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The Citation Success: Evidence from Economic History Journal Publications

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Citation Success: Evidence from Economic History Journal Publications[*]

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Abstract

This study examines the determinants of citation success among authors who recently published their work in economic history journals. We find that full professors, authors from non-economic history departments, and authors working in Anglo-Saxon countries are all more likely to get cited than others whereas affiliation at a top-ranked university has no seeming effect. A number of bibliometric features like article length and number of co-authors also matter for citation success. Our most novel finding is that active diffusion of one's research, e.g., academic presentations (at conferences, workshops or seminars) or online publication of working papers, has a first-order impact on subsequent citation success.

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1   Introduction

Quantitative assessments of scholarly achievements are becoming increasingly widespread. The field of economic history is no exception. These assessments create a basis for a number of important decisions, including hiring and promotion of researchers as well as project funding. Previous studies, especially in the field of economics, have analyzed and debated a variety of measures of scientific performance for ranking academic departments and individual researchers.[1] They find that the single most important measure underlying these assessments is *scientific impact*, typically measured as the number of *citations* a researcher receives from the colleagues of his or her field.

Although author citation success is relatively easy to measure, one question has been left largely unanswered: what are the factors that determine how often a scholar gets cited in the first place? Is author citation success primarily depending on the quality of the research conducted, as measured by how well the work is published?[2] Is it influenced by the author reputation, as reflected in the author's academic appointment (full professor at a prestigious university)? Or are still other factors driving number of citations, such as diffusion of the author's work, through academic presentations or access to working paper versions of the article? Regardless what the factor are, it appears that any far-reaching conclusions from crude citation counts should rely on a firm knowledge about the underlying determinants of citation success. But so far no study has attempted to describe the factors specific to the field of economic history as a whole.[3]

In this study we provide a first attempt to identify the factors underlying citation success based on research published in economic history journals. Our analysis makes use of citations made in 2007 to 217 original research articles published in journals where economic history is the main topic.[4] The focus on the field of economic history—a sub-discipline of economics, on the one hand, and of history, on the other—is by no means arbitrary. Economics and history are two very distinct disciplines,

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[1] See, e.g., for economics Laband and Piette (1994) or Kalaitzidakis, Mamuneas and Stengos (2003) and for economic history journals Di Vaio and Weisdorf (2010).

[2] Indeed, the use and misuse of citations for assessing scholarly qualities has been a recurrent theme in the bibliometric literature (see, e.g., Bodenhorn, 2003; Mayer 2004; van Dalen and Klamer 2005).

[3] The field of economics, on the other hand, offers a few examples of such attempts. These include Laband (1990), Johnson (1997), Laband and Tollison (2000), Hilmer and Lusk (2003) and Ursprung and Zimmer (2007).

[4] The citations used in this study were collected for the purpose of ranking 12 international economic history journals using citation-based impact-factor analysis (see Di Vaio and Weisdorf, 2010).

and, as the analysis below will show, we cannot be sure that conclusions drawn from either field regarding the determinants of citation success are fully applicable to economic history. Furthermore, existing attempts to measure the determinants of citation success in economic history include too few journals to offer a comprehensive picture of the field.[5]

In this study we rely on advanced econometric techniques in order to disentangle the various factors determining author citation success in economic history. We concentrate on three main categories of determinants: (i) bibliometric attributes of the published work (length of article, number of co-authors, self-citation rate etc); (ii) author characteristics (research experience, academic degree, title, sex, affiliation, language of country of appointment etc); and, finally, (iii) potential channels of diffusion of the author's work (number of academic presentations, number of people thanked in acknowledgement, accessibility of working papers etc).

We find that many factors of citation success in economic history are shared with the discipline of economics. But we also discover factors that are specific to economic history. When it comes to bibliometric features, citation success is driven by factors largely similar to those in economics: article length and number of co-authors are positively correlated with an author's citation rate, but both relationships are non-linear. Remarkably, however, it appears that articles published in highly-ranked journals do not generate statistically more citations than articles published elsewhere. This suggests that studies published in low-end journals may have the same scientific impact on the field of economic history as their more prominent counterparts – an interesting contrast to the field of economics.

Turning to author-specific characteristics, we find that departmental affiliation and academic titles are crucial determinants of an author's citation rate. Furthermore, male authors, full professors, and authors appointed in economics or history departments in Anglo-Saxon countries all receive significantly more citations than others. These findings are rather surprising in that authors appointed at departments devoted entirely to economic history (a typical European constellation) are not quite as influential to the field of economic history as their historian and (especially) economist colleagues. Finally, and here is good news for authors who strive to disseminate their work, the diffusion of an author's research, as reflected in number of academic pres-

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[5] Whaples (2002) offers an analysis similar to ours, but he limits his focus to articles published in the *Journal of Economic History*.

entations (conferences, workshops, seminars) and number of people thanked in the article's acknowledgement, exerts a positive influence on citation success.

2 Data

2.1 The construction of the dataset

The data used for the empirical analysis conducted below come from several sources. The main source is the dataset collected by Di Vaio and Weisdorf (2010). This includes 657 citations appearing in 217 research articles published in 2007 by a set of international general-interest economic history journals.[6] Following the so-called 'within-discipline' approach, the citations are produced by the journals in the sample, referring to works that were previously published in the same journals.[7]

For every author whose work was cited in 2007, we collect a number of bibliometric variables: citation rate (the total number of citations received);[8] self-citation rate (the total number of citations received from the author himself or his eventual co-authors); SSCI citation rate (the total number of citation received by articles published in journals included in the Social Science Citation Index);[9] average length of the article cited; and average number of co-authors of the article cited. In this way, we construct a sample that contains bibliometric information about a total of 450 authors, which we call our *large* sample.

