation, for which we have not yet analyzed our data, included: “The first piece in an issue received 108 percent more citations than pieces appearing fourth or later....The 78 percent bonus for articles in feminism and CLS was the largest positive [topical] effect. In contrast, international law and criminal law articles received significantly fewer citations than the average.... Coauthored articles were cited more frequently than single-author pieces, but pieces with more than two authors suffered a large penalty. Reporting an equation reduced average citations by an estimated 131 percent. Articles with figures did 48 percent better than average, whereas articles with appendices did 50 percent worse than average... [and] articles with fewer footnotes were cited more frequently than articles with more footnotes, holding number of pages constant.... [Finally,] Articles with shorter titles received significantly more citations than articles with longer titles.” *Id.* at 437-440.

²⁹ Thomas A. Smith, *The Web of Law*, 44 SAN DIEGO L. REV. 309, 336 (2007).

³⁰ *Id.*

Table 1: Journals

Journals	US News Tier 2014 (1=Ranks 1-50;	W&L Journal Rank (2013 Combined Score)	Articles (Y/N)	15-Year OA Advantage (Percent)
Arkansas Law Review	2-3	375	20/155	165.9
California Law Review	1	9	238/0	N/A*
Campbell University Law Review	2-3	380	130/0	N/A*
Cleveland State Law Review	2-3	165	216/0	N/A*
Columbia Law Review	1	3	147/154	-1.5
Duquesne Law Review	2-3	460	26/134	169.6
Gonzaga Law Review	2-3	256	125/119	160.9
Harvard Law Review	1	2	133/67	28.6
John Marshall Law Review	4	430	375/0	N/A*
McGeorge Law Review	2-3	286	72/86	191.7
Michigan Law Review	1	8	218/96	4.2
N.Y.U. Law Review	1	13	199/45	43.7
North Carolina Central Law Review	4	622	13/89	7.3
Northern Illinois University Law Review	4	499	57/78	30.3
Oklahoma Law Journal	2-3	300	100/84	105.0
Southern Illinois University Law Journal	4	408	50/155	33.9
Southwestern University Law Review	4	267	73/117	181.2
St. Johns Law Review	2-3	162	200/0	N/A*
Stanford Law Review	1	1	210/102	78.0
Thomas Jefferson Law Review	4	559	23/54	40.9
Touro Law Review	4	499	30/77	97.6
University of Baltimore Law Review	2-3	343	34/57	16.2
University of Chicago Law Review	1	23	149/113	2.3
University of Dayton Law Review	4	394	20/78	24.7
University of Pennsylvania Law Review	1	5	165/82	-3.2
University of San Francisco Law Review	4	155	63/134	105.6
University of St. Thomas Law Journal	4	306	45/132	11.5
Virginia Law Review	1	10	174/130	8.1
Western State University Law Review	4	622	14/149	206.6
Yale Law Journal	1	4	170/78	18.7
**"N/A" indicates that for this journal no OA advantage could be calculated because all articles examined were available in OA versions, leaving no non-OA cases for comparison.				

articles, while he included the entire range of works appearing within a journal issue. As genre, student pieces and memorials are less likely to be cited than substantive articles. Their inclusion arguably inflates the percentage of uncited pieces. Another point of difference is that that, unlike Smith, we looked only at flagship reviews and omitted from our project the wide range of specialty journals law schools often publish. The later content, representing detailed analyses intended to target a small number of topical specialists, will by its nature have less opportunity to be cited in either general law reviews or specialty journals on other issues. Removing pieces from these sources maximized the focus on pieces likely to be mentioned within subsequent writings.

A final possible explanation for the difference between our results and those reported by Smith may be that citation rates have altered since the origin of law review publication with the *University of Pennsylvania Law Review* in 1852. Although Smith analyses the complete universe of publications, he does not search for patterns over time. Modern pieces are likely to contain significantly more citations than earlier articles, arguably resulting in a skew toward

more citations of contemporary contributions. The rate of citation for individual articles, in other words, may be function at any given time of the rate of citation within legal scholarship.

The aggregated results in Figure 1 not only bolster the earlier conclusions about the OA advantage for law review publications, but also fit well within the existing literature on law review publication. With this foundation we can consider more nuanced patterns within the data set.

OA Advantage Differentials by Tiers

Under our analysis the averaged OA advantage for legal scholarship is 53%. Systemic differences may exist within this aggregate statistic. To explore this possibility, the journals were sorted into three groups by their US News tier: 1, if their school rankings were 1-50 [10 journals]; 2-3, if the ranks were 51-147 [9 journals]; and 4 if the ranks were greater than 147 [11 journals]. The intent was to generate a comparative sample on the polar extremes of ranked law schools, with a substantial mediating group to allow evaluation as to whether any differences found be-

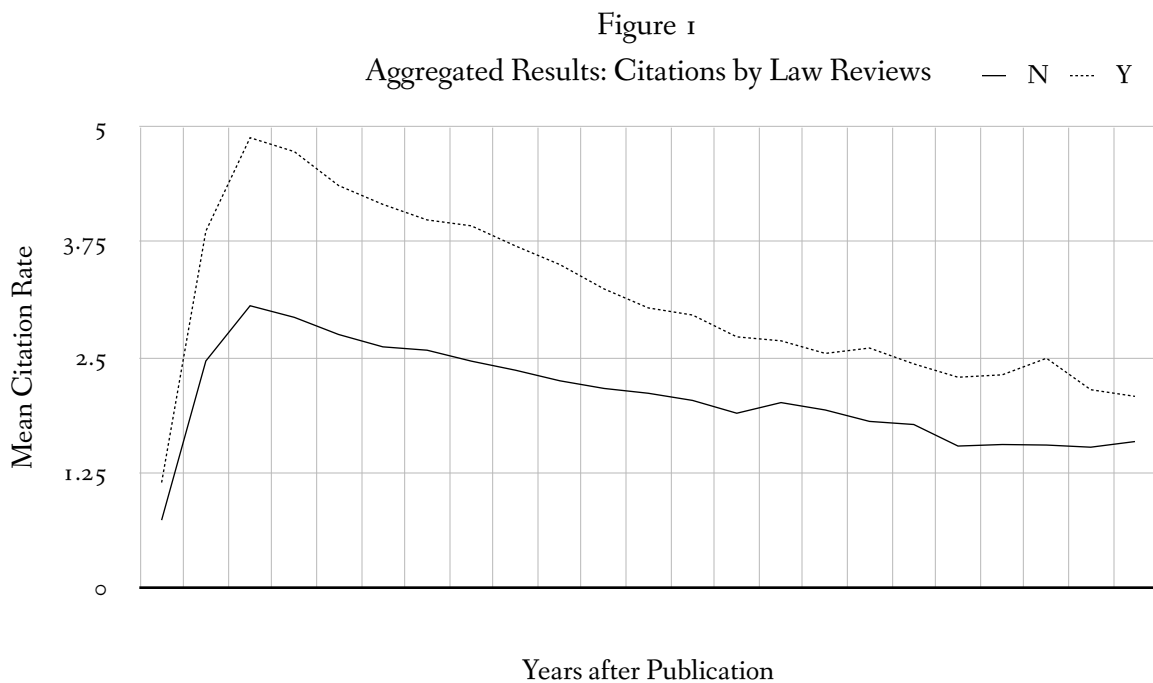


Table 2: Distribution of Law Review Citations

	Total Law Review Cites	Citation Half-Life	Cites/article
Non-OA articles (N=2553)	80,115	Year 7 (42,315)	31.4
OA Articles (N=3489)	125,321	Year 5 (62,646)	35.9

tween the two extremes were threshold or incremental effects.

