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Four Decades of Health Economics through a Bibliometric Lens

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Abstract

This paper takes a bibliometric tour of the past 40 years of health economics using bibliographic "metadata" from EconLit supplemented by citation data from Google Scholar and the authors' topical classifications. The authors report the growth of health economics (33,000 publications since 1969—12,000 more than in the economics of education) and list the 300 most-cited publications broken down by topic. They report the changing topical and geographic focus of health economics (the topics 'Determinants of health and ill-health' and 'Health statistics and econometrics' both show an upward trend, and the field has expanded appreciably into the developing world). They also compare authors, countries, institutions, and journals in terms of the volume of publications and their influence as measured through various citation-based indices (Grossman, the US, Harvard and the JHE emerge close to or at the top on a variety of measures).

This paper is a product of the Human Development and Public Services Team, Development Research Group. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at awagstaff@worldbank.org.

Four Decades of Health Economics through a Bibliometric Lens

by

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JEL codes: B20; I10.

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I. **INTRODUCTION**

According to Google's Books Ngram Viewer, the terms "health economics" and "Health Economics" started appearing in books only in the 1940s, four decades after the terms "agricultural economics" and "international economics" surfaced. The first two decades of health economics were slow, but in the mid-1960s use of the terms "health economics" and "Health Economics" increased sharply, and the growth has mostly continued since then.

In this paper, we take a bibliometric tour of the last forty years of health economics. Our bibliographic "metadata" are drawn from EconLit which dates from 1969 although it includes many earlier classic papers that were reprinted as chapters in collections published after 1969, including for example Arrow (1963). Unlike other databases such as the Social Science Citation Index, SCOPUS, and Medline, EconLit allows for a relatively clean definition of health economics based on EconLit's inclusion criterion ("a substantial economics content") and a publication's JEL codes. We run risks of omission and commission: there are many non-economics and multi-disciplinary journals that have published many papers by health economists, and some authors may not have chosen a health JEL code despite their paper having a substantial health content; conversely, our net will catch some items that are devoid of economics (and not written by economists), as well as items where health is not the main focus of the publication. In any event, for reasons to be explained below, we had little choice. And our pragmatic definition of the sub-discipline enables us to avoid many esoteric considerations regarding, for example, the emphasis to be placed in characterizing health economics as the topics its practitioners study (e.g. financial aspects of health services) rather than the discipline (viz. economics) characteristically applied to understanding and explaining phenomena in health and health care (Culyer, 1981; Williams, 1979).

Our EconLit metadata include author, title, journal, the year of publication, author's institution, country of focus, keyword, and three-digit JEL code. EconLit does not include any citation data; for 78 percent of records in our dataset we were able to obtain citation data from Google Scholar. In addition to getting at influence through citations, we also want to say something about the topics that health economists work on. The JEL sub-categories are not especially illuminating[1] and the keywords in the EconLit metadata are freely chosen by authors and unsurprisingly are highly heterogeneous. We therefore used our own topical classification system, and assigned a topic to a subset of our records manually. We aggregate our metadata to the author, institution and journal levels, showing which of each have published the most, and which of each have had the greatest impact in terms of citations. We show publication counts for both “country of origin” and “country studied”. We present frequency distributions of the words used in titles and abstracts and keywords. We also show how the subtopic focus has changed over time and varies across the top institutions.

Two previous exercises are worth mentioning, although neither comes close in terms of comprehensiveness and ambition. Rubin and Chang (2003) undertook a bibliometric analysis of health economics articles over the period 1991-2000 using EconLit metadata. They also report author rankings (using number of articles and number of pages) but in most other respects their analysis is much more limited, covering a shorter time period, excluding citations, using the limited JEL topic classification system, and omitting many of the cuts of the data that we present. Also of note is the exercise Culyer undertook as background for his four-volume collection of 78 articles on health economics (Culyer, 2006). This was based on a survey of teaching members of the International Health Economics Association (iHEA) in 2004 that asked for their student reading lists, the objective being to ensure representation in the 2006 collection of those articles most frequently cited for student reference by people teaching the subject. His e-mail poll of iHEA yielded usable responses from 112 members and 164 articles that were included on at least two reading lists. We use this source as basis for making some intertemporal comparisons between health economics then (2004) and now (2011), and also for comparing the frequency of citations in general (in 2011) with literature recommended by specialist health economics teachers (in 2004).

The rest of the paper is organized as follows. Section II presents our methods, including the bibliometric methods used to analyze citations and the classification of health economics subtopics. Section III introduces our data. Section IV presents our findings, and section V our conclusions.