In addition, we collected the following information from the author's professional website (when available):[10] the author's sex (male or female), region of employment (Anglo-Saxon, Latin, German-speaking, or Nordic), education (Ph.D. or not), academic title (full or associate professor), and departmental affiliation (economic history, economics, or history). Finally, we include a measure of how the institu-

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[6] The journals are: *Annales: Histoire, Sciences Sociales; Australian Economic History Review; Cliometrica: Journal of Historical Economics and Econometric History; Economic History Review; European Review of Economic History; Explorations in Economic History; Indian Economic and Social History Review; Irish Economic and Social History; Jahrbuch für Wirtschaftsgeschichte; Journal of Economic History; Revista de Historia Económica / Journal of Iberian and Latin American Economic History; Rivista di Storia Economica; Scandinavian Economic History Review.*

[7] See Di Vaio and Weisdorf (2010) for further details.

[8] This is a crude measure of academic impact, which does not control for size or impact of journals as is common in the bibliometric literature. As shown by Henrekson and Waldenström (2011), however, the correlation across different impact measures based on either journal-impact scores or actual citations is quite high. Hence, we feel confident about using unadjusted citations as our main outcome measure.

[9] In 2007, these economic history journals were *Economic History Review*, *Explorations in Economic History* and *Journal of Economic History*.

[10] We consulted only official websites, meaning websites hosted by universities or research institutes.

tion, where the author is based, is ranked among the top-200 universities listed in the *Sunday Times*' "World University Rankings".[11] These latter variables are valid at the time of citation, namely the year 2007. Accordingly, while this sample is smaller, it is also richer in terms of information. It includes a total of 325 authors, and is referred to as our *rich* sample.

While our database is unique in its specific representation of economic historians worldwide, it is not perfect. For one thing, the data do not contain information regarding authors who were *not* cited in 2007 in the journals included in the sample. That is, the results obtained below are conditional on authors being cited. Another drawback of the dataset is that we do not consider citations made to and from books, book chapters or other non-article items. Given that a fair share of citations made in the social and human sciences are not captured by journal articles (Hicks, 2004), our sample selection is potentially biased. And yet, we have observed that economic historians tend to publish the main results of their research in an economic history journal around the same time as their book is released. If this is indeed a common practice, then we implicitly pick up reference to the research that inspired the book, as these are repeated in the article; potential bias is mitigated as a result.

2.2   Data characteristics

The data contained in the two samples provide a broad representation of the citation rates of authors who publish their work in economic history journals—from the most cited authors, who receive ten or more citations in a year, down to those who receive just a single citation. Figure 1 shows the frequency distribution of authors conditional on citations received. About half of all authors received one citation in 2007, while one tenth of all authors received four citations or more. It is worth noting that one extreme observation received 37 citations (Jeffrey G. Williamson).[12] As can be seen from the figure, the majority of observations are concentrated in the bottom part of the distribution, a phenomenon that deserves attention when correctly specifying the econometric model.

[Figure 1 about here]

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[11] See the *Sunday Times*' "Higher Educational Supplement", November 9, December 2007.
[12] Due to its outlier status, this observation is controlled for by means of a dummy variable in the empirical analysis.

A full description of the dataset is reported in Table 1. The table is divided between the basic sample including bibliometric information for 450 authors, and the rich sample containing additional individual characteristics of 325 authors. The average number of citations (conditional on receiving citation) is 1.96 in the basic sample and 2.18 in the rich sample. Therefore, every author in the samples receives, on average, about two citations. The median in both cases is one. The distribution of citations in either sample is thus strongly skewed. On average, only about one seventh of all citations received come from the author him- or herself. It is worth noting that the bibliometric variables in the basic and the rich samples do not show large differences, which suggests that the two samples might be considered as belonging to the same population and that there is no immediately evident selection of scholars into the rich sample.

The share of citations addressed to JCR articles seems to dominate the whole set of sample citations, since more than two thirds of total citations received by an author, on average, refer to this category. Such a large fraction of citations to JCR articles might have some implications for its estimated impact, as will be clarified later.

[Table 1 about here]

Co-authorship does not appear to be that prevalent among economic history journal publications. Although half of the cited authors have at least one co-authored article, with the average number of authors per article in the large sample being 1.57, about three fourths of all articles in our database were single-authored. There does not seem to be any apparent differences across departmental affiliation (whether authors come from economics, economic history, or history departments). In comparison with (other) economist researchers, this suggests that co-authorship is relatively uncommon among people who publish their work in economic history journals (Johnson, 1997; Coupé, 2004).[13] Moreover, the average length of articles is 25 pages, with a standard deviation of 8 pages. This is considerably longer than the average article published in economics journals of about 15 pages (Laband and Piette, 1994; Johnson, 1997); but it

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[13] For example, Coupé (2004) shows that after 1995 about 45 percent of economics articles (cited and un-cited) were co-authored whereas in our sample of cited articles published 1995 or later a third was co-authored.

is shorter than the average article in the *American Economic Review*, which is about 30 pages long (Laband, Tollison and Karahan, 2002). That economic history papers are relatively long may be related to the specificity of economic history research with its large narrative and descriptive sections often required to embed each investigation. In addition, economic history papers make ample use of data appendices which are fully included in our length measure.

The rich sample also offers information concerning authors' geographical location, the type of department to which they are affiliated, and their academic title. Two thirds (66 percent) of the cited articles were written by authors working in Anglo-Saxon countries, while two thirds (67 percent) were written by scholars who were full professors by 2007.

