Nine Facts about Top Journals in Economics

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Abstract

How has publishing in top economics journals changed since 1970? Using a data set that combines information on all articles published in the top-5 journals from 1970 to 2012 with their Google Scholar citations, we identify nine key trends. First, annual submissions to the top-5 journals nearly doubled from 1990 to 2012. Second, the total number of articles published in these journals actually *declined* from 400 per year in the late 1970s to 300 per year most recently. As a result, the acceptance rate has fallen from 15% to 6%, with potential implications for the career progression of young scholars. Third, one journal, the *American Economic Review,* now accounts for 40% of top-5 publications, up from 25% in the 1970s. Fourth, recently published papers are on average 3 times longer than they were in the 1970s, contributing to the relative shortage of journal space. Fifth, the number of authors per paper has increased from 1.3 in 1970 to 2.3 in 2012, partly offsetting the fall in the number of articles per year. Sixth, citations for top-5 publications are high: among papers published in the late 1990s, the median number of Google Scholar citations is 200. Seventh, the ranking of journals by citations has remained relatively stable, with the notable exception of the *Quarterly Journal of Economics*, which climbed from fourth place to first place over the past three decades. Eighth, citation counts are significantly higher for longer papers and those written by more co-authors. Ninth, although the fraction of articles from different fields published in the top-5 has remained relatively stable, there are important cohort trends in the citations received by papers from different fields, with rising citations to more recent papers in Development and International, and declining citations to recent papers in Econometrics and Theory.

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1. Introduction

Publications in the top journals have a powerful influence on the direction of research in economics, on the career paths of young researchers, and on the pay of academic economists. To what extent has the publication process in these journals changed over the past few decades?

In this paper we present a descriptive overview of trends among the papers published in the "top-5" economics journals: the *American Economic Review* (AER), *Econometrica* (EMA), the *Journal of Political Economy* (JPE), the *Quarterly Journal of Economics* (QJE), and the *Review of Economic Studies* (RES). We combine data from *EconLit* on all articles published in these outlets since 1970 with matched citation data from Google Scholar and annual submission counts from the journals.[1] Our analysis builds on the study by Ellison (2002) but extends his work in several directions, including the consideration of paper-specific citations.[2] A complementary analysis by Hamermesh (2012) provides a more detailed analysis of a subset of articles in three of the top-5 journals, focusing on the characteristics of authors and of methods employed, which we do not consider.[3]

We identify nine key trends. First, the number of yearly submissions nearly doubled from 1990 to 2012, affecting all the top-5 journals except the *Journal of Political Economy*. Second, the total number of articles published in the top journals *declined* from about 400 per year in the late 1970s to around 300 per year in 2010-12. The combination of rising submissions and falling publications led to a sharp fall in the aggregate acceptance rate, from around 15% in 1980 to 6% today. The increasing difficulty in publishing in the top-5 journals may have important implications for the setting of hiring and promotion benchmarks in the field.

Third, the *American Economic Review* is the only top-5 journal that has substantially increased the number of articles it publishes per year, and as a result now accounts for 40% of top journal publications in the field, up from 25% in 1970. Assuming that promotion, hiring, and pay decisions continue to value the top-5 journals more or less equally, the AER now exerts a substantially larger influence over the field than it used to.

Fourth, published papers in the top-5 journals are nearly 3 times longer today than they were in the 1970s. Though the journals as a group have increased their total pages, they have not fully adjusted, leading to the decline in the number of published papers. Fifth, the number of authors per paper has increased monotonically from 1.3 in 1970 to 2.3 in 2012, partly offsetting the decrease in the number of articles published per year. Indeed, weighting each paper by the number of co-authors, the number of authors with a top-5 journal article in a

[1] As explained below, we exclude papers published in the Annual Papers and Proceedings Issue of the AER, as well as notes, comments, and announcements.

[2] Griffith, Kocherlakota, and Nevo (2009) conduct many of the same analyses as us, though their paper is focused on the relative performance of the *Review of Economic Studies* versus the other four journals in the top five.

[3] There is an extensive literature on the rankings of journals (and authors) that summarize various measures of citations: see for example, Kalaitzidakis, Stengos and Mamuneas (2003) and Ellison (2010).

given year is somewhat higher today than in the 1970s or 1980s.

Sixth, papers published in the top-5 economics journals are highly cited: among those published in the late 1990s, for example, the median article has about 200 Google Scholar citations. Citations for more recently published articles are lower, reflecting the fact that it takes time to accumulate citations. Interestingly, papers published in the 1970s and 1980s also have total citation counts below those of papers published in the 1990s, reflecting the nature of the sources used by Google Scholar, citation practices of current authors, and other potential factors.

Seventh, citation-based rankings of the top-5 journals are fairly stable over time, with the notable exception of the *Quarterly Journal of Economics* which climbed from second-to-last to first place among the top-5. Eighth, citations are strongly increasing in both the length of a paper and the number of coauthors, suggesting that trends in both dimensions may be driven in part by quality competition. The effects hold both when predicting the number of citations (in logs) and when predicting the probability of an article in the top 5% of citations in a given year.

Ninth, despite the relative stability of the distribution of published articles across fields, there are interesting differences in the relative citation rates of newer and older papers in different fields. In particular, papers in Development and International Economics published since 1990 are more highly cited than older (pre-1990) papers in these fields, whereas recent papers in Econometrics and Theory are less cited than older papers in these fields.

2. Data

We use data from three main sources. First, we use *EconLit* to construct a database of all articles published in the top-5 journals since 1970. We extract information for each article on the number and names of author(s), the title, the JEL codes, and the page length. We use a text search of titles to exclude papers that can be identified as comments, replies, corrections, or announcements.[4] We also exclude articles in the Papers and Proceedings issue of the AER. Unlike Ellison (2002), we do not distinguish between full-length and shorter articles. Our final data set includes 13,245 articles published between 1970 and 2012. The Online Data Appendix provides a detailed overview of the main characteristics of the data set, and information on the way we classify older and current JEL codes into a consistent set of major fields.

Our second data source is information from the top-5 journals on the number of annual submissions. We complement the data assembled by Ellison (2002) with information from the editor's reports published in AER and EMA, as well as with personal communication from the editors of JPE, QJE, and RES. We were unable to obtain submission information for ECA prior to 1974, for QJE in the period from 1977 to 1989 (inclusive), and for RES prior to 1978.

[4] Our extraction from EconLit found 882 comments, 510 replies, 104 errata, 156 "discussions", and 132 other types of non-refereed entries, such as editor's reports. Note that we **do not** exclude shorter papers published in *Econometrica* as "Notes and Comments".

Our third data source is the total number of Google Scholar citations to each article, as retrieved from Google Scholar in October 2012. We first used an automated web-scraping program to query Google Scholar with the exact title of each article. This process successfully retrieved citations for about 95% of articles. Many of the remaining 5% of articles have a typographical or spelling error in the title in *Econlit* or Google Scholar. For these articles, a team of research assistants searched the citations by hand. We have at least one Google Scholar citation for 98.7% of articles. A spot check of the remaining 176 articles suggests that most are relatively short papers that received little attention in the subsequent literature. More details on this procedure are in the Online Appendix.

3. Findings

Number of Submissions. Figure 1 shows the annual numbers of submissions to each of the top-5 journals, as well as the total count for all five journals. (Appendix Table 1 shows the corresponding raw data) Total submissions have nearly doubled since 1990, from about 2,800 per year to 5,800 submissions in 2011. The increases are especially large for QJE and RES, but are clearly present for all the journals except JPE, which received about the same number of submissions in 2011 as in 1987-1989. It is also interesting to note that most of the secular increase in submissions documented in the figure has occurred since the year 2000. One important implication of this surge is that editors and referees at the top-5 journals are facing a growing workload, even ignoring changes in the complexity of the papers they are handling (Ellison, 2002).

Number of Articles Published. Figure 2 (with the raw data in Appendix Table 2) displays a less-well-known trend: over the past three decades the top-5 economics journals have tended to publish a *smaller* number of articles per year. During the period from 1970 to 1975, the top-5 published an average of 341 articles per year. The number increased to an average of 398 articles during the 1976-80 period, then began a long period of decline, falling to 325 articles per year in the 1980s and around 250 per year or less in the late 1990s. Over the 2001-2010 period the number recovered very slightly (to around 275 articles per year), and then increased again in 2011-12 to 307 articles, largely because of the decision of the AER to increase the number of issues per year from 4 to 6 (not counting the Papers and Proceedings issue). Even taking into account this recent increase, the number of articles published by the 5-top journals is 20% lower today than during the 1976-1980 period, despite the large increase in submissions.

Which journals are most responsible for the decline in the number of articles published? The largest decreases are for *Econometrica*, which cut the average number of articles per year from around 100 in the 1970s to 60 today, and the *Journal of Political Economy,* which published 85 articles per year in the 1970s but now publishes only 30 articles per year. The QJE and RES also experienced declines but of smaller magnitudes. Only the *American Economic Review* has increased the number of articles published today relative to

the late 1970s, from about 100 per year to around 125 per year.

An interesting consequence of these trends is that the AER now accounts for a significantly larger share of top-5 journal publications, up from 25% in the late 1970s to 40% in the years 2011-12. In contrast, the JPE, which also published about one-quarter of all top-5 articles in the late 1970s, now publishes less than 10% of these articles. Stated differently, in the late 1970s the AER and the JPE had about equal say in the gatekeeping process that determined publications in the top-5 journals. Now the AER has 4 times greater weight than the JPE.

In the absence of micro data on the manuscripts submitted to the top-5 journals, we form a rough estimate of the "acceptance rate" for a given journal in year *t* by dividing the number of published articles in year *t* by the average of the number of submissions in years *t-1* and *t-2*. Figure 3 (with the raw data in Appendix Table 3) illustrates the trends over time in the estimated acceptance rates. As expected given the trends in submissions and publications, acceptance rates have fallen across the board. Comparing 1976-1980 to the most recent period (2011-2012), the acceptance rate declined from 13.8% to 8.1% for the AER, from 27.1% to 8.5% for *Econometrica*, and from 13.3% to 4.8% for the JPE. While comparable data are unavailable for the QJE and RES, using an earlier period we document a decrease for the QJE from 10.9% in the early 1970s to 3.5% in 2011-12. For the RES, we document a decline in the acceptance rate from an average of 16.9% in the early 1980s to an average of 5.5% today.

Currently, the QJE is the most selective of the top-5 journals, with an acceptance rate of around 3%, followed by the JPE and RES, with acceptance rates of around 5%. The least selective of the top-5 are AER and *Econometrica,* with acceptance rates of around 8%.

The patterns documented here have potential implications for the careers of economists. Over time, and especially during the last 15 years, it has become increasingly difficult to publish in the top-5 journals. Other things equal, this suggests that hiring and promotion benchmarks based on top-5 publications (e.g., "at least 1 top-5 publication for tenure") are significantly harder to reach. As we discuss below, however, a partial offsetting factor is the number of authors per paper, which has expanded relatively quickly, perhaps in part as a reaction to the increasing difficulty in publishing in the top outlets. Another implication of the data in Figure 2 is that, to the extent that publications in top-5 journals are valued equally, the AER now carries substantially more weight in determining the job opportunities and salaries of economists than other top-5 journals, while the JPE has declined in influence.

Length of Articles. Next, we present evidence on the page length of articles. Since journals have different formatting, we estimate the average number of characters in a typical page of each journal, and renormalize the length of each published article to its length as a standard manuscript formatted with 1.5-spacing, 12-point font, and 1-inch margins (see Card and DellaVigna 2012 for details). This adjustment takes into account changes in formatting at the AER, which moved from a two-column format to a single column format in 2008, and

adopted a less dense single column format in 2011.[5] Still, the adjustment is not perfect, as for example it does not take into account the different formatting of Tables and Figures.