Tier 1 journals had the lowest combined 15-year OA advantage of 11.4% [23-year advantage: 12.3%], while Tiers 2-3 saw 51.3% [58.8%] and Tier 4, 51.9% [28.5%] (Figures 2-4).³¹ These results should be read with the absolute rates of citation in mind. Even with the greater OA advantage, both the lower tiers rarely averaged more than one citation per article and usually less. The top tier journals, even in their least years, always exceed the citation rates for the lower tiered journals.

The small OA advantage seen in these elite titles can thus be the result of two mechanisms operating either alone or in combination. The first explanation, the market penetration hypothesis, is that awareness of the contents of these top journals has penetrated so deeply into the target audience that their contents are always sought out regardless of the available format. A second possible explanation, the topic exhaustion hypothesis, considers the already wide citation of elite articles within the relevant literature, combined with the boundedness of that literature (i.e., there are only so many articles on a given subject published, and therefore only a limited range of opportunities for earlier work on that same topic to be cited). In combination, these factors leave little room for an advantage to appear.

Although likely operating in tandem, we can speculate as to which is the more predominant influence by looking at additional data. The low but positive correlation of 0.3 between a journal's 15-year OA advantage and its rank by Washington & Lee³² (see Table 1) argues against audience penetration as the more immediate explanation for the lower OA advantage among elite journals. If we expect market saturation to be a function of rank and reputation, as rank falls so too would the routine awareness of journal contents, generating the gap in which a robust OA advantage appears. In other words, when considering this variable in isolation, we would expect bottom tier journals to have the highest OA advantage, top tier journals the smallest, and periodicals from the intermediate tiers to straddle the two extremes. However over the first fifteen years after publication the OA advantage remains constant between the mid- and lower-tier journals (51.3 and 51.9% respectively), suggesting that the phenomena is a threshold, not a linear one (or that, if it is linear, the slope is very steep and plateaus quickly). Either audience penetration is not readily understood in terms of school rank, or it fails as a first-line explanation for the observed differential OA advantages between ranked tiers.

Also arguing against the penetration hypothesis are the OA advantage calculations obtained in the original 2011 study. Although individual journal figures are less reliable than grouped averages, it is

³¹ The data were reported in the previous section for the full twenty-three period examined; the rationale to limit reporting in the subset analyses to fifteen years is twofold. First, as the dataset examined gets smaller, it becomes less reliable, especially at the tail of the graph where the cases are fewer. While every article has a citation analysis figure for the first two years after publication, only a handful provide data for year 23. While the cutoff point to avoid this problem allows some flexibility, limiting the description to fifteen years allows direct comparison with the results obtained in the initial 2011 study.

³² Washington & Lee University School of Law Library, *Law Journals: Submissions and Ranking, 2009-2013*, <http://lawlib.wlu.edu/LJ/>.

Figure 2

Tier 1: Citations by Law Reviews

— N ··· Y

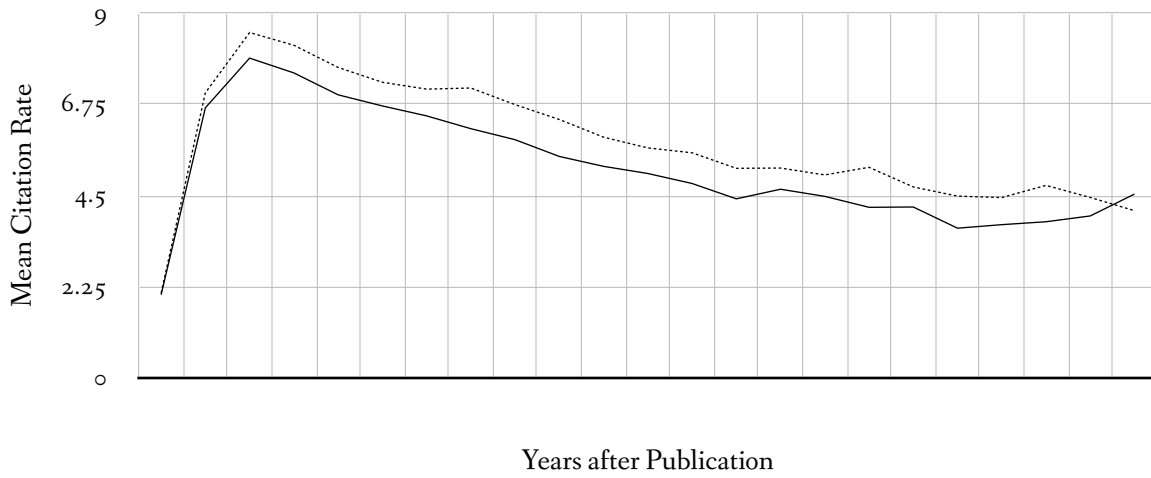


Figure 3

Tiers 2-3: Citations by Law Reviews

— N ··· Y

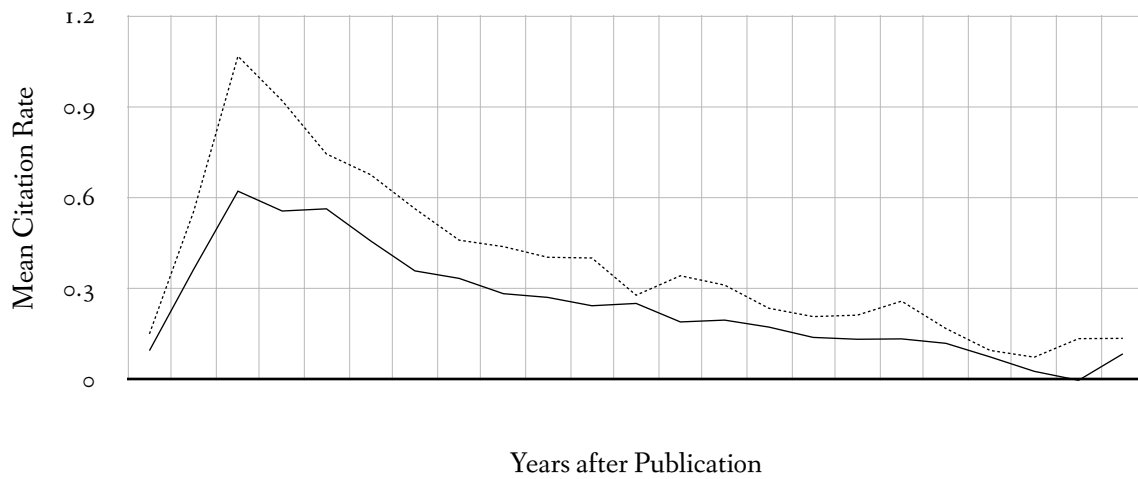
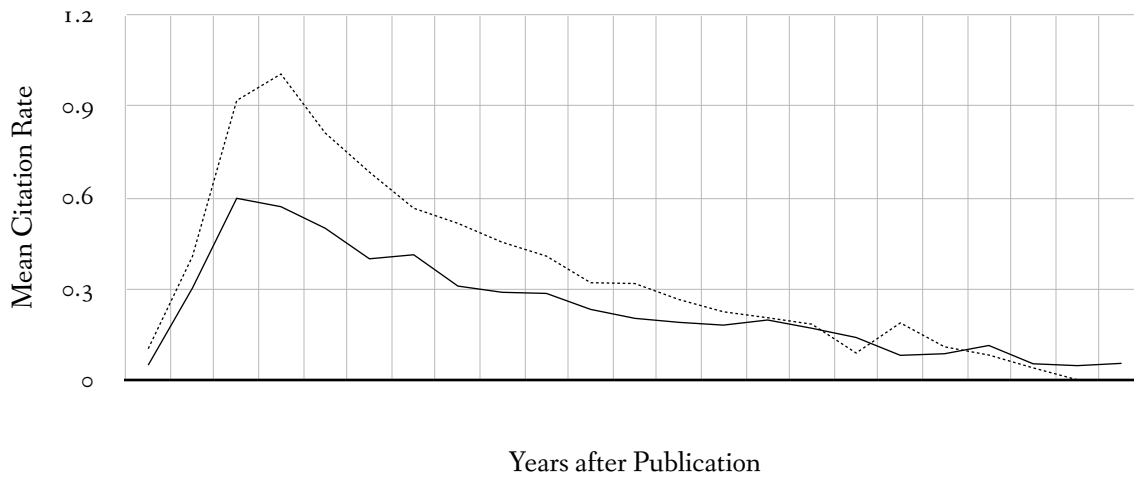