As regards departmental affiliation, 58 percent of the cited authors were employed at economics departments. Indeed, that figure reaches 70 percent for universities located in Anglo-Saxon countries. Just 25 percent of all authors were appointed at either history (13 percent) or economic history (12 percent) departments. The the rest were affiliated to other kinds of institutions. Figure 2 plots the frequency distribution of citations per author controlling for departmental type. The figure clearly demonstrates the dominance of authors coming from economics departments. In fact, our analysis shows that the distribution of citations received by authors appointed at economics departments statistically dominates that of economic history departments, which again statistically dominates the distribution of those employed at history departments. This suggests that authors employed in economics departments are among the most influential economic historians. Strikingly, in her mid-1990s article, titled "The End of Economic History", Christina Romer forecasts a shift of the U.S. field of economic history from a distinct academic discipline to a sub-field of economics (Romer, 1994). Our data analysis offers numerical expression to this conjecture.

[Figure 2 about here]

3 Econometric analysis

3.1 Specification

In this section, we aim at linking the citation success of authors publishing in economic history journals to a number of article-specific and author-specific factors. Specifi-

cally, our dependent variable is the total number of citations (*Cites*)—a count variable which takes integer values from one and up. We explain the number of cites by a set of bibliometric characteristics (self-citation, article length, etc), as well as a set of author background characteristics (sex, academic title, academic affiliation, etc).

It is important to note that the citations rates are highly skewed towards the right of the distribution as is seen in Figures 1 and 2. A skewed distribution of the dependent variable typically implies that the residuals are not normally distributed when using least squares regressions. This, in turn, means that the coefficient estimates are typically inconsistent. Our baseline estimations will therefore be based on a Poisson model. Indeed, the Poisson model is designed specifically to treat count variable data.

Formally, we specify a model that describes the number of citations of articles authored by researcher i, $Cites_i$, as a function of a vector of bibliometric variables, x_i, and a vector of academic background variables, z_i. This can be expressed as follows:

$$Cites_i = \exp(x_i'\beta + z_i'\delta + \varepsilon_i). \tag{1}$$

After log-linearization, the model reads

$$\ln Cites_i = x_i'\beta + z_i'\delta + \varepsilon_i. \tag{2}$$

In addition to the baseline Poisson estimation, we also run a negative binomial model in order to account for eventual over-dispersion of the dependent variable. Effectively, the negative binomial regression is a generalized version of the Poisson regression, which allows for a more flexible dispersion of the dependent variable. Yet, we prefer the Poisson model due to its salient properties of robustness. That is, it provides consistent and asymptotically normal estimators, even if the Poisson distribution is not valid (Wooldridge, 2002). On top of this, we have also estimated the model using a wide array of different specifications without encountering any meaningful deviations from our main results.[14]

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[14] For example, we have estimated various least squares models with different kinds of standard error adjustments, as well as a zero-truncated Poisson model takes into account that our dependent variable never takes the value zero (as we analyze citations conditional on being cited).

3.2 Main results

Table 2 reports the first set of regression results, based on the large sample with all 450 cited authors and only bibliometric variables. Note that the point estimates associated with each explanatory variable is expressed as an *incidence rate ratio*. This tells us how much more likely the author is to get an additional citation as the explanatory variable increases by one unit. We find for both length of article and number of authors that incidence rate ratios are above one, which hence means that longer articles and articles written by more than one author are cited more often. As shown by the squared versions of those two variables, however, the positive effect gradually diminishes. Clear, in both cases the relationship is non-linear and thus the positive impact of article length and number of co-authors hold only true up to a certain point. These findings are in line with findings in earlier studies of citation success, e.g., Robert Whaples' analysis of articles in the Journal of Economic History (Whaples, 2002) or different studies of the entire field of economics (Coupé, 2004).

[Table 2 about here]

The natural follow-up question, of course, is then: given these results, what is the "optimal" length of an article, as well as the "optimal" number of co-authors, if one wants to maximize one's citation rate? We can easily answer this question by calculating the marginal effects from the coefficient estimates. The result is presented in Figure 3.[15] Using our preferred model, i.e. estimates of the Poisson regression, the optimal length of an article is 34 pages. This is rather long, not least in light of the fact that the mean length of articles in the sample is 25 pages. Since the standard deviation of the sample is 8 pages, however, the citation-rate maximizing 34 pages are almost within one standard deviation away from the mean. Similarly, the optimal (integer) number of authors per article is two. The gain is large in going from one to two co-authors. Yet, the citation impact decreases substantially when going from three to four authors. The question of whether more authors is beneficial for the scientific impact has been dealt with in other disciplines (Coupé, 2004), and it is fair to say that no consensus has yet been reached. Popular explanations point to higher quality stemming

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[15] In practice, the marginal effect of an explanatory variable is the derivative of the dependent variable with respect to the explanatory variable holding all other explanatory variables constant. In the case of dummy regressors this entails going from 0 to 1.

both from more expert input into the article and from more discussions taking place among co-authors while conducting the work. Co-authorship also increases substantially the opportunities for presenting the work at seminars and conferences (two people, as opposed to one, have twice the possibility of going away to conferences, not least taking limited individual travel funding into account). This expands the diffusion of the work, the role in citation success of which we address further below.