Figure 4 shows that the average (standardized) length has increased from 16 pages in the early 1970s to 45.5 pages in 2011-12, a nearly 300% increase.[6] Put differently, a paper in the 10% percentile of lengths in 2012 is **longer** than a paper in the 90% percentile of lengths in the early 1970s.

Is the increase due to a particular journal? We document in Card and DellaVigna (2012) that the five journals moved in a remarkably parallel way over time. The normalization of page limits plays an important role here because without standardization the QJE – which uses a relatively low-density format -- appears to publish much longer papers than the other top-5. In reality the QJE papers are about the same length as papers in the other top 5 journals in a given year.

We suspect that the steady growth in the length of published papers is a major factor in explaining the fall in the number of articles published in the top-5 outlets each year. Even with a sizable increase in the total number of pages published by each journal, the increase in the length of papers has been so rapid that it has forced a cut in the number of articles published per issue. Of course, this constraint could be relaxed by publishing more issues per year, but so far only the AER has responded in this way.

We have also looked at trends in paper length by field. Perhaps surprisingly, we find that papers in nearly all fields – including theory and econometrics – have become longer over the past 40 years.

Number of Coauthors. Figure 4 shows that the number of authors per paper has also grown steadily, though less quickly than average paper length. In the early 1970s, three quarters of articles were single-authored, and the average number of authors in a paper was 1.3. By the early 1990s the fraction of single authored papers had fallen to 50%, and the mean number of authors reached 1.6. Most recently (2011-2012), more than three quarters of papers have at least 2 authors and the mean number of authors is 2.2.

As noted earlier, the rising number of authors per paper means than despite a smaller number of papers per year in the top-5 journals, the number of *authors* with papers in the top-5 (i.e., the number of papers published multiplied by the average number of authors per paper) has actually trended upward.[7] This series is plotted in Appendix Figure 1, and is fairly stable ranging between 400 and 550 from the early 1970s to the late 1990s. Since the year 2000, this figure has however increase reaching 600 or more in 2010-2011. To the extent that co-authored papers are as valuable as single-authored papers, the rise in co-authorship has mitigated the fall in the number of papers published per year, though relative to submission

[5] We are grateful to Steve Stelling, managing editor of AER, for explaining these changes.

[6] Previous studies have also noted the steady rise in page lengths among top economics journals, including Ellison (2002) and Griffith, Kocherlakota, and Nevo (2009).

[7] This statistic does not adjust for the fact that some individual authors may have more than one paper in a top journal in a given year.

flows the author-weighted number of papers per year in the top-5 journals has still failed to keep pace.[8]

Citations. Figure 5 shows the median number of Google Scholar citations (measured as of October 2012) for the articles published in the top-5 journals in each year of our sample (see also Appendix Table 4). Note first the inverse U-shaped pattern of the citation counts for each of the journals and for the top-5 outlets as a whole. The pattern of lower citations for the most recent articles is expected, since recently published papers have had less time to accumulate citations. The pattern of lower total citations for older articles is more surprising, and arguably reflects the nature of Google Scholar, which searches through on-line working papers and publications and is therefore less likely to find citations to older papers.[9] The most-cited articles in our data are those published between 1995 and 2000.

A second interesting feature of the data in Figure 5 is the relatively high number of citations to top-5 publications. Among papers published in the 1990-2000 period, the median number of Google Scholar citations is typically around 200. A citation count of 200 is relatively impressive, and reflects the success of the top-5 journals in identifying high-impact papers, or in inducing high impact by virtue of publication in a top outlet, two possibilities we cannot distinguish.

A third interesting feature of Figure 5 is the relative ranking of citations for articles in different journals. Median citations for articles in the *American Economic Review* and the *Journal of Political Economy* tend to be quite similar from year to year – for example, around 100 in the late 1980s, between 250 and 300 in the mid-1990s, and around 130 in 2005. In the earlier years of our sample, articles in *Econometrica* have about the same median citations as those in the AER or the JPE. Starting in the 1990s, however, there is a discernible fall in the relative impact of ECA articles. Articles in the *Review of Economic Studies* tend to be the least-cited among the top-5 journals, although RES's relative position appears to be improving in the last few years.

Perhaps the most obvious feature of Figure 5 is the dramatic increase in relative citations for articles in the *Quarterly Journal of Economics*. Until the early 1990s, articles published in the QJE tended to have relatively low citations, on par with those in RES. Remarkably, though, between 1990 and 1992 median citations for articles in the QJE rise to the top of the group. Indeed, in the years from 1994 to 2004, median citations for articles in QJE are about two times larger than median citations for articles in AER and JPE, and about three times the median for articles in ECA and RES. Median citations for more recently published articles are lower, but the QJE remains the journal with the highest median citations per paper

[8] Hilmer, Hilmer and Ransom's (2012) recent analysis of academic economists' salaries suggests that co-authored papers are as valuable as single authored papers, conditional on the number of citations they receive.

[9] Specifically, citations in older working papers that are not posted on the internet will not be counted. Griffith, Kocherlakota and Nevo (2009) conduct a small scale comparison between citations in Google Scholar, ISI Web of Knowledge, and Citations in Economics. They find a relatively high degree of correlation between the three sources of citations across 20 randomly selected papers.

in all years from 1991 to 2011.

The large swings of citations over time in Figure 5 make it somewhat hard to compare citations across journals in the earlier and later years. In Figure 6 we plot the year-by-year share of Google Scholar citations for a given journal compared to all citations to articles in top-5 journals in that year, relative to the share of number of papers for that same journal out of all top-5 articles in that year. So for example all the articles published in the AER in 2000 account for 34.9% of all the citations to top-5 journal articles in that year, but the AER accounts for only 30.6% of articles published in economics in 2000; hence, the AER has a relative share of 1.14, reflecting a disproportionate citation influence by about 14%. The series is smoothed using a 5-year centered moving average. We note that this measure reflects mean, as opposite to median, citations. The graph shows that in the 1970s the JPE is the leading journal by this measure, followed by *Econometrica* in the 1980s. Interestingly, *Econometrica*'s impact in the 1980s is higher when considering mean, as opposed to median, citations. The citation impact of both JPE and *Econometrica* declines sharply in the 1990s, while the impact of the *QJE* rises quickly at the same time. The graph also shows a slow but steady improvement for the impact of the *Review of Economic Studies* since the late 1990s. Finally, the *American Economic Review* stays at a relatively constant citation share of about 1, except in the early 1970s when it was higher.

Median and mean citation rates give a potentially limited summary of the impact of the articles published in a given journal. To provide a more complete picture, we show in Figure 7 the cumulative distribution functions (censored at 1000 citations) for citations of articles published in the top-5 journals over the period 1990-2009. The relative rankings of the journals are consistent at virtually all quantiles and confirm the patterns in Figures 5 and 6. In particular, the AER and JPE have relatively similar distributions, and both dominate ECA and RES. The QJE is the citation leader, with the smallest fraction of poorly-cited articles (e.g. only 13% of papers have less than 50 citations, versus 18% at AER and JPE, 26% at ECA, and 30% at RES) *and* the highest fraction of very highly-cited papers (e.g., 10% of QJE papers have over 1,000 Google Scholar citations, versus about 5% of articles at each of the other top-5 journals). Appendix Figure 2 plots the corresponding cumulative distribution functions for the earlier years 1970-1989. In these years, the QJE is dominated by the citation record of ECA, AER, and JPE.

A Regression Analysis of Citations. To complement this descriptive analysis of citation patterns by journal we conduct a regression-based analysis, using as the dependent variable the log of the number of citations for each of the 13,089 papers published in the top-5 journals since 1970. Citations are extremely skewed; log citations are nearly symmetrically distributed, with only a small degree of kurtosis. Moreover, a proportional model for the effect of factors like time-since-publication, field, and page length is conceptually attractive and readily interpretable. The downside is that we have to drop the 1.3 percent of papers with no citations. However, experiments with alternative functional forms (such as log(citations+1) or

the inverse hyperbolic sine function) suggest that our findings are quite robust.

Table 1 presents a selection of our estimated regression models. We begin in column 1 with a baseline model that includes a quartic function of years since publication (to capture the time patterns shown in Figure 5) and dummies for each journal, interacted with an indicator for pre-1990 or post-1990 publications.[10] This simple model has an R-squared coefficient of 18%. Looking at the journal effects for the pre-1990 cohort, the estimates suggest that all the other journals had higher citations than RES (the base group). Papers in JPE had the highest citation rates (estimated effect=0.55), while those in the AER and ECA had somewhat lower rates (estimated effects = 0.42 and 0.37, respectively), and papers in the QJE were only slightly more likely to be cited than those in RES (effect=0.02). Post-1990 the AER and JPE are nearly equal (estimated effects = 0.40 and 0.37, respectively), while citations to *Econometrica* papers have fallen sharply to about the same level as RES papers (estimated effect = 0.07). As suggested in Figure 5, the big "winner" is the QJE, which moved substantially ahead of all other journals after 1990, with a 78 log point citation premium over pre-1990 RES papers.

An obvious question is whether the rise in citations to QJE papers (and fall in citations to papers in ECA) can be explained in part by observable characteristics of the papers. One possible factor is field: in the past two decades, for example, the QJE has published a relatively high fraction of applied papers, while *Econometrica* tends to publish theoretical papers. To assess the importance of field composition, we classify JEL codes into 14 mutually exclusive fields.[11] We assign each JEL code provided by the authors to one of these fields: hence, if the author provided 2 JEL codes, we have either 1 or 2 field dummies set to 1 for the article (depending on if the 2 JEL codes fall under the same field).

Figure 8 (and the corresponding Appendix Table 5) shows the relative frequencies of the various fields in the top-5 journals as a whole. As shown by the total height of the graph, the number of fields papers are assigned to has risen over our sample period from an average of about 1.6 per article to nearly 2. Nevertheless, the relative shares of the different fields are fairly constant over time: theory is the largest field, accounting for about 30% of all articles; macro is next (about 20% of papers); labor and microeconomics are tied for third (16-17% each); and econometrics, IO, and international each account for about 10-12% of papers).

The field distributions of papers in the different journals largely conform to expectations. For example, theory papers are under-represented in the QJE and JPE while labor and IO papers are under-represented in ECA. Conversely, theory and econometrics papers are over-represented in ECA and RES, while labor papers are more likely to appear in the QJE, and IO and international papers are more prevalent in the AER.

[10] Models that allow the journal effects to vary by 5-year publication cohort are very similar.

[11] See the Online Data Appendix. Our fields are economic theory, microeconomics, econometric theory, macroeconomics, international, finance, public, labor, history, IO, development, lab-based experiments, other applied micro fields (health, urban, law and economics), and all other fields. Our classification is similar to the one used by Ellison (2002).

The model in column 2 of Table 1 introduces field dummies to the citation model.[12] Although several of the field indicators are highly significant, their inclusion has relatively small impacts on the estimated journal×cohort effects, implying that trends in the citation counts for articles in different journals are largely due to factors other than field. One small difference is *Econometrica:* adding field effects slightly moderates the decline in citations for ECA publications relative to pre-1990 AER papers (from a 36% decline to a 26% decline). A look at the estimated field effects explains this difference. The largest positive field effects (relative to the generic "all other fields" category) are for development (+43%), finance (+35%), labor (+25%), and other empirical micro (+20%), all applied fields that are substantially under-represented in ECA relative to the other top-5 journals, particularly since 1990.[13]

The model in column 3 of the table adds controls for the length of each paper and number of co-authors. Specifically, we divide the overall distribution of normalized page lengths into quintiles, and include dummies for the four highest quintiles of length. We also include a full set of dummies for different numbers of co-authors (censoring the count at 9). As suggested by the rather large rise in the R-squared of the model (from 20% to 32%), these two features are very powerful predictors of future citations. Relative to a paper in the first quintile of normalized page lengths (12.5 pages or less), mean log citations for a paper in the second quintile (12.5 to 20.5 pages) are 0.92 higher (i.e., 250% more citations); mean log citations for a paper in the third quintile (20.5 to 28 pages) are 1.37 higher (i.e., 393% more cites), mean log citations for a paper in the fourth quintile (29 to 38 pages) are 1.65 higher (i.e., 680% higher), and mean log citations for a paper in the fifth quintile (39+ pages) are 1.92 higher (i.e., 520% higher). Similarly, relative to a single-authored paper, mean log citations for a paper with two, three or four authors are 0.21, 0.26, and 0.47 higher, respectively, implying 23%, 30%, and 60% more citations. The findings on the impact of paper length and number of coauthors are consistent with Hamermesh and Oster (2002) and Ellison (2011).