Figure 4

Tier 4: Citations by Law Reviews

— N ··· Y



still suggestive that while the school in this study remained constant, the advantage varied widely between the three titles: *Georgia Law Review* (32.2%), *Georgia Journal of International and Comparative Law* (76.0%), and *Journal of Intellectual Property Law* (35.2%). The top tier pattern of lowered OA advantage does not appear to extend to all journals published at the same school, but applies reliably only to the flagship title. If this observation proves to be a consistent pattern, it further undermines reliance upon the penetration hypothesis.

For these reasons we currently favor the second of the interpretations, the topic exhaustion hypothesis, for our results: With their inevitably high citation rate, articles appearing in top journals saturate their topical domains by virtue of their prestigious placements, leaving comparatively fewer opportunities for additional citations achieved by OA discovery.

We also anticipate that the OA advantage of specialty journals will tend to be larger than that for the flagship title at the same school, and in aggregated measures the pattern for these specialty journals will look more like that for mid and lower-tier flagships than for top tier general reviews. However, because the present study did not include specialty journals we are unable to predict in greater detail the performance patterns of specialty journals vis-à-vis the school's main journal.

OA Advantage in Real Time

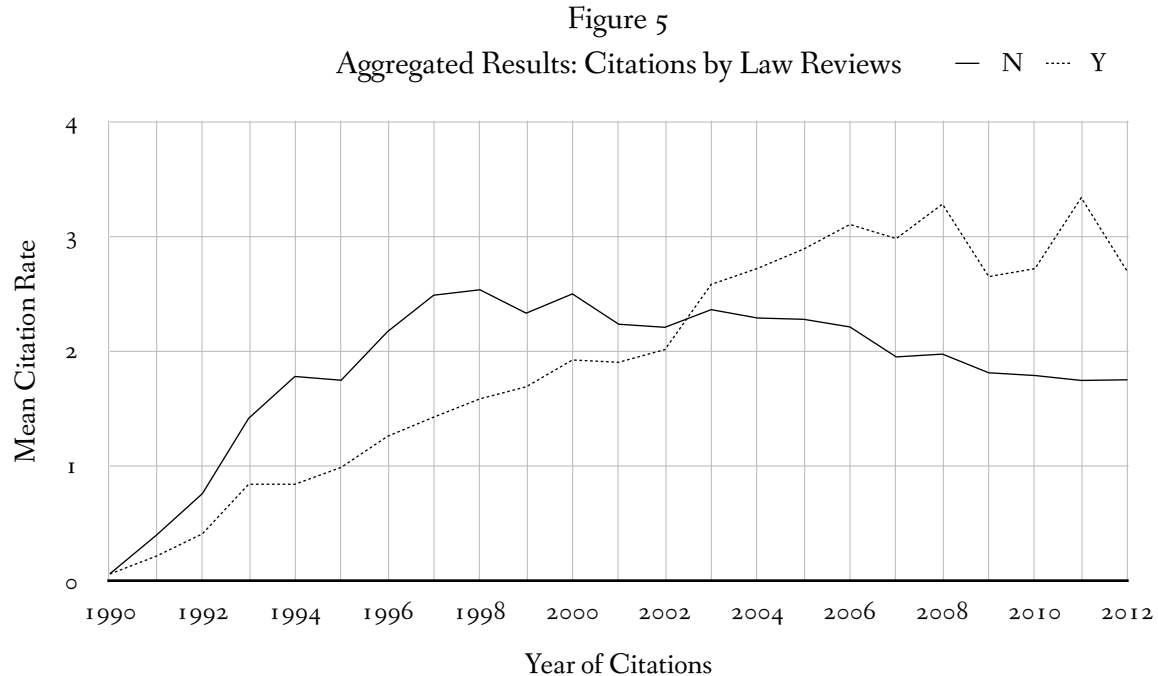
The approach taken in this study addresses the form of the question most commonly asked about open access by faculty scholars: How will providing OA versions of my work impact its reception by interested readers? The question is atemporal, inquiring about what the writer uploads now, regardless of when the article was originally published. The most common context of this question occurs during the construction of an institutional repository that will

contain the entirety of an author's intellectual output. For that reason the citation data were shifted from an analysis in absolute real time (i.e., the actual years of subsequent citation) into a relative chronology for each article based on the years after initial publication.

This method, however, conflates two disparate processes of OA distribution: the upload of retrospective works often long after original publication, and the addition of newer articles, many of them before release of the print editions. It is possible that these two kinds of OA collections can display their own characteristic citation patterns. From that view we may therefore ask a slightly different question: As opposed to the advantages of uploading *any* work, what are the advantages of providing OA versions of *new* work?

Figure 5 shows the results in terms of actual years the citations are received, rather than in relation to the dates of publication. A direct reading of the graph reveals that for the earlier years – the 1990s and the turn of the decade, when the presence of OA versions are necessarily retrospective additions to a database – there was no OA advantage. These citations should be understood as a revitalized interest in earlier work that has been made openly available sometimes long after its first appearance. A tipping point occurs between 2002 and 2003, however, when the OA advantage asserts itself. Citations of articles with OA versions never again falls below those given to articles without OA availability.

In order to properly interpret the significance of this pattern we must review the development of the Internet over these same years. The profound impact of the explosive growth in web tools is probably the greatest from the mid-1990s onward, but the early 1990s set the stage for this revolution. In 1990-91, while working with the European Particle Physics



Institute located in Geneva (CERN), Tim Berners-Lee wrote the first web protocol and released it to the world.³³ The immediate success of the web is evidenced by the number of connections, one million hosts in 1992.³⁴ That same year, Cornell Law School launched one of the most ambitious legal web projects to date, the Legal Information Institute.³⁵ By 1994, Yahoo! was founded,³⁶ the first law firm

launched its website³⁷ and perhaps most importantly, the largest collection of open access legal scholarship, SSRN, was launched.³⁸

The transformation of the web into the information superhighway and its near ubiquitous presence occurred during the decade from 1995-2005. Users increased to the one billion mark by 2005,³⁹ by

³³ George B. Delta & Jeffrey H. Matsuura, *What Does the Internet Do?*, in *LAW OF THE INTERNET* 1.04 (3rd ed., 2013), 2013 WL 3924123.