[Figure 3 about here]

The impact of publishing in well-established and, arguably, high-quality economic history journals, measured as being included in the SSCI, also seems to be a significantly positive. However, as we will show below, this effect is not robust to the analysis of the more information-rich sample, possibly due to the fact that high-quality authors choose to submit to those journals whose citations are recorded. Finally, self-citations are positively correlated with the citation rate. These are only included for control purposes as our aim is to assess a scholar's impact on the field as a whole, something which self-citations do not necessarily reflect.

We now extend the analysis of background variables beyond the bibliometric ones to also include author-specific personal and academic determinants. As mentioned earlier, this reduces the number of observations for which data are available down to 325. Reassuringly, however, the coefficient estimates of the bibliometric variables discussed below are almost identical to those reported above. In Table 3 results are reported, and they show that economic historians employed in Anglo-Saxon countries (and, to a somewhat less extent, German-speaking countries) are markedly more likely to be cited. In comparison with scholars working in the Nordic countries, Anglo-Saxon and German economic historians are between 50 and 100 percent more likely to be cited as shown by the incidence rate ratios of between roughly 1.5 (for Germans) and roughly 2 (for Anglo-Saxons). Working in Latin regions has no significant impact on the citation rate, although formally testing for differences across regions, reported in Table 4, we find that only Nordic authors appear to be truly dominated in this respect.[16]

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[16] The low citation rate of Nordic scholars may be a result of the long-standing traditions in these countries to predominantly write economic history in the native language, in monograph format, and with-

The role of academic titles is also important. Indeed, we find that the likelihood of being cited improves considerably when the author is a full professor.[17] The effect is substantial: in the preferred Poisson specification, full professors are 73 percent more likely to receive a citation in comparison to assistant professors and postdocs (who together comprise the reference group). Similar positive effects of academic tenure on citations in economics are found by, e.g., Bodenhorn (2003) and Ursprung and Zimmer (2007). But why do full professors obtain more citations? Is it because of prejudice, i.e., that famous people attract cites simply because they are famous, or is it because they write better papers? There is a vast literature dealing with this issue in a number of academic fields. Although both channels seem to prevail, the prejudice channel – that famous scholars are cited just by being famous known as "The Matthew effect" (Merton, 1968) – has understandingly attracted the most attention.[18] In our sample we cannot fully distinguish between the two channels, but some headway can indeed be made. By interacting professor status and top-university affiliation, we may pick up some of the prejudice effect working through people wanting to cite people at fine universities rather than good papers. This interaction effect, however, turns out to be small and insignificant. For the subset of the authors whose personal websites we were able to locate, we also know place and year of Ph.D. A long time since Ph.D. ought to bring with it some degree of fame over and above the actual skill-enhancing tenure effect, and hence potentially capture some prejudice influence. A similar relatively important prestige effect on citations could come through having a degree from a top university, particularly concerning scholars not ending up as professors at top universities. However, none of these variables – neither their main effects, nor when interacted with the others – manage to remove the positive and statistically significant impact of professors being about 70 percent more likely to receive cites than others.[19]

Turning to the role of departmental affiliation, we find that authors from economics and history departments are outperforming authors belonging to economic his-

out almost any quantitative methods or economic-theoretical reasoning (see further Waldenström, 2005, on the case of Sweden).

[17] Note that authors whose articles were cited in 2007 were already appointed by that time, meaning that there is no issue of reverse causality.

[18] The name "Matthew effect" stems from the biblical phrase in the Gospel of Matthew (25:29): "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath".

[19] We have suppressed these additional regressions to save space, but they are available upon request.

tory departments. According to the incidence rate ratios in Table 3, people at economics departments receive 30 percent more citations, and scholars at history departments twice as many, as people at economic history departments. The post-estimation tests in Table 4 show that these differences are significantly different from zero, but that the difference between economics and history departments is insignificant. It should be noted that the regression effects are estimated on the margin, and that there is a vast dominance of economists among the authors in our sample (as shown by Figure 2). In particular, the large number of economists who receive only one citation results in a relatively lower overall impact of belonging to an economics department. By contrast, among the relatively few authors coming who come from history departments (38 scholars, or roughly 10 percent of the sample), most of them (32 scholars) are full professors; the average impact of their department affiliation is hence more positive. In addition, looking at Table 4, it seems as if the equality of the estimated coefficients cannot be rejected.

The findings in Table 3 also seem to suggest that female authors generate fewer citations than their male counterparts. Given the relatively small number of female authors in the sample (41 out of 325), especially in the history (6 out 44) and economic history (4 out of 38) departments, the role of gender should be interpreted with some caution. Nonetheless, this finding is in line with previous results showing that female researchers attract significantly fewer citations than their male counterparts (Ferber, 1988). We do not have any obvious answer to why that is. It may be to do with topic-related issues, whereby women tend to choose topics that are less debated among economic historians (such as the role of gender).

What about reputation? For example, do authors appointed at highly ranked universities receive more citations? The answer, based on our sample, is no. Authors who come from top-50 universities in the world according to the worldwide ranking in *Times Higher Education Supplement* do not receive significantly more citations compared to authors who work at less prestigious institutions. In fact, authors appointed at universities ranked between top-10 and top-50 perform slightly worse than their colleagues coming from even lower ranked universities. This contrasts with findings by Whaples (2002), in his examination of the most cited articles in the *Journal of Economic History*, who discovers a positive effect of being affiliated to a top university. Our results are robust when controlling for type of department. A potential explanation for this striking result may be that a general ranking of universities is poorly

correlated with a ranking of universities in which their respective economic history amenities had been given preference.