Interestingly, controls for length and number of co-authors also have some effect on the relative rankings of the journals in different cohorts. Controls for length improve the apparent status of AER papers because the AER publishes a relatively large number of "Shorter Papers", which get fewer citations, on average. They also lead to a somewhat more positive assessment of the QJE prior to 1990 (when the QJE tended to publish relatively few long papers).

Finally, in column 4 we present a model that allows the impacts of different fields to change over time. As has been noted by earlier analysts (including Ellison, 2002, and Griffith, Kocherlakota, and Nevo, 2009), it appears that relatively few recent papers in economic theory

[12] We include dummies indicating the fields assigned to a paper (up to 6), with "other fields" as the omitted dummy. Since the dummies do not sum to 1, we also include a variable representing the number of JEL codes provided by the paper. This gives numerically identical estimates to a specification in which we simply include all the dummies.

[13] All four of these field effects are statistically significant. The other significant field effects are for microeconomics (+17%), IO (+14%), and history (-68%).

and econometric theory have had the widespread influence of the "classic" papers in these areas from the 1970s and 1980s. To control for such changes, we include field dummies and interactions of these dummies with an indicator for post-1990 publication date. While crude, this specification captures any changing citation potential for papers from different fields in the pre- and post-1990 eras.

The estimated interactions of the field dummies with post-1990 indicators confirm that the impact of theory and econometrics papers has declined. (The estimated interaction effects are -0.33 and -0.12, respectively; the theory interaction is highly significant). At the same time, the impacts of papers in international, development and macro have all risen substantially. (The estimated interaction effects are +0.51, +0.22, and +0.25, respectively, and are all significant at conventional levels). Adding these controls has a small effect on the estimated journal×cohort effects, and in particular leads to a rise in the relative status of post-1990 papers in Econometrica. Overall, however, the journal×cohort effects in column 4 of Table 1 are remarkably similar to those in column 1, and we conclude that measured characteristics of the papers published by the different journals in different time periods can explain only a small part of the differences in citations to these papers.

Finally, in Column 5 we estimate a similar model as in Column 3, but we focus the attention only on the top-cited articles. Namely, we estimate a linear probability model with an indicator variable for an article in the top 5% of citations in a given year as dependent variable.[14] This allows us to estimate whether the impact of journal, paper length, and number of authors holds also at the very top. Interestingly, the answer is yes. The ranking of journals is largely unaffected, with the most positive estimated effect being for the *Quarterly Journal of Economics* in the period 1990-2012, with an estimated increase of 5.5 percentage points in the probability of publishing a top 5% cited article relative to the omitted category (the Review of Economic Studies in 1970-89), a large effect. Even larger is the effect of paper length: a paper in the fifth quantile is associated with an 11 percent point higher probability of being in the top 5% of citations, that is, a tripling of probability relative to the mean such probability of 4.8 percentage points. Finally, the number of coauthors also has a positive effect, if a smaller one.

3. Conclusions

In this paper we have presented evidence on trends in submissions, articles published, selectivity, length, co-authorship, field, and citations for papers in the top-5 economics journals. On the one hand, much has changed over the past forty years. There are many more submissions, but fewer papers are published per year. Perhaps because of this intensifying competition, each paper has more co-authors. Papers today are also substantially longer, even in the most technical fields. So far, only the *American Economic Review* has responded to the increasing average length of papers by publishing more issues per year. As a direct result, the

[14] The cut-offs for top 5% citation are 618 in 1970, 501 in 1975, 566 in 1980, 781 in 1985, 1596 in 1990, 1477 in 1995, 1154 in 2000, 592 in 2005, 223 in 2010.

AER now publishes 40% of the total number of papers in the top-5 outlets. On the other hand, citation based rankings of the top-5 journals are relatively stable over the past 40 years. The two major shifts are a fall in the relative impact of papers in *Econometrica*, and the remarkable transformation of the *Quarterly Journal of Economics* from a comparatively low-citation outlet to the journal with the most highly-cited articles of the top-5.

We believe that these findings have potentially significant implications for academic economists, particularly with regard to the career paths of younger scholars. Most importantly, the competition for space in the top journals has grown fiercer over time. The overall acceptance rate for submissions at the top-5 journals is about one-third as high today as in the early 1970s. This trend is independent of the trend documented by Ellison (2002) toward longer delays in the adjudication and revision process, and in fact has largely emerged in the decade since Ellison's original investigation. Both lower acceptance rates and longer delays, however, make it increasingly difficult for any one author to achieve a given set of publication benchmarks. Authors have clearly responded by forming bigger teams, and to the extent that co-authored papers are treated as equivalent to single authored papers (e.g., Hilmer, Hilmer and Ransom, 2012), they have been able to partially mitigate the adverse effects of lower acceptance rates and longer delays.

Our findings also have important implications for the interpretation of the trend in the length of economics articles. This trend is often interpreted as evidence of failure: either by authors – who have failed to communicate their findings in a concise way – or by referees and editors – who have been misled by "fluff", or have demanded too much secondary material. The very large positive effects of paper length on citation counts suggest instead that longer papers may be better papers. One interpretation is that as the competition for journal space has increased, authors have improved the quality of their papers and in the process made them longer. Whether we want to regulate this competition by restricting the length of papers, or adopt to it by increasing the number of "pages" published by the top journals is clearly an interesting policy issue. In Card and DellaVigna (2012) we examine the impact of the imposition of page limits at the American Economic Review and at the Journal of the European Economic Association, and show that authors respond differently—whether by shortening papers or by sending them to another journal—depending on the outlet, suggesting important differences in local monopoly power (over authors) for journals in different tiers.

Our findings also underscore the critical role of reputations among scholarly journals. Just as the identities of the "top-5" journals have remained constant, the relative rankings of the top-5 journals have remained broadly stable over 40 years. Yet, there is also clear evidence that reputations can change: the abrupt rise in citations to articles published by the QJE after 1990 suggests that a (sustained) change in editorial policy can be effective. Similarly, the dramatic ramp-up in submissions at the Review of Economic Studies in the last 10 years points to a change in appeal of the journal.

Finally, our results raise the question of "Why the Top Five?" Clearly, there are

differences in the impacts of the top-5: in the 1970s an article published in the AER or JPE had about 40% more citations than one in the QJE or Review of Economic Studies. More recently, an article in the QJE is 30 or 40% more likely to be cited than one in the AER. Furthermore, as the number (and complexity) of economics papers has increased, 5 journals, publishing only 400 or so articles per year, represent an increasingly limited resource for the profession.

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Kalaitzidakis, Pantelis, Thanasis Stengos and Theofanis P. Mamuneas (2003). The Rankings of Academic Journal and Institutions in Economics." Journal of the European Economic Association 1 (December 2003): 1346-1366.