[1] They comprise: (a) Health: General, (b) Analysis of Health Care Markets, (c) Health Production, (d) Health: Government Policy; Regulation; Public Health, and (e) Health: Other. Recently two categories have been added: (f) Health and Inequality, and (g) Health and Economic Development.

II. COUNTING INFLUENCE THROUGH BIBLIOMETRICS

Publication counts capture the volume of output of an author, institution, journal or country. They do not necessarily capture the *influence* of that author, institution or journal on the research community. Citations are a commonly used measure of scholarly influence, the assumption being that a heavily cited paper is more influential than a less heavily cited paper, and that an individual who has authored several highly cited papers has been more influential among his or her peers than one who has authored a similar number of less cited papers.

The *h*-index (Hirsch, 2005), which we refer to below as I^1, is the most widely used citation-based summary measure of scholarly influence, reflecting both the number of publications and the number of times they have been cited. An *h*-index of 20 means that an author (or institution or journal) has 20 publications to its name each of which has been cited at least 20 times. Figure 1 illustrates. It shows the citation curves for two publication portfolios (e.g. for two individuals). The horizontal axis plots the cumulative number of articles up to the total N, ranked in descending order of citations. The y-axis plots the number of times the nth article has been cited. The *h*-index is found by drawing a 45-degree line on the chart, and reading off the x-axis or the y-axis. Hirsch argues that this index is a robust and relevant measure of "...the importance, significance and broad impact of a scientist's cumulative research contributions" and the index is widely used. It is reported, for example, in citation software such as Publish or Perish (Harzing, 2010), SCOPUS and the Web of Science (which implemented the *h*-index within two years of the publication of Hirsch's paper).[2]

The *h*-index has shortcomings. Both A and B in Figure 1 have the same *h*-index even though A's first few articles are cited far more often. In Figure 2 D has a higher *h*-index than C though C's citation curve might reasonably be argued to be the more impressive one on balance. Alternatives to the *h*-index have been proposed, but Ravallion and Wagstaff (2011) have argued they have unattractive properties. They proposed instead an axiomatic approach to measuring scholarly influence based on an influence function where influence is strictly increasing in the number of citations. If a publication portfolio has a citation curve that lies everywhere above that of another publication portfolio, the influence function approach will say the former has greater

[2] Alonso et al. (2009) provide a useful review of the literature on the *h*-index—a review that covers some 90 papers—in just four years since Hirsch (2005).

influence than the latter. Where citation curves intersect, Ravallion and Wagstaff impose the assumption of concavity—influence increases in citations but at a diminishing rate. This allows a second-order dominance test to be undertaken, but when a large number of portfolios are being compared this test becomes impractical.

Where citations curves intersect, Ravallion and Wagstaff suggest computing influence numerically. They propose a simple quadratic influence function (QIF)[3]:

$$(1) \qquad I^2 = \sum_i \left[2 - \frac{c_i}{c_{MAX}}\right] \frac{c_i}{c_{MAX}},$$

where c_i is the number of citations to the *i*th publication and c_{MAX} is the maximum number of citations encountered in the dataset. An increase in c_i increases I^2 but does so at a diminishing rate: I^2 is concave in c_i. The maximum value of the term in I^2 for each publication is 1. The maximum aggregate influence is obtained when the portfolio containing the most-cited publication is the largest of all portfolios, and all publications in the portfolio have been cited c^{max} times. This approach gives A more aggregate influence than B in Figure 1 even though A and B have the same *h*-index. It also gives C more influence than D in Figure 2 even though D has the higher *h*-index.

Unfortunately, however, the QIF approach can also lead to rankings that might be questioned. It focuses completely on citations and rewards additional publications only insofar as they generate additional citations. Even with concavity in the influence function, one can end up with an author who has published only one (albeit highly cited) article (and therefore has an *h*-index of 1) coming out ahead of another who has published multiple quite highly cited articles (perhaps with an *h*-index in the tens). In fact this happens a lot in our dataset; indeed, it turns out that the QIF is almost perfectly (rank) correlated with total citations in most cuts of our data. As a supplement to the QIF—but in keeping with the idea of diminishing marginal influence—we use an index inspired by Foster et al.'s (1984) poverty index: there the goal of the index is to reflect not just the aggregate shortfall from the poverty line but also the number of people in poverty; here our goal is to capture not just the number of citations but also the number of articles that have been cited. Our third index is thus:

[3] They also suggest a variant on it, but it does not resolve the problem we highlight below.