Altogether, the econometric analysis points to a number of characteristics which appear to be robustly associated with citation success. Economic historians writing relative long papers, often together with others, seem to build up enough quality in their work to attract the attention of others. Similarly, male, full professors working in Anglo-Saxon or German countries—though not necessarily at top-rated universities—achieve a higher impact of their work. But what is the message to those who wish to improve their scientific impact? While sex and professorship status, to most, are not exactly choice variables, putting more effort into each paper project and to team up with others seems to be worthwhile. The same holds true for those working in purely economics or history departments, and is potentially due to gains generated from being part of large academic communities; perhaps economic history departments are too self-contained to exercise sufficient impact.

Over and above the channels discussed above, however, there is yet another alley through which scientific impact may be substantially increased: an active diffusion of results to other researchers.

[Table 3 about here]

3.3   The role of diffusion of academic work

Arguably, one of the most straightforward ways to increase one's scientific impact is to present one's research to others. Such dissemination can take a variety of forms, spanning from participation in conferences, workshops and research seminars to internet-based venues for working papers and academic blogs (Colander, 2008; Frey, Eichenberger and Frey, 2009). To the extent that such self-advertisement reaches out to the designated audience it is quite likely to have a positive effect on subsequent citations. However, there is almost no previous empirical work on the role of diffusion for citation success. In a study of premature deaths of some prominent economics scholars, Aizenman and Kletzer (2011) examined whether this event in any way influenced the citations to these scholars *post mortem*, but they found no clear evidence on such effects.

The current study makes a more explicit inquiry into whether diffusion drives citations. As already discussed, research diffusion may take place in different ways,

and we focus on three main channels of diffusion: i) *presentations* at research seminars, workshops, conferences, etc.; ii) *personal contacts* with other researchers whose advice was appreciated by the author; iii) *internet publication of working papers*. Information about these three diffusion proxies were collected for the most and least cited articles in our database, altogether 34 articles. Specifically, from these top-2.5 percentile and bottom-2.5 percentile groups in the citation distribution we collect detailed information about the number and names of individuals acknowledged for comments and suggestions, the number of seminars, workshops and conferences where the paper was presented.[20] We also record whether the authors of cited articles were registered, and have published their working papers, at the large and internationally renowned internet website for the dissemination of research in economics: IDEAS (http://ideas.repec.org/). In order to assess the external validity of the internet diffusion channel, we collect IDEAS-registration for authors in rich author sample. However, we only include authors whose articles were published during 2002–2007 since internet usage and access in earlier years was more restricted, limiting this way the possibility of citation success through this channel.

In Figure 4, we display scatter plots of article citations against the number of acknowledged individuals and the number of seminar and conference presentations. At face value, the data suggest a positive association in both cases: the correlation coefficients are 0.73 for acknowledgement of individuals, and 0.50 for acknowledgement of presentations.

[Figure 4 about here]

We also run Poisson regressions in order to see whether the relationship between citations and diffusion is statistically robust. These are presented in Table 4. Indeed, in bivariate models where we regress citation success on nothing but a measure of diffusion, a constant and a random error term, the relationship remains significantly positive. Specifically, for each additional seminar presentation the likelihood of getting an additional citation increases by 14 percent. For an additional person thanked for helpful comments and suggestions, the effect is somewhat smaller, 5 per-

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[20] This sample contains 34 articles, which is five percent of the 671 cited articles in our database. In practice, the top group comprises of articles with three or more citations. The bottom group was selected randomly (using a uniform number generator) from the large pool of articles with one citation.

cent, yet statistically significant. The largest impact, however, comes from disseminating online versions of working papers. Indeed, being registered at IDEAS is associated with a 79 percent higher chance of being cited. Note that the impact of internet publication is large and significant in both our limited article sample (most and least cited articles) and the much larger author sample.

Other factors may, however, be responsible for the positive impact of diffusion. For example, full professors—the by far most cited group in the profession—often have larger networks; they may get more invitations to seminars etc; and may get more comments from their peers. This means that a positive diffusion effect could be entirely driven by skillful professors, whose citation success is due to their documented research performance, which is also why they are professors in the first place. And so, it is not the fact that they happen to present their work more often that drive their high scientific impact. In order to disentangle effects, we include a dummy variable equal to one if any of the authors are a professor. As shown in the multivariate equations in Table 4, this does not influence the citation impact of diffusion. Likewise, when we introduce controls for any of the authors belonging to a top university—this could also capture both citation-generating quality aspects and more extensive diffusion possibilities (simply having well-known colleagues in your faculty may make you more interesting to invite for a seminar)—then nothing happens to the diffusion effect. Even when interacting top-university status with diffusion, results remain the same. The main citation effect of diffusion, therefore, is still positive and significant.

[Table 4 about here]

We complete the investigation of the diffusion effects for citations by going one step deeper into our data. The purpose is to check whether people thanked in the acknowledgement—people we *know* are familiar with the work—are also the ones citing it. We find that out of a total of 76 citations from the 17 most cited articles, eight citations, or ten percent, came from persons acknowledged in the articles. The vast majority of the citations are, therefore, not "mechanically" linked to the acknowledgements, which suggests that acknowledgements operate merely as a proxy of diffusion. Still, the fact that a non-negligible flow of citations come from people familiar

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with the studies confirms that diffusion works, a linkage not previously demonstrated in literature.

4 Concluding remarks

This study offers a modest attempt to identify some of the factors that determine the citation success of authors who have recently published their work in economic history journals. Similar studies were done for other disciplines, especially in economics, but with no explicit treatment of economic history as a self-contained field. Arguably, a sub-discipline approach is useful in truly understanding the determinants of citation success of economic historians.