Figure 1: Number of Submissions per Year

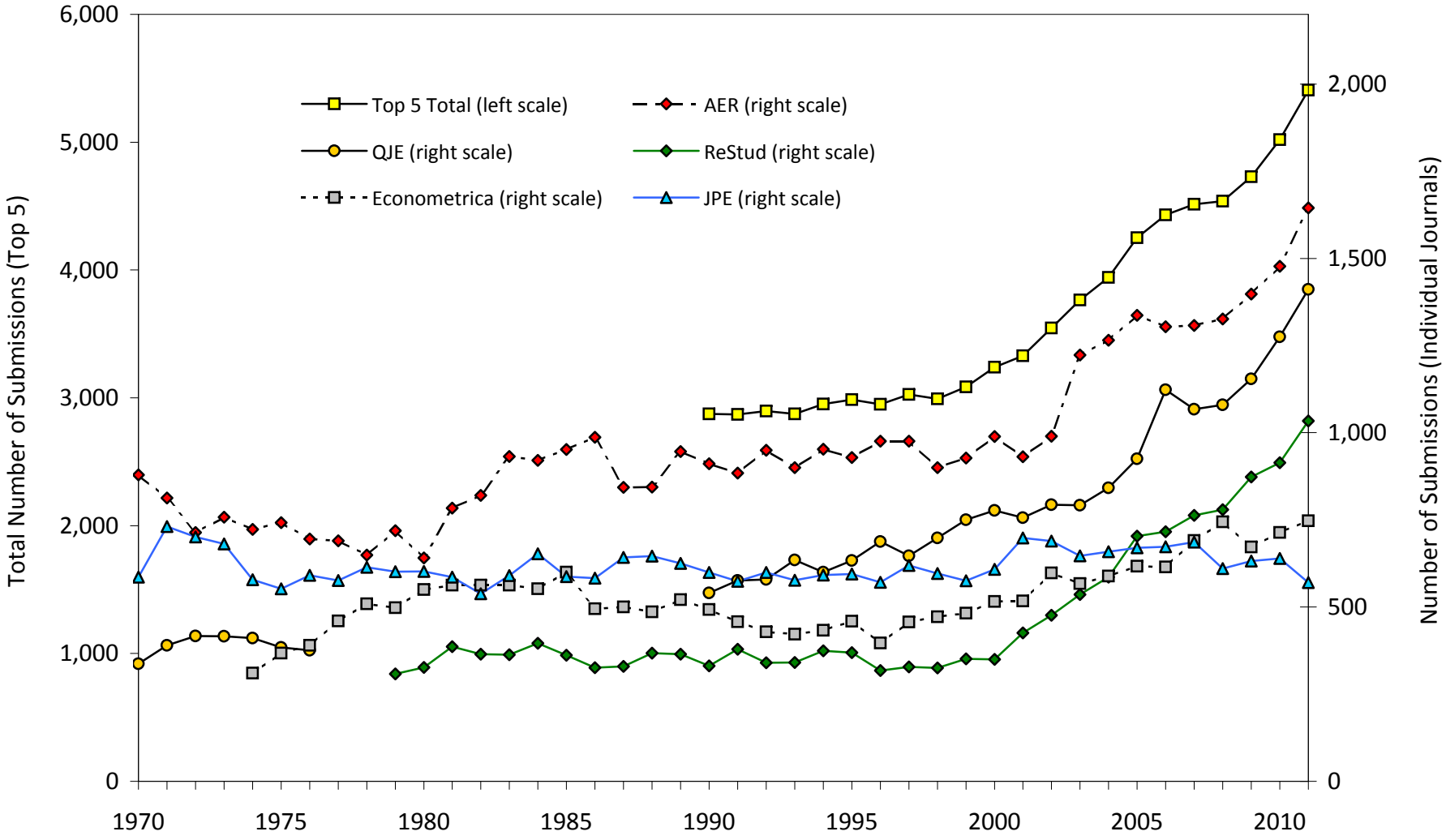
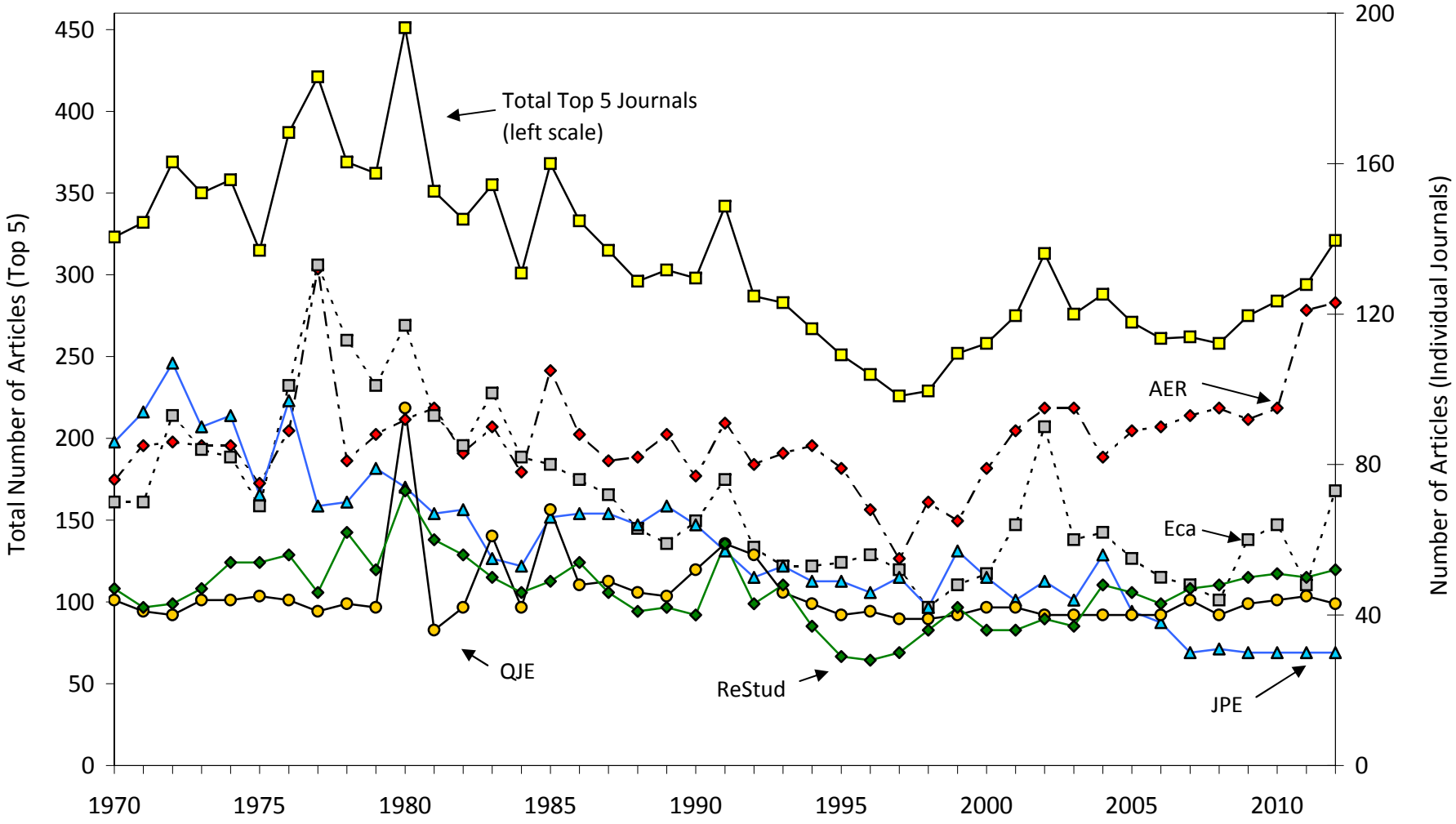
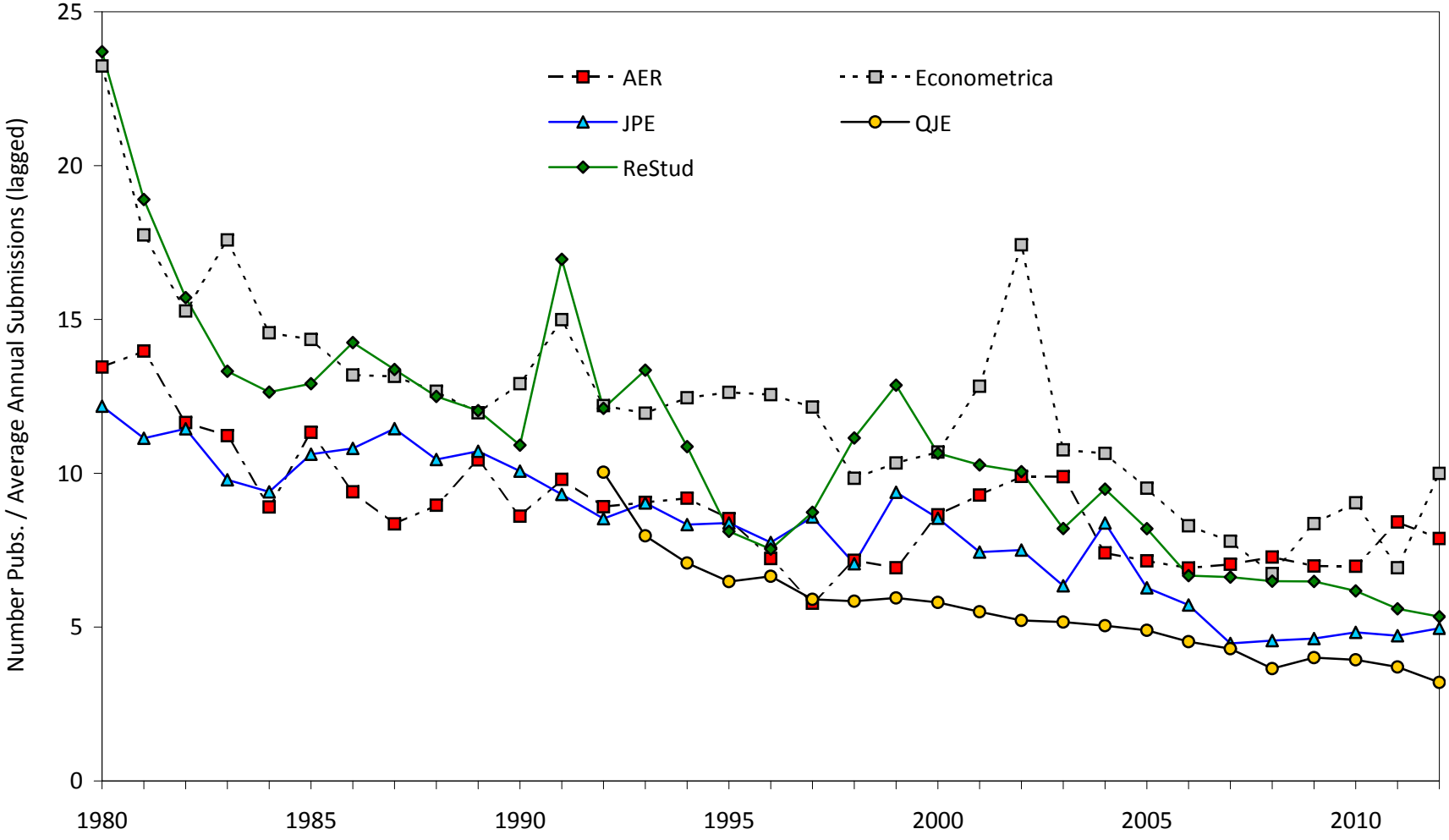


Figure 2: Number of Articles Published per Year



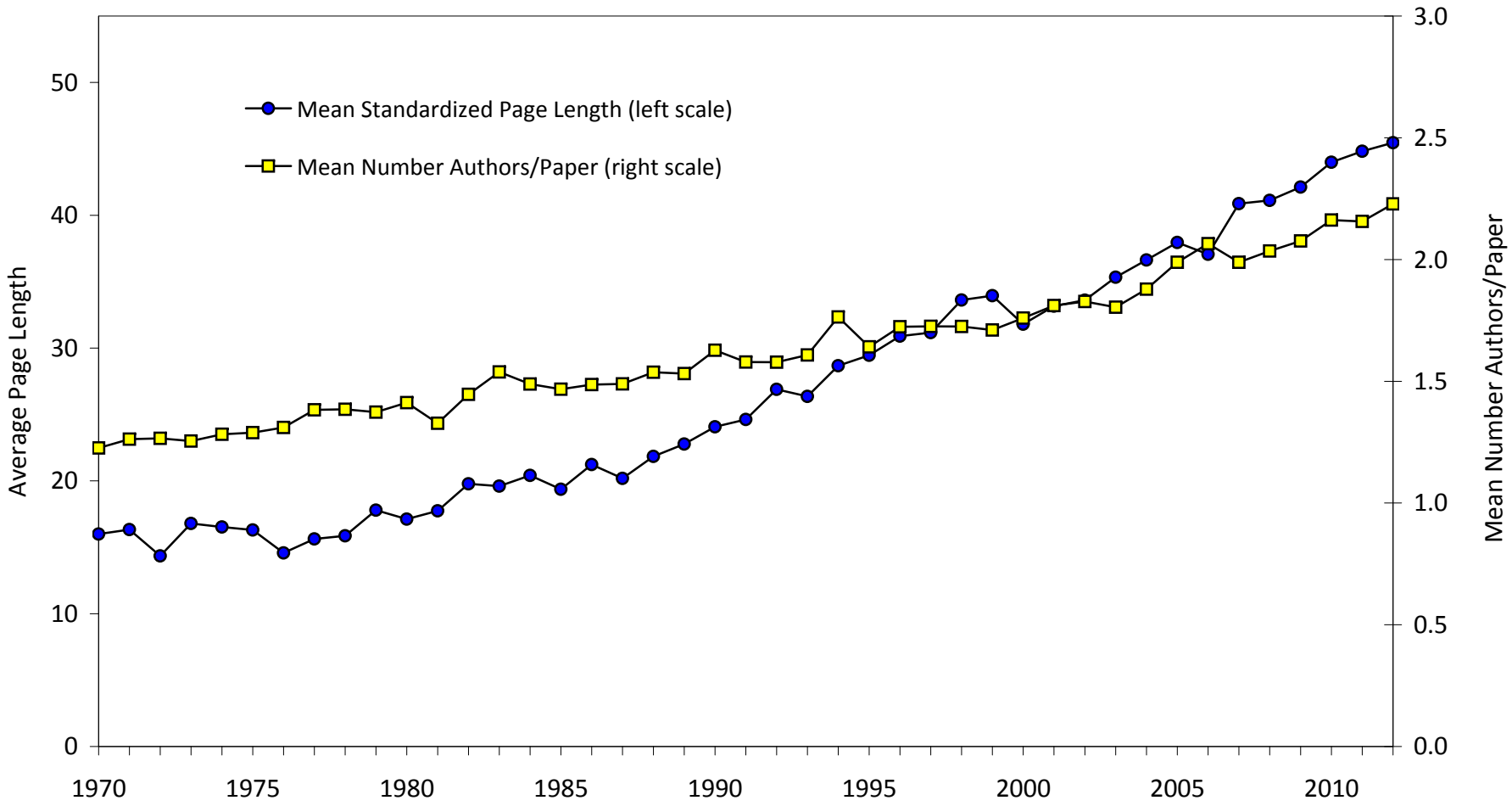
Notes: publications exclude notes, comments, announcements, and Papers and Proceedings. Totals for 2012 estimated.