³⁴ See generally Robert H Zakon, *Hobbes' Internet Timeline* 11, *INTERNET SOC'Y*, <http://www.zakon.org/robert/internet/timeline/> (last visited Sept. 28, 2014).

³⁵ See Legal Information Institute, *Who We Are*, http://www.law.cornell.edu/lii/about/who_we_are (last visited Sept. 28, 2014).

³⁶ SerachEngineHistory.com, *History of Search Engines: From 1945 to Google Today*, <http://www.searchenginehistory.com/> (last visited Sept. 29, 2014).

³⁷ The first law firm to establish a website was Venable, Baetjer, Howard & Civiletti. Its website became public in March 1994. Robert Ambrogi, *The First Law Firm Ever to Launch a Website*, <http://www.lawsitesblog.com/2012/07/the-first-law-firm-ever-to-launch-a-website.html> (last visited Sept. 28, 2014).

³⁸ SSRN was founded by Michael Jensen and Wayne Marr. SSRN, *About*, <http://ssrnblog.com/about/> (last visited Sept. 28, 2014).

³⁹ Internet World Stats, *Internet Growth Statistics*, at <http://www.internetworldstats.com/emarketing.htm> (last visited Sept. 29, 2014).

which time more than 11 billion websites were in existence.⁴⁰ During this span blogging became a household word.⁴¹ Major tools that we today take for granted were also launched. Google's search engine was introduced in 1998.⁴² Wikipedia launched in 2001.⁴³ 2003 was the year such tools as Apple iTunes,⁴⁴ Myspace,⁴⁵ LinkedIn,⁴⁶ and Skype⁴⁷ launched. In 2004, Google released a beta version of Google Scholar⁴⁸ and Facebook was released to Harvard students.⁴⁹

From 2005 to 2010, the Internet settled into a state of constant change and universal acceptance.

New tools vied for the public's attention. Each year brought a plethora of innovative gadgets and platforms. To name just a few, Twitter was introduced in 2006,⁵⁰ the iPhone in 2007,⁵¹ followed by Instagram⁵² and the iPad in 2010.⁵³ The legal scholarship market did not ignore these trends. In 2006, Eugene Volokh surmised that law clerks read legal blogs and passed the information along to their judges.⁵⁴ Most relevantly for present purposes, by 2007 forty percent of law schools distributed scholarship via institutional repositories.⁵⁵

⁴⁰ A. Gulli & A. Signorini, *The Indexable Web is More than 11.5 Billion Pages*, in PROCEEDING, WWW '05 SPECIAL INTEREST TRACKS AND POSTERS OF THE 14TH INTERNATIONAL CONFERENCE ON WORLD WIDE WEB, at 902-03, available at <http://dl.acm.org/citation.cfm?doid=1062745.1062789> (last visited Sept. 29, 2014).

⁴¹ Clive Thompson, *The Early Years*, NYMAG.COM, at <http://nymag.com/news/media/15971/> (last visited Sept. 29, 2014).

⁴² Google, *Our History in Depth*, <http://www.google.com/about/company/history/> (last visited Sept. 28, 2014).

⁴³ Wikipedia, *History of Wikipedia*, http://en.wikipedia.org/wiki/History_of_Wikipedia (last visited Sept. 28, 2014).

⁴⁴ Apple, Inc., *Press Release: Apple Launches the iTunes Music Store* (Apr. 28, 2003), <http://www.apple.com/pr/library/2003/04/28Apple-Launches-the-iTunes-Music-Store.html> (last visited Sept. 28, 2014).

⁴⁵ Timothy Stenovic, *Myspace History: A Timeline Of The Social Network's Biggest Moments*, HUFFINGTON POST, http://www.huffingtonpost.com/2011/06/29/myspace-history-timeline_n_887059.html (last visited Sept. 29, 2014).

⁴⁶ LinkedIn, *A Brief History of LinkedIn*, <http://ourstory.linkedin.com/> (last visited Sept. 29, 2014).

⁴⁷ Doug Amath, *A Brief History of Skype* (May 10, 2011), TIME.COM, <http://techland.time.com/2011/05/10/a-brief-history-of-skype/> (last visited Sept. 29, 2014).

⁴⁸ TERRY BALLARD, *GOOGLE THIS!: PUTTING GOOGLE AND OTHER SOCIAL MEDIA SITES TO WORK FOR YOUR LIBRARY* 94 (2012).

⁴⁹ Nicholas Carlson, *At Last – The Full Story Of How Facebook Was Founded*, BUSINESS INSIDER (Mar. 5, 2010), <http://www.businessinsider.com/how-facebook-was-founded-2010-3#we-can-talk-about-that-after-i-get-all-the-basic-functionality-up-tomorrow-night-1> (last visited Sept. 29, 2014).

⁵⁰ John C. Abell, *Twitter Takes Flight* (Mar. 21, 2006), WIRED MAG., available at <http://www.wired.com/2011/03/0321twitter-first-tweet/> (last visited Sept. 28, 2014).

⁵¹ Apple, Inc., *Press Release: Apple Reinvents the Phone with iPhone* (Jan. 9, 2007), <https://www.apple.com/pr/library/2007/01/09Apple-Reinvents-the-Phone-with-iPhone.html> (last visited Sept. 29, 2014).

⁵² Jason Fell, *How Instagram Went From Idea to \$1 Billion in Less Than Two Years*, ENTREPRENEUR, available at <http://www.entrepreneur.com/blog/223310> (last visited Sept. 29, 2014).

⁵³ Apple, Inc., *Press Release: Apple Launches iPad* (Jan. 27, 2010), <https://www.apple.com/pr/library/2010/01/27Apple-Launches-iPad.html> (last visited Sept. 29, 2014).

⁵⁴ Eugene Volokh, *Scholarship, Blogging and Tradeoffs: On Discovering, Disseminating and Doing*, 84 WASH. U. L. REV. 1089, 1095-96 (2006). See also, Lee F. Peoples, *The Citation of Blogs in Judicial Opinions*, 13 TUL. J. TECH. & INTELL. PROP. 39, 80 (2010).

⁵⁵ Carol A. Parker, *Institutional Repositories and the Principle of Open Access: Changing the Way We Think About Legal Scholarship*, 37 N.M. L. REV. 431 (2007). "As of March 2007, there were approximately 114,300 full-text documents in SSRN. Separate figures for the LSN are not published by SSRN; however, the managing director of the LSN has stated that roughly twenty-five percent of SSRN content is in the LSN. This translates to nearly 29,000 legal documents in that repository alone." *Id.* at 444.

From this background, we may reasonably select 2007 as the year by which electronic access to legal scholarship became sufficiently common that readers enjoyed an uncontroversial option to obtain current research via the web generally, and OA particularly. While a minority of law schools by this time had embarked on projects to build their own digital institutional repositories, such efforts were no longer rare or exceptional. Although many of the major milestones in the development of Internet technology were achieved many years prior to this date – especially the creation of SSRN – it nonetheless required several additional years before these tools became entrenched and ordinary. By 2007 arguably both a significant proportion of legal writers routinely made their works available on the web, and readers regularly included Internet sources in their research strategies and current awareness alerts.