Several important findings come out of the analysis. As for the purely bibliometric attributes, we find that longer papers receive more citations, but only up to a certain point. The same is true for number of authors involved. The "optimal" number of authors for a paper is two, while the "optimal" length of a paper is 34 pages. Authors appointed at universities in Anglo-Saxon countries are more likely to get their papers cited than authors employed in Latin, Nordic, or German-speaking countries. Academic titles matter: being a full professor significantly increases the citation rate as compared to assistant professors and post-docs. Furthermore, authors from economics or history departments are cited more often than their colleagues of economic history departments. Gender also seems to matter: women, especially in economics departments, are less cited than men.

Last but not least, our study is one of the first to empirically estimate the role of research diffusion for subsequent citation success. Using a number of different measures of diffusion, and controlling for several competing hypotheses, we find a robust link between diffusion and citations. The returns of research diffusion are quite substantial: each academic presentation (conference, workshop or seminar) increases changes of getting cited by up to 14 percent, and making your working papers accessible on internet websites improves citation success with up to 70 percent.

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Figure 1: Number of authors for each citation count
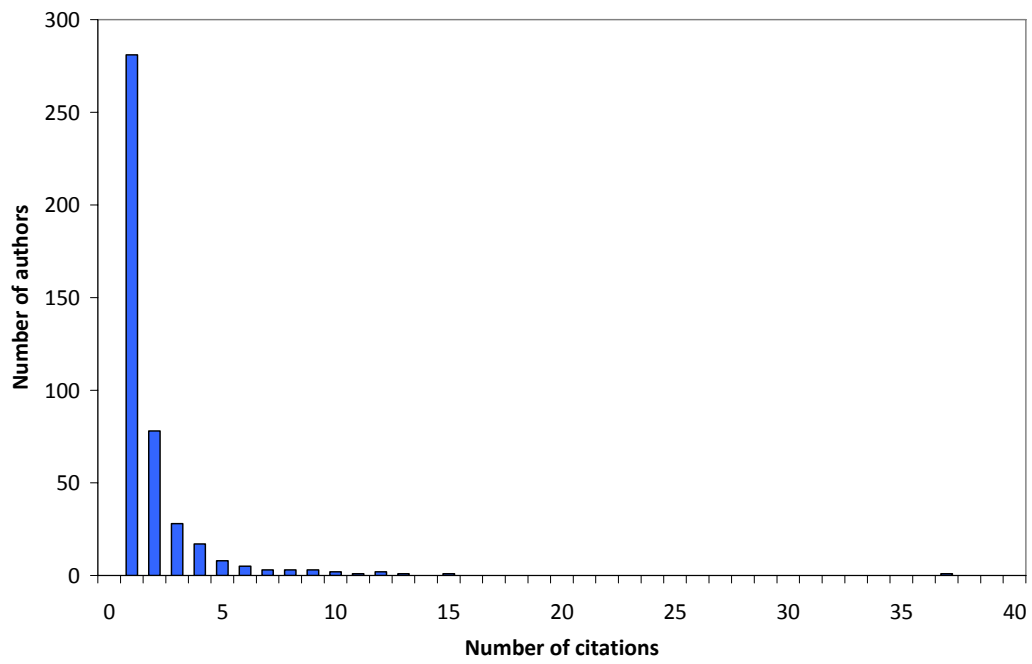
Figure 2: Distribution of citations across authors and departments.
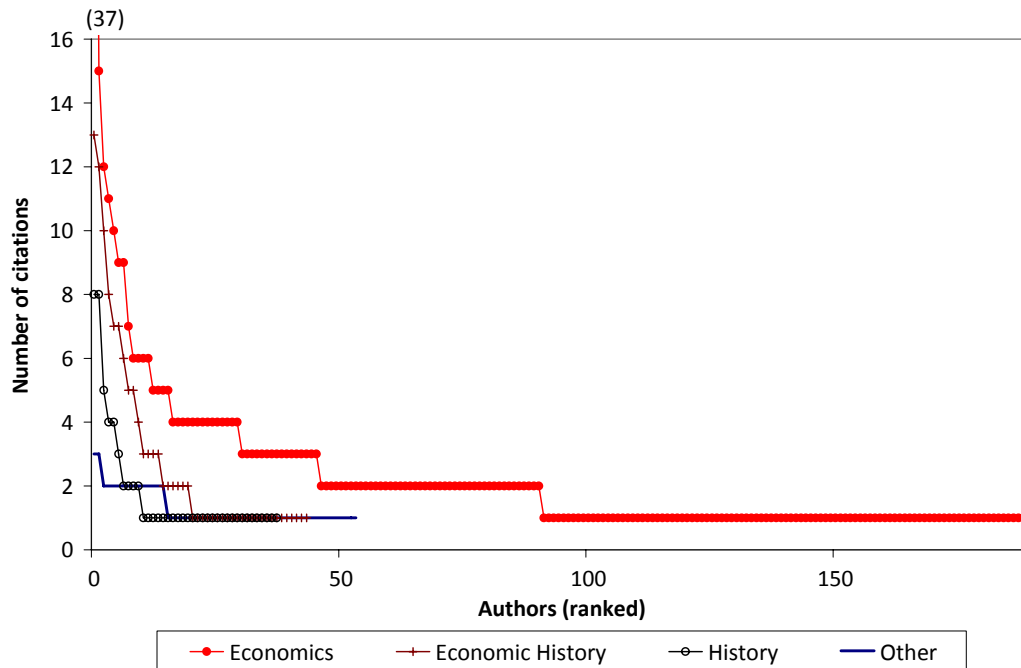
Figure 3: "Optimal" article length and number of authors for citation success.
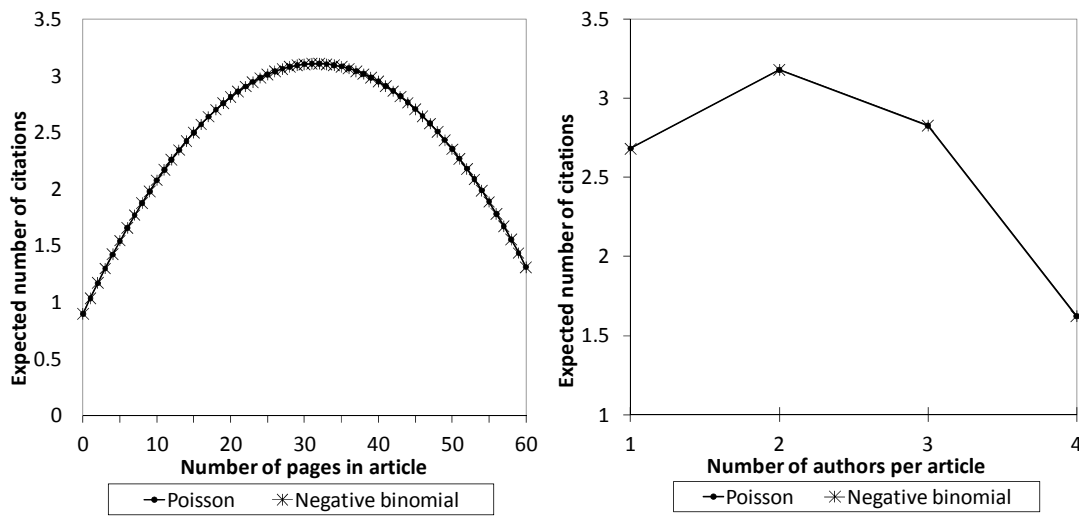
Note: Calculations are based on estimates in Table 3, i.e., using the marginal effects conditional on all the other controls.