Figure 3: Number of Publications Divided by Average Annual Number of Submissions in Previous Two Years



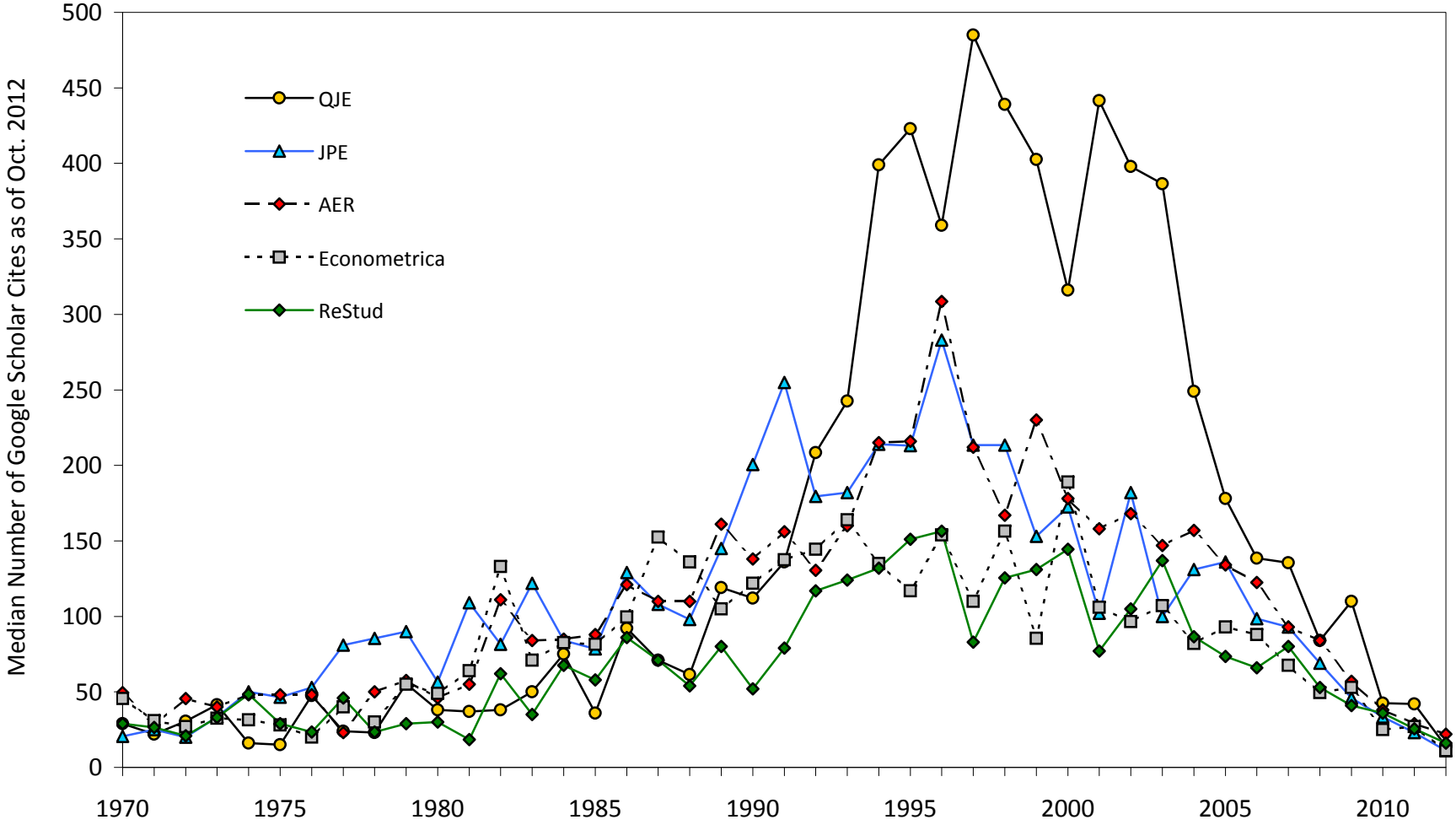
Note: figure shows 100 times number of articles published in year t, divided by average number of submissions in year t-1 and t-2

Figure 4: Trends in Length and Number of Authors of Published Papers



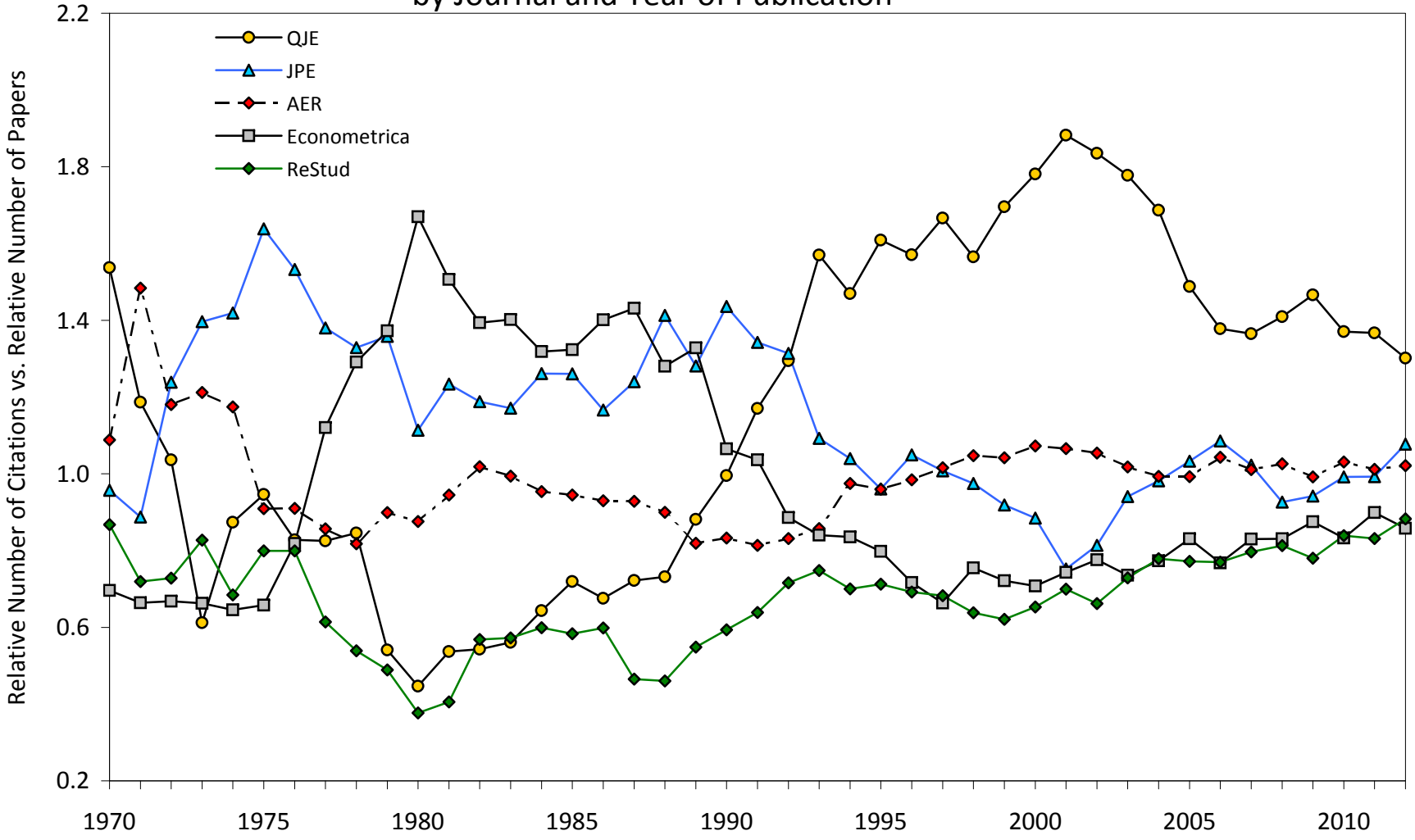
Notes: page lengths are adjusted for differences in page density across journals. Standardized length assumes 2550 characters per page.

Figure 5: Median Number of Google Scholar Cites per Published Paper, by Journal and Year of Publication



Notes: Google scholar citations were extracted in October 2012. Published papers exclude notes, comments, announcements, and Papers and Proceedings.

Figure 6: Relative Share of Google Scholar Cites vs. Published Papers by Journal and Year of Publication



Notes: Relative share is smoothed using 5-year centered moving average. See notes to Figure 5.

Figure 7: Cumulative Distribution Functions for Citations to Papers Published 1990-2009, By Journal

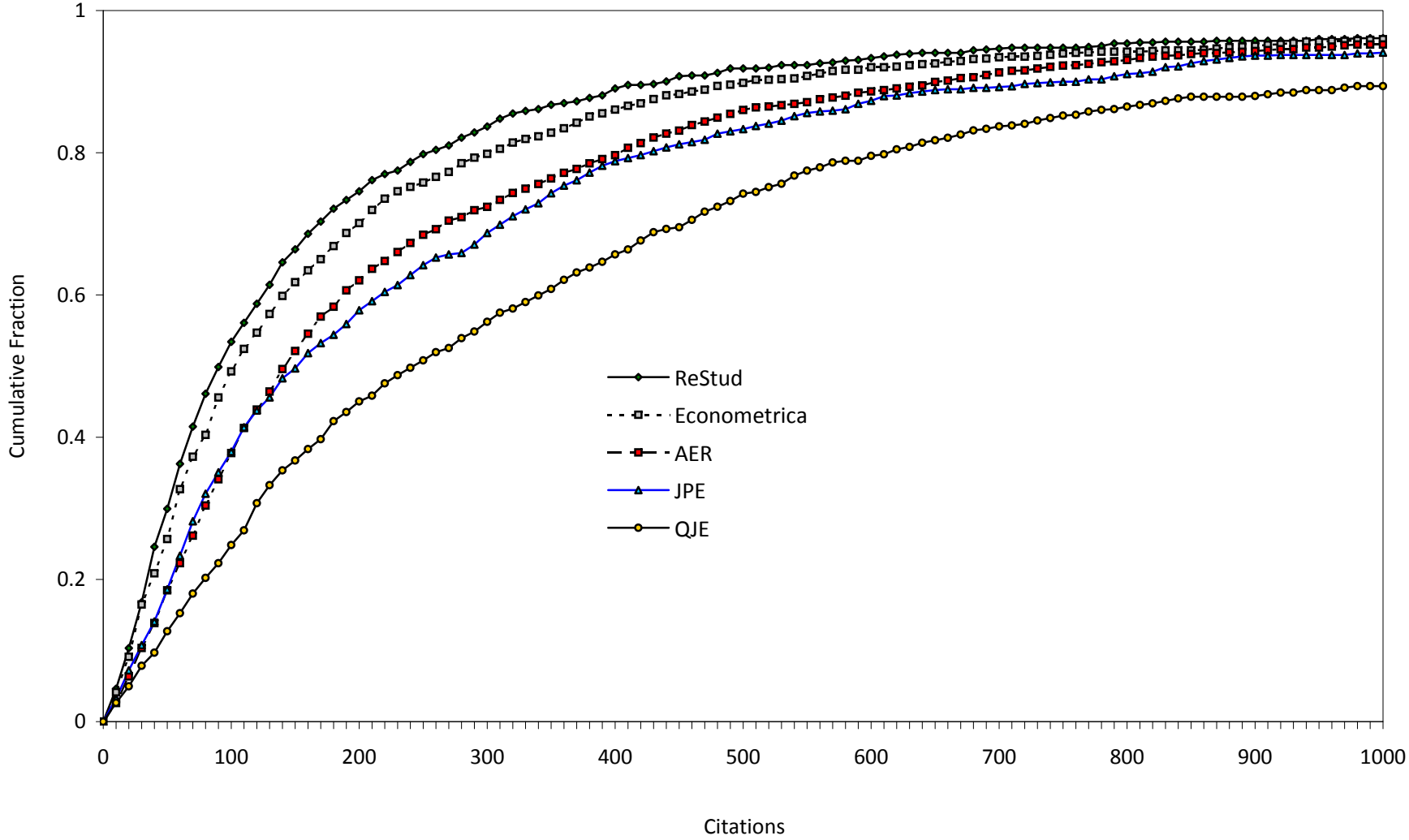
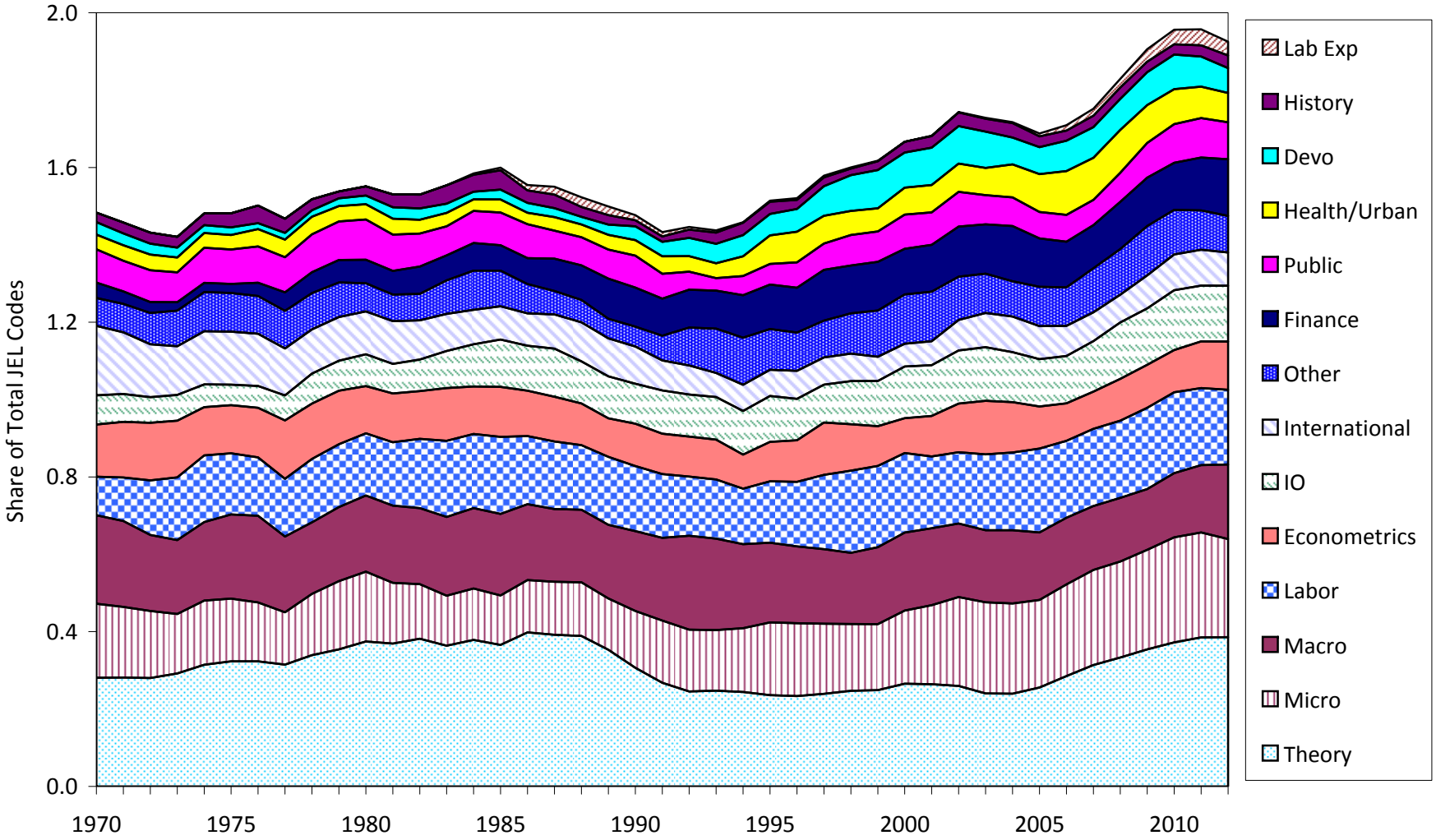