We therefore employ that date as the tipping point by which the OA advantage begins to offer the benefits described above, to provide ready access to new legal scholarship. Limiting the analysis only to 2007-2012, we find an aggregated real-time OA advantage of 60.2%. This real-time statistic represents the advantage seen by contemporary works that are simultaneously released in both print and OA formats, and represents a figure undiluted by differing patterns experienced by retroactive uploading of previously available content as was described in the previous sections.

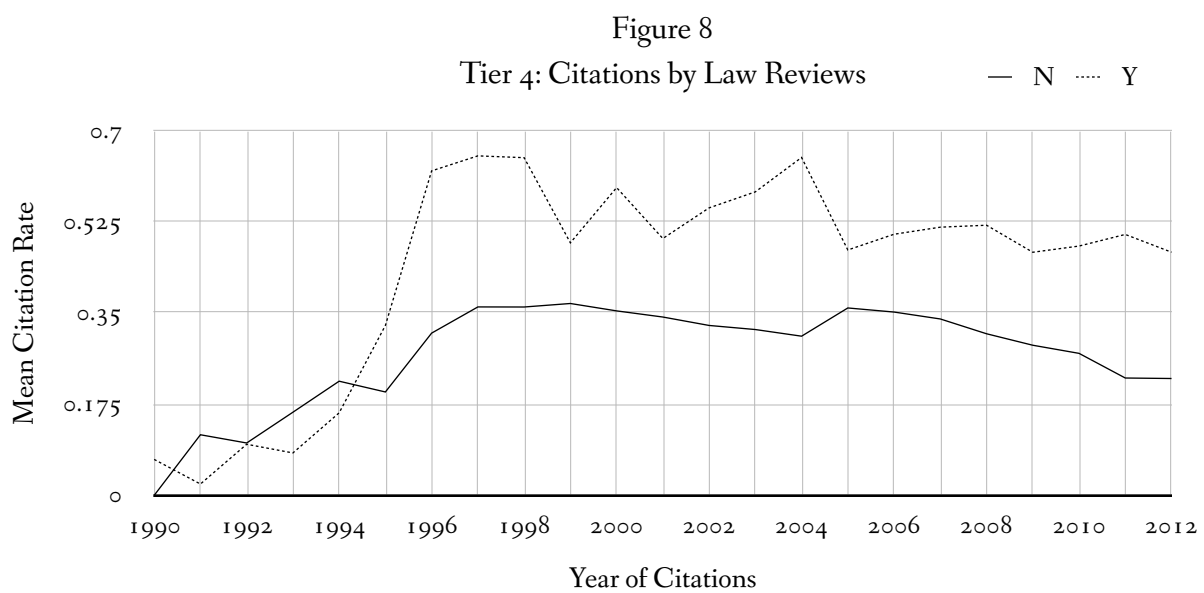
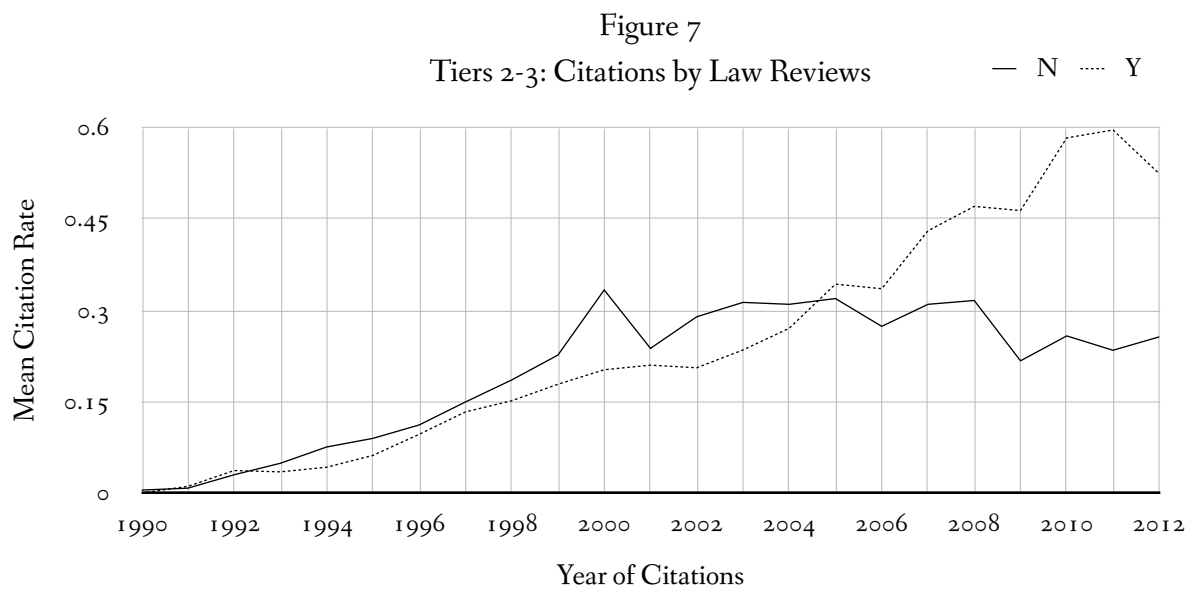
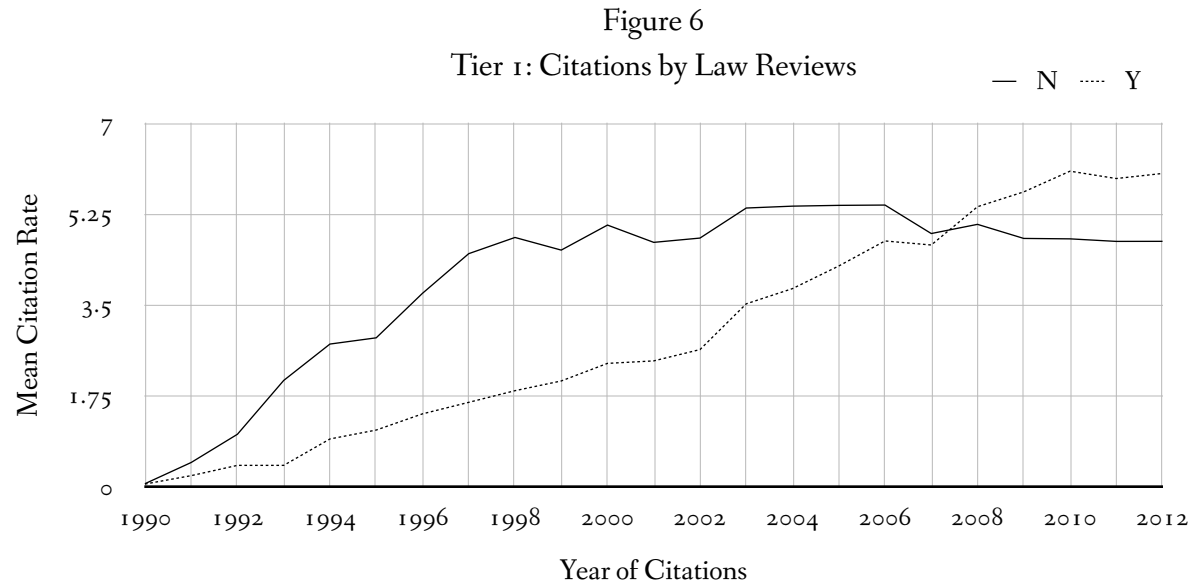
The discrepancy between the two analytic perspectives becomes more pronounced when the data are sorted into tiers. Figures 6-8 reveal the same general pattern as the aggregated analysis: an initial phase in which OA articles lag behind print versions, until a Rubicon is crossed and OA formats enjoy the anticipated advantage. The post-2007 real-time OA advantage is 16.8% for the first tier, 89.7% for tiers 2-3, and for the fourth tier, 81.2%. These results provide further backing for the hypothesis that the OA advantage disproportionately benefits journals outside the top ranks.