Figure 4: Diffusion and citation success.
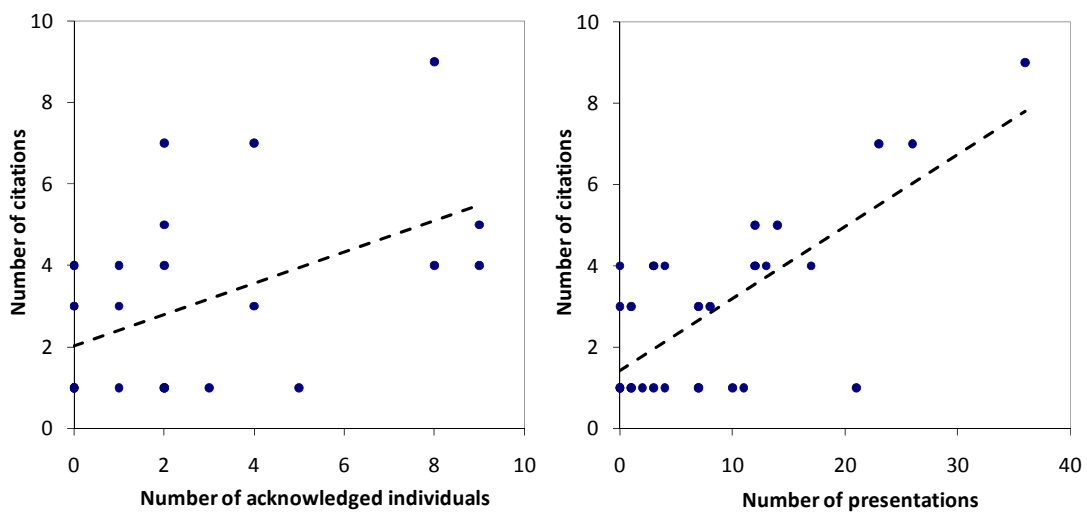
Note: The population in both graphs consists of 34 authors, constituting the top 17 and the bottom 17 (a random selection of all having one citation) in terms of citations of the basic sample population.

Table 1: Summary statistics

Variable	Description	N	Mean	S.D.	Min	Md	Max
	Large sample (450 observations)						
Cites	Total number of citations	450	1.95	2.51	1	1	37
Selfcite-share	Share of self-citations	450	0.13	0.30	0	0	1
SSCI-share	Share of SSCI-journal citations	450	0.69	0.44	0	1	1
Length	Number of pages in articles	450	24.45	8.36	2	24	50
Authors	Number of authors	450	1.56	0.69	1	1.12	4
	Rich sample (325 observations)						
Cites	Total number of citations	325	2.18	2.84	1	1	37
Selfcite-share	Share of self-citations	325	0.16	0.33	0	0	1
SSCI-share	Share of SSCI-journal citations	325	0.68	0.45	0	1	1
Length	Number of pages in articles	325	25.55	8.09	5	25	50
Authors	Number of authors	325	1.67	0.73	1	2	4
Female	Female author	325	0.13	0.33	0	0	1
Anglo-Saxon country	From Anglo-Saxon country	325	0.66	0.48	0	1	1
Latin country	From Latin European country	325	0.17	0.38	0	0	1
German country	From Germanic country	325	0.08	0.27	0	0	1
Nordic country	From Nordic country	325	0.05	0.21	0	0	1
Professor	Full professor	325	0.67	0.47	0	1	1
Associate professor	Associate professor	325	0.17	0.37	0	0	1
Top University	Top 50 university in THES[a]	325	0.13	0.34	0	0	1
Economics	Economics dept. affiliation	325	0.58	0.49	0	1	1
History	History dept. affiliation	325	0.12	0.32	0	0	1
Economic history	Economic history dept. affiliation	325	0.14	0.34	0	0	1

Note: SSCI-journals are journals listed in Thomson Reuter's *Journal Citation Reports*. Country groups are defined as follows. Anglo-Saxon: Australia, Canada, Ireland, New Zealand, United Kingdom, United States; Latin European: France, Italy, Portugal, Spain; Germanic: Austria, Belgium, Germany, Netherlands, Switzerland; Nordic: Denmark, Finland, Norway, Sweden.
[a] THES = Sunday Times Higher Educational Supplement, December 2007.