Figure 8: Field Distribution of JEL Codes for Articles in Top 5 Journals



Notes: field shares sum to more than 1 because papers can reference multiple fields. See text for field classification system. Data are smoothed using centered 3-year moving average.

Table 1: Determinates of Citations for Articles in Top Five Journals 1970-2012

	Dep. Var. = log citations in October 2012				Dep. Var. = 1 if Top 5% Cited
	(1)	(2)	(3)	(4)	(5)
Journal and Cohort (ReStud, 1970-89 = reference)					
AER 1970-1989	0.43	0.40	0.61	0.66	0.032
	(0.06)	(0.06)	(0.05)	(0.05)	(0.009)
AER 1990-2012	0.40	0.37	0.48	0.52	0.023
	(0.09)	(0.09)	(0.08)	(0.10)	(0.012)
Econometrica 1970-1989	0.37	0.39	0.43	0.40	0.029
	(0.06)	(0.06)	(0.05)	(0.05)	(0.009)
Econometrica 1990-2012	0.07	0.14	0.18	0.32	0.015
	(0.09)	(0.09)	(0.08)	(0.10)	(0.013)
JPE 1970-1989	0.55	0.54	0.55	0.60	0.037
	(0.06)	(0.06)	(0.06)	(0.06)	(0.009)
JPE 1990-2012	0.37	0.33	0.33	0.38	0.022
	(0.09)	(0.09)	(0.08)	(0.10)	(0.013)
QJE 1970-1989	0.03	0.02	0.21	0.25	0.025
	(0.07)	(0.07)	(0.06)	(0.06)	(0.010)
QJE 1990-2012	0.78	0.72	0.67	0.70	0.055
	(0.09)	(0.09)	(0.08)	(0.10)	(0.013)
ReStud 1990-2012	0.02	0.01	-0.11	-0.02	-0.007
	(0.09)	(0.09)	(0.08)	(0.10)	(0.013)
Quintile of Standardized Page Length (1st quintile=reference)					
2nd quintile (12.04-20.12 pages)			0.93	0.94	0.024
			(0.04)	(0.04)	(0.006)
3rd quintile (20.12-27.69 pages)			1.39	1.40	0.058
			(0.04)	(0.04)	(0.006)
4th quintile (27.69-38.03 pages)			1.68	1.68	0.074
			(0.04)	(0.04)	(0.007)
5th quintile (38.03+ pages)			1.96	1.95	0.110
			(0.05)	(0.05)	(0.008)
Number Authors (single author=reference)[a]					
2 authors			0.21	0.21	0.013
			(0.03)	(0.03)	(0.004)
3 authors			0.26	0.26	0.022
			(0.04)	(0.04)	(0.007)
4 authors			0.48	0.52	0.034
			(0.14)	(0.14)	(0.022)
Controls for Field (14 fields)	no	yes	yes	yes	yes
Controls for Cohort x Field	no	no	no	yes	no
Quartic in Years Since Publication	yes	yes	yes	yes	yes
R-squared	0.18	0.20	0.32	0.33	0.031

Notes: dependent variable in columns 1-4 is log of number of Google Scholar citations, reported as of October 2012. (Mean is 4.304, standard deviation is 1.594) Dependent variable in column 5 is indicator for article being in top 5 percent of citations for year of publication. (Mean is 0.0483). Sample includes 13,069 articles published in top 5 journals from 1970 to 2012, excluding notes, comments, announcements, and Papers and Proceedings. 176 articles with no citations are excluded from sample. Standardized page length is estimated page length assuming 2550 characters/page. Fields are based on JEL codes; articles can be classified in up to 5 fields based on first 5 JEL codes in EconLit.

[a] Models also include dummies for 5 authors, 6 authors, and 7 or more authors.

Field Classification System.

We assign the papers in our sample to fields based on their JEL codes. Less than 1% of the papers do not provide a JEL code, while 32% provide one JEL code, 39% provide two, 22% provide three, and 6% provide between four and seven, with the mean number of JEL codes provided being 2.0. Our fields are mutually exclusive, but we allow papers to be assigned to as many fields as the number of JEL codes they provide. 52% of the papers are assigned to one field, 38% to two, 9% to three, and 1% to between four and six, with the mean number of fields a paper is assigned to being 1.6.

We use the following classification system to assign post-1990 papers to fields. Current JEL codes consist of three digits: one letter followed by two numbers. When only one letter or one letter and one number are provided, all of the more detailed JEL codes that fall under that code are also included in the given field.

Fields under current JEL system (1990-2012)

Microeconomics: D (except for the D's in the following "micro theory" field)
Theory: C7, D11, D5, D21, D85, D86
Macroeconomics: E, O11, O4, O5
Labor: J, I2
Econometrics: C0-C5, C6, C8
Industrial organization: L
International: F
Finance: G
Public Economics: H
Health and Urban Econ. I0, I1, R, K
Development: O
History: N
Lab-based experiments: C9
Other: A, B, I3, M, P, Q, Y, Z

The JEL system underwent a significant change in 1990. We use a mapping from the old JEL codes to the current JEL codes published in the *Journal of Economic Literature* (1991) to assign pre-1990 papers to fields based on their JEL codes. Since most of the old JEL codes correspond to at least five current JEL codes, there is not a one-to-one mapping between our field classification system under the current JEL codes and our classification system under the old JEL codes.

Fields under old JEL system (1970-1990)

Microeconomics: 022, 024, 025, 114, 224, 511-513, 522, 921
Theory: 021, 026
Macroeconomics: 023, 112, 120-124, 131-134, 221, 223, 226, 311
Labor: 811-813, 821, 822, 823, 824-826, 831-833, 841, 851, 912, 917, 918
Econometrics: 211-214, 220, 222, 229
Industrial organization: 514, 611-616, 619, 631-636
International: 111, 400, 411, 421-423, 431-433, 441-443
Finance: 310, 312-315, 521
Public Economics: 320-325, 641, 915
Health and Urban Econ.: 731, 913, 916, 931-933, 941
Development: 621
History: 041-048
Lab-based experiments: 215
Other: 011, 012, 027, 031, 036, 050-053, 113, 531, 541, 710, 711, 713-718, 721-723, 911, 914

Reference

"Classification System: Old and New Categories." *Journal of Economic Literature* 29 (March 1991): xviii-xxviii.

Scraping and Matching Process:

Step 1: We first download information on all works published in the American Economic Review, Econometrica, the Journal of Political Economy, the Quarterly Journal of Economics and the Review of Economic Studies for the period between 1970 till October 2012 from the EconLit Database. The fields of information we collect are `Authors', `Title', `Publication', `Subject', `Year', `Issue', `Volume', `Pages'.

Step 2: We then use each entry from the `Title' field to create a URL that acts as a Google Scholar query. In particular, the URL requests Google Scholar to search for the given title prefixed with the *allintitle* operator. This forces Google Scholar to only return results where *each* word in our query is in the title of a given work. To give an example, this process is equivalent to opening Google Scholar on a browser and querying "allintitle:causal effect of education on earnings'' when searching for the work "The Causal Effect of Education on Earnings" by David Card.

Step 3: Once the URLs are created, we use a python script to access each URL and download the contents of the webpage. This step is equivalent to saving the webpage of search results after typing in the query as in step 2.