This conclusion finds support in a further pattern observed within the data. Granting that 2007 represents the year demarcating the transition from retrospective to contemporary uploads, we find differing patterns of OA impact on the backfile of legal writings. For Tier 1, the tipping year is 2008, or after the transition line of 2007. This suggests that top tier journals see comparatively little value in terms of greater citations from authors from making their older volumes available, a result that offers further support for the earlier argument that articles in top tier journals routinely exhaust their citation opportunities regardless of format availability.

For Tiers 2-3 the crossing occurs in 2005, while the bottom tier makes the change earliest, in 1995. The last fact particularly highlights the operable principle that for those journals whose contents are usually obscured by the abundance of offerings, OA's increased discoverability and accessibility creates an audience they would otherwise never enjoy, and this includes introducing it to items buried in the backlist. The suggestion that OA viewers are new consumers of the intellectual content can be contrasted with concerns that OA readers are merely displaced from one format to another, which may indeed be the case for elite titles.

B. Cases

The data looking at citation of law review articles by later articles present consistent and interpretable patterns. The situation becomes more challenging when looking at citations of legal scholarship by case law. Although the original 2011 report gathered data on citations within court decisions, the results were too meager to draw any firm conclusions. This much expanded project attempts to fill this gap, and finds that the fifteen year cumulative OA advantage within court decisions is 9.5% [23-year advantage: 16.5%] (Figure 9).



We should note how infrequently courts cite to law review articles.⁵⁶ Of the 6042 articles analyzed only 1637 (27.1%) received any court citations. Broken down by tiers, the statistics demonstrate an obvious skew. Of 2664 Tier 1 articles, 1080 (40.5%) received case cites; of 1558 articles in Tiers 2-3, 320 (20.6%) received court citations, and of Tier 4's 1820 articles, only 237, or 13%, are mentioned by courts. These figures track an unsurprising broad pattern – the lower the tier, the less likely an article is to be cited in court decisions.

That outcome, however, may hide other, less expected trends. One study found an overall declining rate of law review article citation within U.S. Supreme Court decisions and concluded that the distribution of those citations had also changed. During “the early 1970s, 58.36% of all the Justices’ citations were to articles published in the law reviews [of our Tier 1 schools].... [O]ver the past decade, the Justices cited articles from the top ten law reviews 37.5% of the time they cited to law review articles.”⁵⁷ The mean Washington and Lee journal rank for SCOTUS citations had consequently fallen to ninety-two.⁵⁸ This “increase in citations to lower-tier law

reviews by the Supreme Court”⁵⁹ can be credited to the rising use since the 1980s of Westlaw and Lexis as well as the marked proliferation of specialized law review titles in recent years. Specialty titles often contain targeted analyses on the issues being considered by the courts, but are typically ranked below general publications.⁶⁰

Armed with the expectation that court cites should reveal a differing pattern over time, we reanalyzed citations by courts in terms of their real-time distribution (Figure 10). The aggregated results closely mirror the general pattern found above for citations by articles: After an initial phase when OA articles trailed print versions, after 2007 the OA advantage permanently asserts itself. The real-time (post-2007) OA advantage for citation by court decisions is 41.4%, a marked increase over the undifferentiated advantage of 9.5%.

Newton’s work suggests the likelihood of different patterns by tiers, so the data were again separated into tiers and analyzed for real-time effects (Figures 11-13). Because the relative paucity of citations results in more erratic outcomes, these figures include

⁵⁶ In his examination of the use of legal scholarship by the courts, Michael McClintock concluded that “from 1975 to 1996...there was a 47.35% decrease in overall citations by the federal courts and state supreme courts combined.” Michael D. McClintock, *The Declining Use of Legal Scholarship by Courts: An Empirical Study*, 51 OK. L. REV. 659, 684 (1998). It should be noted that McClintock’s methodology may complicate the reading of his findings. Rather than gathering data from all the years he includes within his study, he drew samples “during three two-year periods spaced ten years apart.” *Id.* at 683. Similar sampling was used, and similar results obtained, by Louis J. Sirico, Jr., *The Citing of Law Reviews by the Supreme Court: 1971-1999*, 75 IND. L.J. 1009 (2000). See also Brent Newton, *Law Review Scholarship in the Eyes of the Twenty-First Century Supreme Court Justices: An Empirical Analysis*, 4 DREXEL L. REV. 399, 404 (2012) (“During the first decade of the twenty-first century, on average, one or more Justices cited articles in their opinions in 37.1 % of the Court’s cases and, on average, the Justices cited 0.52 articles per opinion compared to 0.87 articles per opinion in the early 1970s.”).

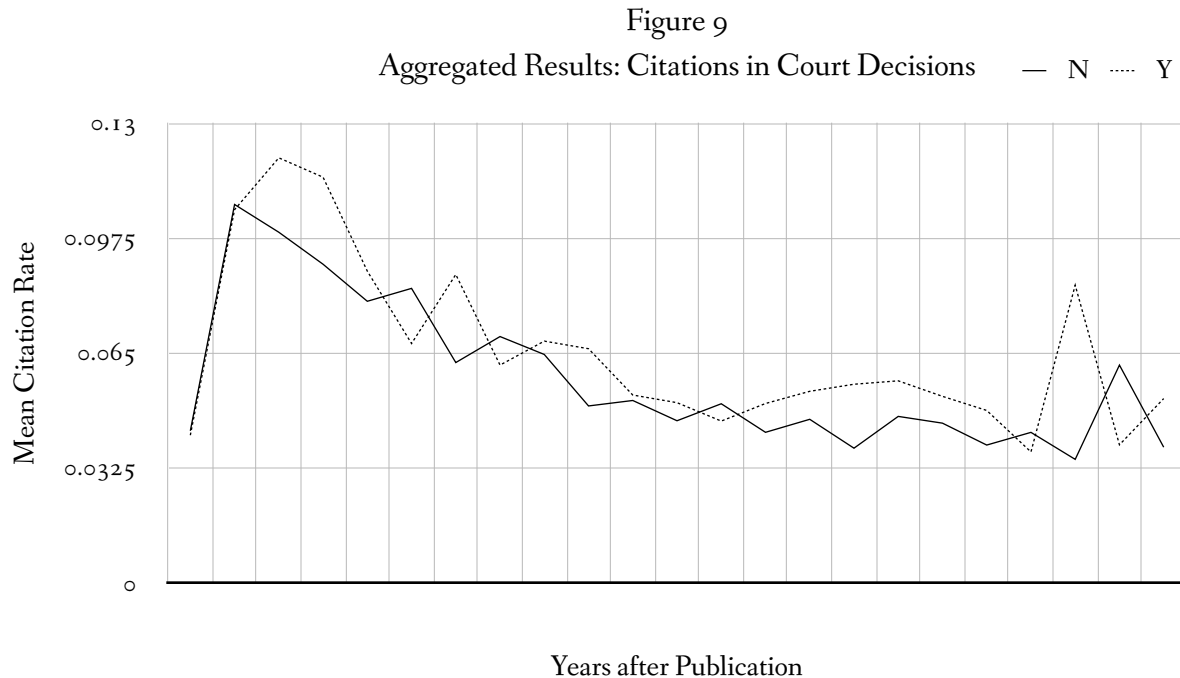
The explanation for any diminishing citation rate for law review articles within court decisions may be found in opinions such as that expressed by the Chief Justice John Roberts. Speaking at the Indiana University law school, Roberts stated that “he doesn’t pay much attention to academic legal writing. Law review articles are ‘more abstract’ than practical, and aren’t ‘particularly helpful for practitioners and judges.’” Jess Bravin, *Chief Justice Roberts on Obama, Justice Stevens, Law Reviews, More*, WALL STREET J., April 7, 2010, <http://blogs.wsj.com/law/2010/04/07/chief-justice-roberts-on-obama-justice-stevens-law-reviews-more/>.