Table 2: Determinants of citation success: Baseline results

Model:	Large sample		Rich sample	
	Poisson	Negative binomial	Poisson	Negative binomial
Selfcite-share	1.31**	1.35**	1.27*	1.35**
	(0.15)	(0.17)	(0.18)	(0.20)
Length	1.08***	1.08***	1.10***	1.08***
	(0.02)	(0.02)	(0.03)	(0.02)
Length squared	1.00***	1.00***	1.00***	1.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Authors	3.82***	3.69***	3.11***	3.16***
	(1.22)	(1.15)	(1.13)	(1.06)
Authors squared	0.71***	0.72***	0.73***	0.74***
	(0.06)	(0.06)	(0.07)	(0.06)
SSCI–share	1.17*	1.18*	0.91	0.97
	(0.10)	(0.10)	(0.12)	(0.11)
Female			0.80*	0.84
			(0.10)	(0.09)
Anglo-Saxon country			1.85***	1.71***
			(0.28)	(0.23)
Latin country			1.27	1.34
			(0.30)	(0.30)
German country			1.54**	1.60**
			(0.30)	(0.30)
Nordic country			1.00	1.02
			(0.18)	(0.18)
Professor			1.73***	1.65***
			(0.18)	(0.15)
Associate professor			1.05	1.08
			(0.13)	(0.12)
Top University			0.79	0.87
			(0.14)	(0.12)
Economics dept.			1.38***	1.26**
			(0.17)	(0.12)
History dept.			2.00***	1.93***
			(0.33)	(0.30)
Econ. history dept.			1.05	1.06
			(0.18)	(0.18)
Constant	0.18***	0.18***	0.07***	0.09***
	(0.06)	(0.06)	(0.03)	(0.03)
Observations	450	450	325	325
Pseudo-R^2	0.13	0.07	0.11	0.11
Alpha		0.15***		0.13***

Note: Dependent variable is an author's total number of citations (*Cites*). Coefficients are presented as incidence rate ratios. Robust standard errors are in parentheses. ***, **, * denote statistical significance at the 1%-, 5%- and 10%-level, respectively.

Table 3: Testing equality of estimated coefficients in rich sample

Test	χ^2-statistic	Prob.$>\chi^2$
Departments		
Economics = Economic history	6.18**	0.01
Economics = History	0.96	0.33
History = Economic history	7.76***	0.01
Country/language region		
Anglo-Saxon = Latin	0.24	0.62
Anglo-Saxon = German	1.60	0.21
Anglo-Saxon = Nordic	12.11***	0.00
German = Latin	0.62	0.43
German = Nordic	5.98**	0.01
Latin = Nordic	1.99	0.16
Academic title		
Professor = Associate professor	14.09***	0.00

Note: The tests are based on Poisson regressions for the rich sample in Table 2.

Table 4: Diffusion of research and citation success

	Diffusion channel:							
	Seminar presentations		People acknowledged		Internet publication		Internet publication (*author sample*)	
Diffusion	1.12***	1.14***	1.05***	1.05***	1.79**	1.77*	1.82***	1.54***
	(0.03)	(0.04)	(0.01)	(0.01)	(0.43)	(0.55)	(0.34)	(0.22)
Length		1.07		1.06		1.05		1.05
		(0.05)		(0.04)		(0.04)		(0.04)
Length squared		1.00		1.00		1.00		1.00
		(0.00)		(0.00)		(0.00)		(0.00)
Authors		1.92		2.28		1.25		2.86*
		(1.85)		(2.35)		(1.31)		(1.74)
Authors squared		0.84		0.79		0.88		0.73**
		(0.21)		(0.23)		(0.25)		(0.11)
Years since publ.		0.97		0.95**		1.01		
		(0.02)		(0.02)		(0.03)		
Any professor		1.51**		0.99		0.92		2.09***
		(0.29)		(0.41)		(0.44)		(0.33)
Top University		2.03***		1.71**		2.00**		0.98
		(0.45)		(0.36)		(0.55)		(0.38)
Diffusion $\times$ Top U.		0.89**		0.98		0.54		0.85
		(0.04)		(0.01)		(0.20)		(0.40)
Constant	2.11***	0.24	1.73***	0.42	1.91***	0.62	2.15***	0.15***
	(0.30)	(0.25)	(0.23)	(0.36)	(0.38)	(0.56)	(0.22)	(0.09)
Observations	34	34	34	34	28	28	160	144
Pseudo-R^2	0.09	0.19	0.17	0.22	0.05	0.13	0.05	0.29

Note: Dependent variable is the total number of citations (*Cites*). For definitions of explanatory variables, see Table 1 and text. Poisson estimation is used and coefficients are presented as incidence rate ratios. First three columns use article sample while the fourth column uses the rich author sample requiring that papers were published in 2002–2007. Robust standard errors are in parentheses. *** and ** denote statistical significance at the 1%- and 5%-level.