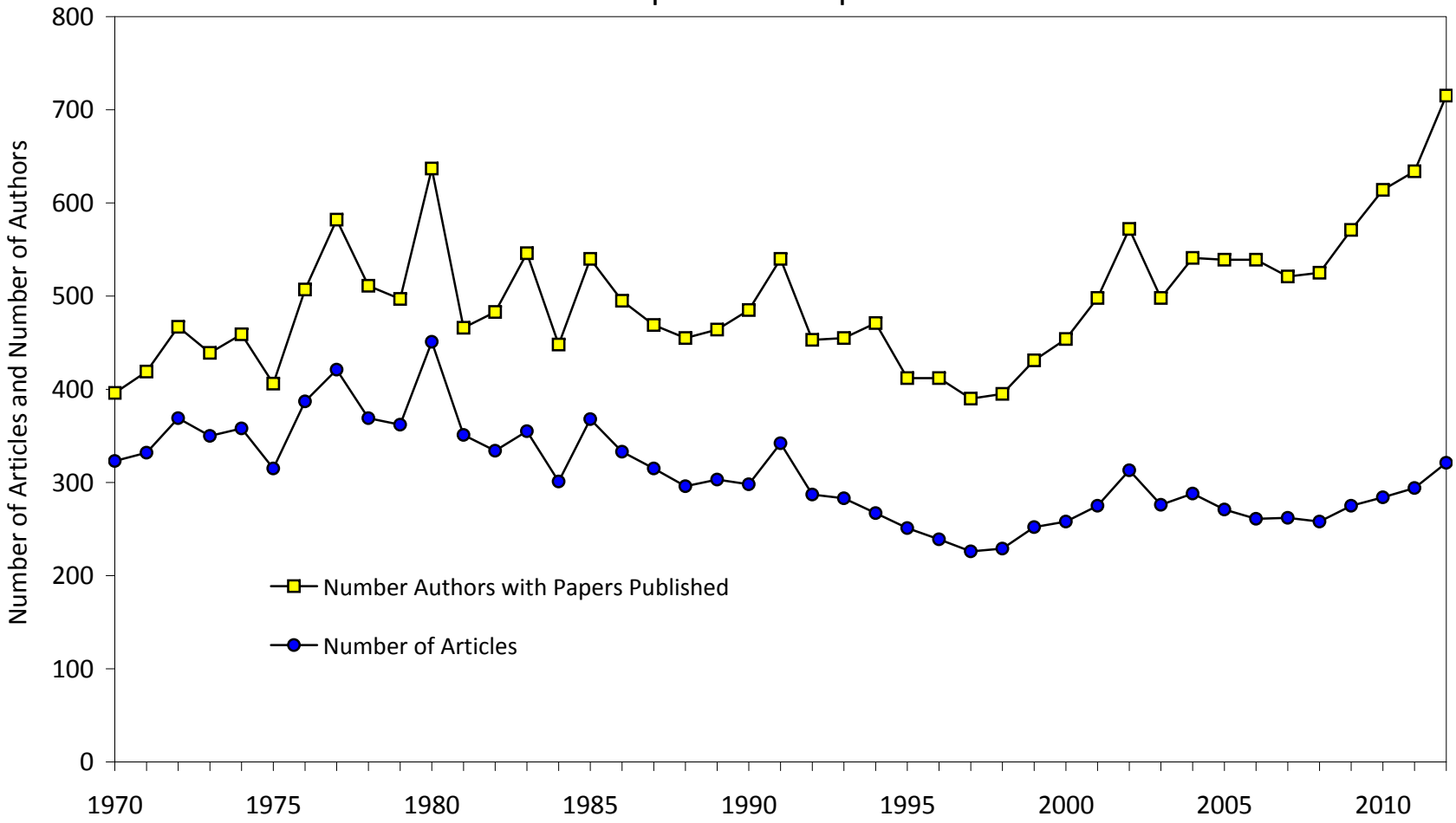
Step 4: Once we have the webpage for each query saved, we use R to find the surname of the first listed author for each work that is listed on the first page of search results. For example, if the query is ``Paying not to go to the gym'' by Stefano DellaVigna and Ulrike Malmendier, the first listed author as per Google Scholar is `S DellaVigna' and we will store `DellaVigna'. Within our subset of works that are returned using the *allintitl*e querying process, we match across authors, since titles contain too much noise and do not get matched.

Step 5: *charmatch* is a partial string matching function in R that returns a logical TRUE statement if the first string argument can be found *within* the second string argument. That is, charmatch("hello","hello world") will return a logical TRUE statement. We use *charmatch* to match the list of surnames generated in Step 4 with the information in the `Authors' field for a given query. Continuing with the example in Step 4, we check if the string `DellaVigna' appears in the `Authors' field from the EconLit database, which in this case contains `DellaVigna, Stefano; Malmendier, Ulrike'. Using *charmatch* helps solve the problem of partially truncated names. That is, even if Google Scholar reported the first author as `SD Vigna', our algorithm would identify that `Vigna' is found in `DellaVigna, Stefano; Malmendier, Ulrike' and match the two articles. The entire matching process is case insensitive. In addition, foreign special characters such as Ä are converted to English characters before matching to resolve ambiguities in naming conventions.

Step 6: For each positive match, we collect publication data from Google Scholar including citations. If there is more than one positive match in the first page of 10 results, we compute the total number of citations as the sum of citations for each positive match in that first page.

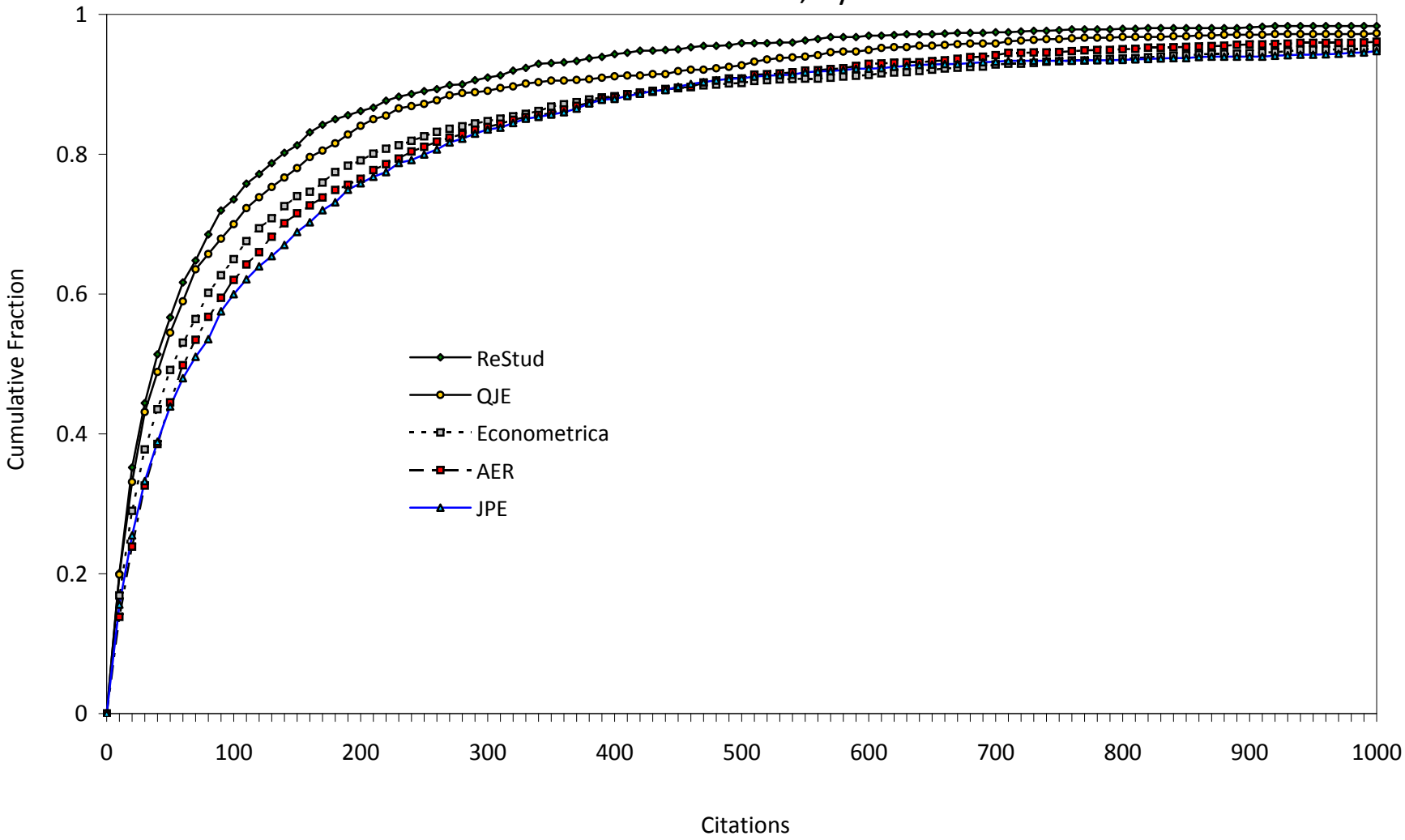
We examined a random sample of 300 matches that we verified by hand to check for any patterns of inconsistencies. The false match rate in this sample is very low. The 5% or queries which are unmatched are searched by hand by a team of research assistants following a similar procedure.

Appendix Figure 1: Trends in Number of Articles and Number of Authors Published in Top 5 Journals per Year



Notes: Number of authors published in a year represents product of number of articles published and average number of authors per article. Author with two (or more) publications in the Top 5 journals in a year are counted two (or more) times.

Appendix Figure 2: Cumulative Distribution Functions for Citations to Papers Published 1970-1989, By Journal



Appendix Table 1: Number of Articles Published Per Year, and Journal Shares of Top 5 Publications, 1970-2012

	Number of Articles Published per Year						Share of Total Top 5 Publications in Year (%)				
	AER	Eca	JPE	QJE	ReStud	Top 5	AER	Eca	JPE	QJE	ReStud
1970	76	70	86	44	47	323	23.5	21.7	26.6	13.6	14.6
1971	85	70	94	41	42	332	25.6	21.1	28.3	12.3	12.7
1972	86	93	107	40	43	369	23.3	25.2	29.0	10.8	11.7
1973	85	84	90	44	47	350	24.3	24.0	25.7	12.6	13.4
1974	85	82	93	44	54	358	23.7	22.9	26.0	12.3	15.1
1975	75	69	72	45	54	315	23.8	21.9	22.9	14.3	17.1
1976	89	101	97	44	56	387	23.0	26.1	25.1	11.4	14.5
1977	132	133	69	41	46	421	31.4	31.6	16.4	9.7	10.9
1978	81	113	70	43	62	369	22.0	30.6	19.0	11.7	16.8
1979	88	101	79	42	52	362	24.3	27.9	21.8	11.6	14.4
1980	92	117	74	95	73	451	20.4	25.9	16.4	21.1	16.2
1981	95	93	67	36	60	351	27.1	26.5	19.1	10.3	17.1
1982	83	85	68	42	56	334	24.9	25.4	20.4	12.6	16.8
1983	90	99	55	61	50	355	25.4	27.9	15.5	17.2	14.1
1984	78	82	53	42	46	301	25.9	27.2	17.6	14.0	15.3
1985	105	80	66	68	49	368	28.5	21.7	17.9	18.5	13.3
1986	88	76	67	48	54	333	26.4	22.8	20.1	14.4	16.2
1987	81	72	67	49	46	315	25.7	22.9	21.3	15.6	14.6
1988	82	63	64	46	41	296	27.7	21.3	21.6	15.5	13.9
1989	88	59	69	45	42	303	29.0	19.5	22.8	14.9	13.9
1990	77	65	64	52	40	298	25.8	21.8	21.5	17.4	13.4
1991	91	76	57	59	59	342	26.6	22.2	16.7	17.3	17.3
1992	80	58	50	56	43	287	27.9	20.2	17.4	19.5	15.0
1993	83	53	53	46	48	283	29.3	18.7	18.7	16.3	17.0
1994	85	53	49	43	37	267	31.8	19.9	18.4	16.1	13.9
1995	79	54	49	40	29	251	31.5	21.5	19.5	15.9	11.6
1996	68	56	46	41	28	239	28.5	23.4	19.2	17.2	11.7
1997	55	52	50	39	30	226	24.3	23.0	22.1	17.3	13.3
1998	70	42	42	39	36	229	30.6	18.3	18.3	17.0	15.7
1999	65	48	57	40	42	252	25.8	19.0	22.6	15.9	16.7
2000	79	51	50	42	36	258	30.6	19.8	19.4	16.3	14.0
2001	89	64	44	42	36	275	32.4	23.3	16.0	15.3	13.1
2002	95	90	49	40	39	313	30.4	28.8	15.7	12.8	12.5
2003	95	60	44	40	37	276	34.4	21.7	15.9	14.5	13.4
2004	82	62	56	40	48	288	28.5	21.5	19.4	13.9	16.7
2005	89	55	41	40	46	271	32.8	20.3	15.1	14.8	17.0
2006	90	50	38	40	43	261	34.5	19.2	14.6	15.3	16.5
2007	93	48	30	44	47	262	35.5	18.3	11.5	16.8	17.9
2008	95	44	31	40	48	258	36.8	17.1	12.0	15.5	18.6
2009	92	60	30	43	50	275	33.5	21.8	10.9	15.6	18.2
2010	95	64	30	44	51	284	33.5	22.5	10.6	15.5	18.0
2011	121	48	30	45	50	294	41.2	16.3	10.2	15.3	17.0
2012	123	73	30	43	52	321	38.3	22.7	9.3	13.4	16.2

Notes: Publication totals exclude notes, comments, announcements, and Papers and Proceedings. 2012 totals are estimated to account for expected number of articles in final issue(s) of year.