⁵⁷ Newton, *supra* note 56, at 414.

⁵⁸ *Id.* at 413.

⁵⁹ *Id.*

⁶⁰ Tracey E. George & Chris Guthrie, *An Empirical Evaluation of Specialized Law Reviews*, 26 FLA. ST. U. L. REV. 813 (1999). In the 1950s there were nine specialized journals, twenty-seven in the 1960s, sixty in the 1970s, ninety-one in the 1980s, and three hundred thirty by 1999.



the trendlines to indicate the smoothed relationships over time.

Each tier displays a distinctive, but typically weak OA pattern. Tier 1 follows the general pattern of increased OA advantage after 2007. The trendlines suggests the overall OA citation rate will exceed that of print-only articles only after 2012.

Trendlines prove especially useful when attempting to interpret the data from Tiers 2-3. The interweaving lines, after resolving to the trendline, prove to be virtually identical.

Only in the case of the fourth tier does the trendline show a consistent OA advantage, albeit a small one. These results fit into the expectations voiced by Newton. To the extent lower tier items are likely to be cited, it will be due to their ready availability in electronic formats. This effect, however, will be offset by the fact that courts are more likely to identify authorities via commercial platforms like WestlawNext or Lexis Advance, rather than relying upon Google. To a certain extent, therefore, the relationship between citation and OA availability will be accidental rather than causative leading to court citation.

Summary

Today the commonplace research strategy for almost everyone of any age or educational attainment includes quick Google searches. Persons with specialized training may do more than this, but whether at the beginning or the end of the project they do at least that. As a practical matter this fact means that opinions both ordinary and expert are influenced by resources that are readily available via the Internet. Those interested in the level of discourse and its influence on public policy share an interest in assuring that as much high quality content is freely accessible on the web. This interest is shared both by consumers needing the best available information for their projects, and by outlets such as law reviews whose primary purpose is to provide a venue for the creation and promotion of that information.

In answer to law faculty questions about how participation in an open access repository will affect the works' impact, the present research offers a definitive reply. When looking at citation by other law reviews to all the author's work, the averaged increase in citations in flagship journals is 53%. In general,

Figure 10
Aggregated Results: Citations in Court Decisions — N Y

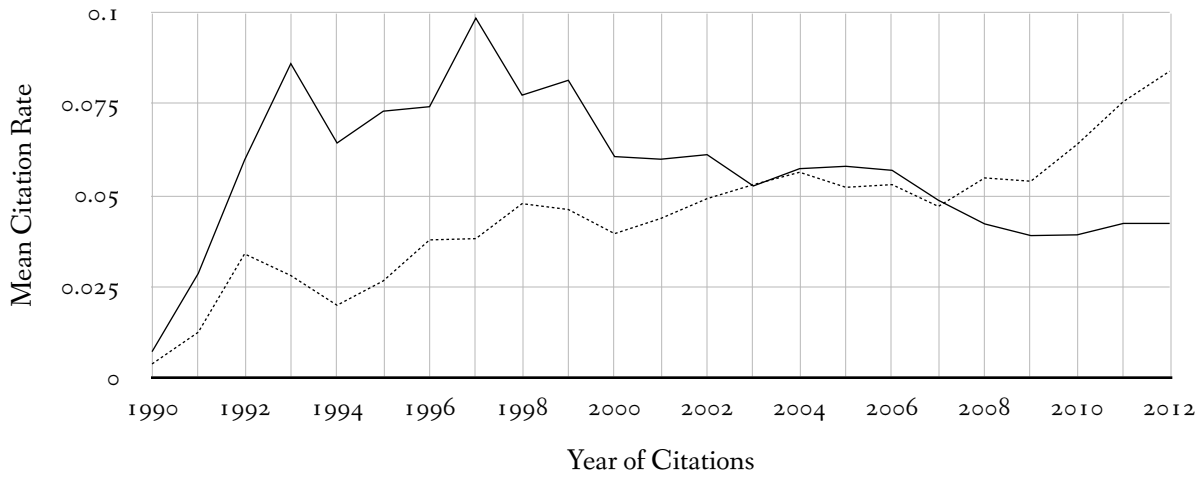


Figure 11
Tier 1: Citations by Court Decisions — N Y

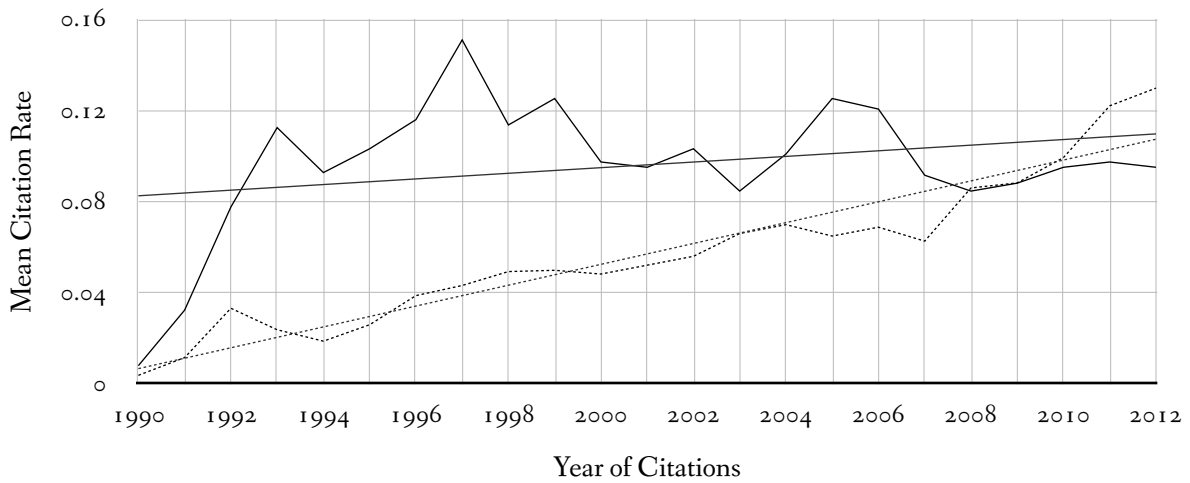


Figure 12
Tiers 2-3: Citations in Court Decisions — N Y

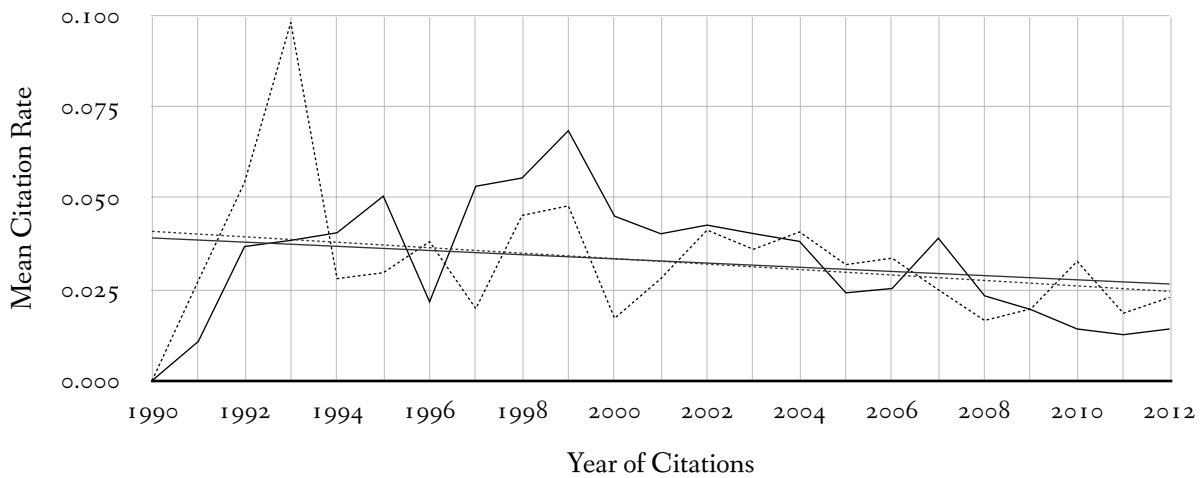
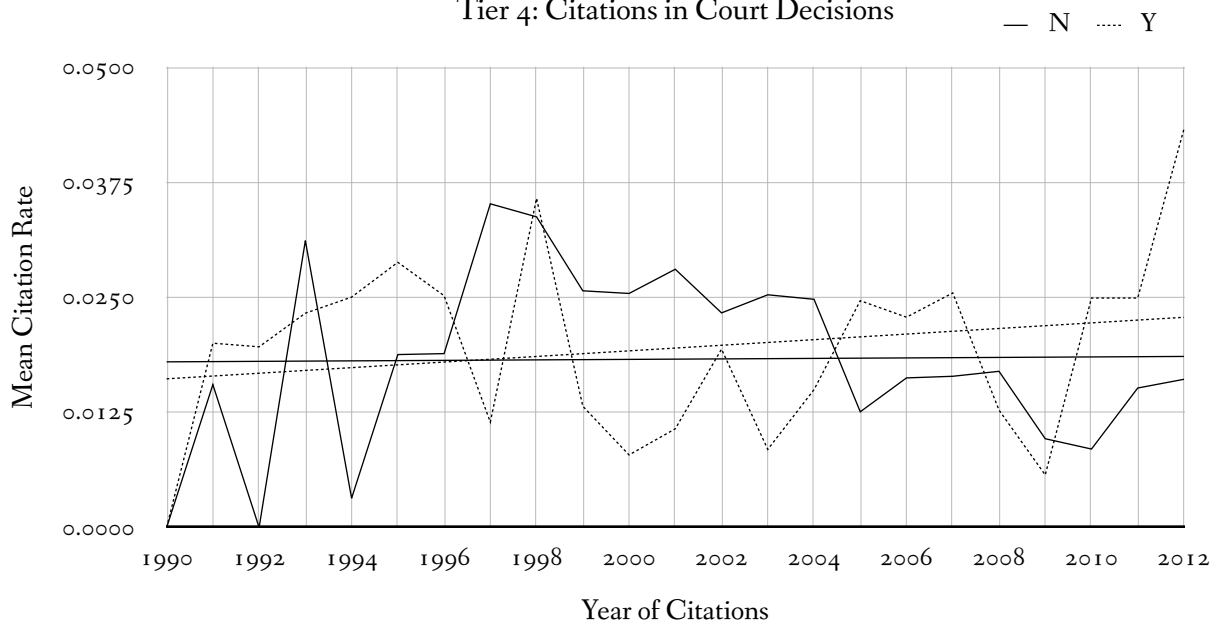


Figure 13
Tier 4: Citations in Court Decisions



half of these cites will be dispensed in the first six years after the article’s publication. OA articles will attract more attention earlier in the lifecycle of the publication, and endure longer on the intellectual stage.

When looking at school ranks these patterns play out differently. Over the same fifteen year span, the OA advantage is less for articles in top tier reviews (11.4%) because their contents routinely saturate their topical areas regardless of the format in which they are available. Correlatively, the general OA advantage is magnified in periodicals outside this elite status because of the heightened discoverability they receive through search interfaces such as Google (Tiers 2-3: 51.3%; Tier 4: 51.9%).

The cumulative OA advantage is magnified when looking only at upload of current works (defined as anything post-2007 through 2012). Although the aggregated results rise to 60.2%, the tiered outcomes are more dramatic. While the Tier 1 advantage rises to 16.8%, the mid-tiers skyrocket to 89.7%. The lowest tier comes in similarly at 81.2%.

When looking at citation of law review articles by courts, the general patterns remain the same. An

aggregated cumulative citation OA advantage of 9.5% becomes 41.4% when limiting the analysis to real-time, post-2007 articles. Top tier journals receive preferential referencing, while fourth tier reviews display a consistent and increasing OA advantage which was not found in mid-tier data.

For authors, the message is clear: The open access advantage is real, sizable, and consistent. The minimal effort to upload an article onto an OA platform such as SSRN or a school’s repository pays rich dividends in the currency of subsequent citations in law reviews and court decisions. There exist, however, reasons beyond heightened recognition of individual authors to justify the effort to create digital repositories that should suffice to motivate even those in the upper echelons of legal education. Faculty have the rare opportunity to “do well by doing good,” attracting greater attention to their works while recognizing the right of others to have access to important information affecting their lives.

For law reviews the results offer similar counsel. Journals do their work as a service to the legal profession. They provide a forum for the discussion of ideas and the presentation of materials intended to be of

use to judges and practitioners. These ends are better achieved if the receptive audience for the articles can be expanded to include everyone with an interest in the messages of those pieces. For all but the most elite titles, retrospective repository projects find those hidden readers. By making their articles freely available to everyone, journals heighten the discoverability and thereby the ultimate influence of their contents. This outcome is even broader than it appears because we expect that specialized journals at even elite schools will display a pattern of OA advantage closer to the heightened pattern seen in the general journals at nonelite schools. While implementing an open access project that includes both current issues as well as full volume runs can be challenging and often costly, the benefits more than warrant the investment. As a journal becomes more influential, it can expect to attract better quality submissions, further heightening its profile in a quality-enhancing feedback loop.

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