Appendix Table 2: Number of Submissions Per Year, and Journal Shares of Submissions to Top 5, 1970-2011

	Number of Submissions per Year						Share of Submissions to Top 5 (%)				
	AER	Eca	JPE	QJE	ReStud	Top 5	AER	Eca	JPE	QJE	ReStud
1970	879		586	337							
1971	813		731	390							
1972	714		701	417							
1973	758		681	416							
1974	723	310	578	411							
1975	742	368	552	384							
1976	695	390	591	376							
1977	690	460	576								
1978	649	509	614								
1979	719	498	601		308						
1980	641	550	602		327						
1981	784	563	586		386						
1982	820	563	538		365						
1983	932	563	590		363						
1984	921	552	653		396						
1985	952	600	587		362						
1986	987	495	583		326						
1987	843	500	642		330						
1988	844	486	646		368						
1989	946	521	625		365						
1990	911	493	599	540	331	2,874	31.7	17.2	20.8	18.8	11.5
1991	884	458	574	576	379	2,871	30.8	16.0	20.0	20.1	13.2
1992	950	429	599	579	340	2,897	32.8	14.8	20.7	20.0	11.7
1993	900	422	577	635	341	2,875	31.3	14.7	20.1	22.1	11.9
1994	953	433	592	600	374	2,952	32.3	14.7	20.1	20.3	12.7
1995	929	459	595	633	369	2,985	31.1	15.4	19.9	21.2	12.4
1996	976	397	571	688	318	2,950	33.1	13.5	19.4	23.3	10.8
1997	976	457	619	647	328	3,027	32.2	15.1	20.4	21.4	10.8
1998	900	472	596	698	325	2,991	30.1	15.8	19.9	23.3	10.9
1999	927	482	575	750	351	3,085	30.0	15.6	18.6	24.3	11.4
2000	989	516	608	777	350	3,240	30.5	15.9	18.8	24.0	10.8
2001	931	517	698	756	426	3,328	28.0	15.5	21.0	22.7	12.8
2002	990	598	689	793	476	3,546	27.9	16.9	19.4	22.4	13.4
2003	1,223	567	647	792	536	3,765	32.5	15.1	17.2	21.0	14.2
2004	1,265	589	659	842	586	3,941	32.1	14.9	16.7	21.4	14.9
2005	1,337	617	670	925	703	4,252	31.4	14.5	15.8	21.8	16.5
2006	1,304	615	673	1,123	716	4,431	29.4	13.9	15.2	25.3	16.2
2007	1,308	691	686	1,067	763	4,515	29.0	15.3	15.2	23.6	16.9
2008	1,326	744	610	1,080	779	4,539	29.2	16.4	13.4	23.8	17.2
2009	1,398	672	632	1,154	873	4,729	29.6	14.2	13.4	24.4	18.5
2010	1,477	714	639	1,275	914	5,019	29.4	14.2	12.7	25.4	18.2
2011	1,645	747	570	1,411	1,034	5,407	30.4	13.8	10.5	26.1	19.1

Notes: empty cells indicate missing data.

Appendix Table 3: Appromimate Acceptance Rate = Number of Articles Published in Year, Divided by Average Number of Submissions in Previous Two Years

	"Acceptance Rate" = Number Articles Published Divided by Average Annual Number of Submissions in Previous Two Years				
	AER	Eca	JPE	QJE	ReStud
1972	10.2		16.2	11.0	
1973	11.1		12.6	10.9	
1974	11.5		13.5	10.6	
1975	10.1		11.4	10.9	
1976	12.2	29.8	17.2	11.1	
1977	18.4	35.1	12.1	10.8	
1978	11.7	26.6	12.0		
1979	13.1	20.8	13.3		
1980	13.5	23.2	12.2		23.7
1981	14.0	17.7	11.1		18.9
1982	11.6	15.3	11.4		15.7
1983	11.2	17.6	9.8		13.3
1984	8.9	14.6	9.4		12.6
1985	11.3	14.3	10.6		12.9
1986	9.4	13.2	10.8		14.2
1987	8.4	13.2	11.5		13.4
1988	9.0	12.7	10.4		12.5
1989	10.4	12.0	10.7		12.0
1990	8.6	12.9	10.1		10.9
1991	9.8	15.0	9.3		17.0
1992	8.9	12.2	8.5	10.0	12.1
1993	9.1	12.0	9.0	8.0	13.4
1994	9.2	12.5	8.3	7.1	10.9
1995	8.5	12.6	8.4	6.5	8.1
1996	7.2	12.6	7.8	6.7	7.5
1997	5.8	12.1	8.6	5.9	8.7
1998	7.2	9.8	7.1	5.8	11.1
1999	6.9	10.3	9.4	5.9	12.9
2000	8.6	10.7	8.5	5.8	10.7
2001	9.3	12.8	7.4	5.5	10.3
2002	9.9	17.4	7.5	5.2	10.1
2003	9.9	10.8	6.3	5.2	8.2
2004	7.4	10.6	8.4	5.0	9.5
2005	7.2	9.5	6.3	4.9	8.2
2006	6.9	8.3	5.7	4.5	6.7
2007	7.0	7.8	4.5	4.3	6.6
2008	7.3	6.7	4.6	3.7	6.5
2009	7.0	8.4	4.6	4.0	6.5
2010	7.0	9.0	4.8	3.9	6.2
2011	8.4	6.9	4.7	3.7	5.6
2012	7.9	10.0	5.0	3.2	5.3

Appendix Table 4: Number of Google Scholar Citations per Paper, by Journal and Year of Publication

	Top 5		Median Citations by Journal				
	Mean	Median	AER	Eca	JPE	QJE	ReStud
1970	173.5	33	49.5	45.5	20.5	29	29
1971	131.1	27	28	31	25	22	26.5
1972	124.1	26	45.5	27	20	30.5	21
1973	227.7	38.5	40	32.5	33.5	41.5	33
1974	182.0	38.5	48	31.5	50	16	48.5
1975	115.7	33	48	28	46.5	15	29
1976	127.6	34	48	20	53	47.5	23.5
1977	148.9	40	23	40	81	24	46
1978	173.7	41	50	30	85.5	23	23.5
1979	280.8	58	57.5	55	90	55.5	29
1980	208.2	42	46	49	56.5	38	30
1981	242.0	50	55	64	109	37	18.5
1982	352.8	86.5	111	133	81.5	38	62
1983	213.4	75	84	71	122	50	35
1984	230.6	83	85	82.5	84	75	67.5
1985	240.6	67.5	88	81.5	78.5	36	58
1986	325.4	104	121	99.5	129	92	86
1987	330.9	103	110	152.5	108	71	71
1988	231.6	97.5	110	136	98	61.5	54
1989	313.7	123	161	105	145	119	80
1990	378.2	132	138	122	200.5	112	52
1991	421.0	137	156	137.5	255	136	79
1992	431.9	144	130.5	144.5	179.5	208.5	117
1993	367.2	162	160	164	182	242.5	124
1994	384.9	206	215	135	214	399	132
1995	382.5	172	216	117	213	423	151
1996	351.9	258	308.5	154	283	359	156.5
1997	397.7	199	212	110	213.5	485	83
1998	410.7	177	167	156.5	213.5	439	125.5
1999	375.4	197	230	85.5	153	402.5	131
2000	330.9	178.5	178	189	172.5	316	144.5
2001	289.2	143	158	106	102	441.5	77
2002	292.0	147	168	96.5	182	398	105
2003	298.0	148.5	147	107	100	386.5	137
2004	226.5	127	157	82	131	249	86.5
2005	209.3	118	134	93	136	178	73.5
2006	151.9	111	122.5	88	98.5	138.5	66
2007	141.6	94.5	93	67.5	93	135.5	80
2008	123.8	71	84	49.5	69	84	53
2009	84.1	54	57	53	46	110	41
2010	63.4	35	38	25	33.5	42.5	36
2011	47.5	29	29	27	23	42	25.5
2012	29.0	16	22	11	11	14	16

Notes: Table entries represent median number of Google Scholar citations per paper, by journal and year of publication. Google Scholar citations were extracted in October 2012.

Appendix Table 5: Field Distribution of Articles in Top 5 Journals, by Time Period

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-12
Microeconomics	16.9	16.0	14.7	13.5	15.6	18.2	22.0	23.5	27.1
Theory	28.7	33.5	36.7	38.6	26.3	23.9	25.3	30.7	38.5
Macroeconomics	20.6	20.5	20.2	20.0	22.1	19.0	19.6	17.0	17.4
Labor	13.7	16.2	17.6	17.7	15.8	19.1	19.3	20.3	19.9
Econometrics	14.2	13.5	13.1	11.1	10.4	11.0	12.0	10.2	12.1
Industrial Organization	7.0	6.5	8.9	11.4	11.1	11.3	13.2	13.2	14.4
International	14.7	12.6	10.2	9.4	7.2	7.1	7.5	7.7	9.3
Finance	2.9	4.3	6.6	8.2	10.1	12.1	12.7	12.3	13.6
Public Economics	8.1	9.6	8.7	7.9	5.3	7.3	8.1	7.2	10.2
Health and Urban Econ.	3.8	4.3	3.8	3.2	4.1	7.3	7.1	10.9	8.1
Development	2.8	1.6	2.4	2.5	4.6	7.8	8.8	7.7	7.8
History	2.7	3.4	3.9	3.1	2.3	2.2	3.4	2.8	2.9
Lab-based Experiments	0.0	0.0	0.0	1.9	0.7	0.3	0.1	1.7	4.1
Other	8.4	9.4	8.1	6.8	8.9	10.3	11.4	11.3	10.2

Notes: Assignment to fields based on list of JEL codes in EconLit database. Fractions of articles in different fields add to more than 100% because articles can be assigned to two or more fields.

Appendix Table 6: Relative Fraction of Highly Cited Articles by Field and Time Period

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-12
Microeconomics	1.22	1.05	0.99	1.16	1.19	1.02	1.07	1.00	0.94
Theory	1.00	1.07	0.98	1.06	0.74	0.62	0.55	0.66	0.73
Macroeconomics	0.88	0.94	1.00	0.93	1.31	1.28	1.15	1.48	1.23
Labor	1.37	1.38	1.12	0.85	1.16	1.10	1.21	1.19	1.17
Econometrics	0.83	0.90	1.19	0.96	0.84	0.47	0.81	0.62	0.74
Industrial Organization	1.01	1.04	1.09	1.30	0.84	0.99	1.01	1.18	1.22
International	0.61	0.63	0.92	0.84	1.05	1.55	1.61	1.47	2.06
Finance	1.71	1.21	1.40	1.32	1.56	1.29	1.43	1.19	1.10
Public Economics	1.30	0.90	0.67	0.88	0.48	0.83	0.74	0.75	0.77
Health and Urban Econ.	1.60	1.30	1.09	1.31	1.02	1.23	1.15	1.12	0.96
Development	0.93	1.06	1.45	1.65	1.81	1.71	1.61	1.62	1.56
History	0.00	0.44	0.26	0.16	0.81	0.16	0.59	0.87	0.50
Lab-based Experiments	0.00	0.00	0.00	1.77	1.36	1.03	0.00	1.05	0.36
Other	1.11	0.96	0.87	0.76	0.91	0.90	1.22	1.34	1.21

Notes: Table entries are relative fraction of articles in a field (and time period) that are highly cited, as indicated by being in the top quartile of Google Scholar Citations for all articles published in the same year. Assignment to fields based on list of JEL codes in EconLit database. Articles can be assigned to two or more fields.