(2) $$I^3 = \sum_i c_i^{\alpha},$$

where $\alpha \geq 0$ is a coefficient. The closer α is to 0, the closer I^3 comes to capturing just the number of publications. (In this case, we have to add an arbitrarily small amount to c_i in order for uncited papers to count toward the publication count.) The closer α is to 1, the closer I^3 comes to capturing the total number of citations. With $0<\alpha<1$, I^3 is concave in c_i. With intermediate values of α, I^3 captures the idea that citations are associated with diminishing returns in producing scholarly influence but that additional citations always add something to influence (something that does not occur with the h-index). But we are also able to capture the idea that the number of publications of itself matters (something that *does* happen with the h-index).

All three measures we have considered thus far speak to the *total* influence of a publication portfolio. Particularly in the case of journals—but also perhaps with institutions and individual researchers—one might reasonably want to get a sense of *average* influence. After all, there is often large variation between journals in the number of articles they publish per year, and in the number of years they have been publishing. Ravallion and Wagstaff (2011) introduced the *normalized h-index*: a value of 20 means that 20% of articles have received at least 20 citations.[4] This measure adjusts for the scale of the publication portfolio. We report this for journals as well as for edited volumes.

III. **DATA**

In this section we introduce our data, explaining our choice of database, how "health economics" was defined, how we cleaned the "metadata", and how we supplemented our metadata with citation and topic data.

Database choice

A number of online bibliographic databases include articles (and in some cases other types of publication) on what could be construed as "health economics". These include EconLit[5],

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[4] This should not be confused with the *h*-index per publication, which is also called the "normalized *h*-index" in some of the literature (Alonso et al., 2009).
[5] Details of EconLit coverage are to be found at http://www.aeaweb.org/econlit/doctypes.php.

MedLine, the Social Science Citation Index[6] (SSCI), and SCOPUS[7]. These vary along key dimensions, one fundamental one being whether the database employs a classification system that allows us to make a credible distinction between "health economics" publications and others.[8] Many databases do not pass this test for any plausible definition of "health economics". MedLine, for example, includes hundreds if not thousands of articles that would be classified as "economics" using the MeSH major topic. But many—if not most—have no economic analysis in them to speak of, and are written by people who quite probably would never claim to be an economist. SCOPUS and the SSCI are the other extreme. In SCOPUS, articles are classified as either "economics, econometrics and finance" or "health sciences" (but not both). SSCI does permit cross-classifications but trying to pin down "health economics" results in a very narrow set of articles. Limiting publications to those that are classified as (a) "economics" and (b) either "health policy and services" or "health care sciences and services" results in just 2,201 publications, all of which are in just six journals: Value in Health, Health Economics, PharmacoEconomics, the Journal of Health Economics (JHE), the European Journal of Health Economics, and the International Journal of Health Care Finance and Economics. This would be a very narrow definition of "health economics" indeed. MedLine, SSCI and SCOPUS also all cover a limited range of publications. All three focus largely on journals, and MedLine focuses on medical journals and thus omits the core of the "health economics" literature.

Because MedLine, SSCI and SCOPUS all lack a classification system that enabled us to separate out "health economics" from other fields, and because they all have a limited coverage of publications, we decided to look instead to EconLit as the source of our bibliographic metadata on health economics publications—the same data source used by Rubin and Chang (2003). Its two big advantages are its scope and its JEL classification scheme. The number of titles has increased steadily since 1969 when the database started. EconLit now includes over 750 journals "with substantial economics content". It has also included books, book chapters and doctoral dissertations since 1987, and for several years has also included working papers through

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[6] SSCI covers primarily journal articles and is limited to about 2,500 social science journals. Details of coverage are to be found at http://thomsonreuters.com/products_services/science/science_products/a-z/social_sciences_citation_index.

[7] SCOPUS covers over 18,000 titles covering all disciplines including 16,500 peer-reviewed journals, as well as some book chapters, including the North-Holland handbook series. Details of the database are to be found at http://info.scopus.com/scopus-in-detail/facts/.

[8] Alternatively we could have ignored the database's classification system and tried to classify publications on the basis of the words in titles, abstracts, and keyword lists. This would have been very laborious and would likely have caused us to end up with lots of errors of omission and commission.

the REPEC project. The JEL classification scheme used by EconLit changed in 1991 but both the old and the new schemes have codes for health[9]; like Rubin and Chang (2003) we define "health economics" publications as those appearing in EconLit with one of the health JEL codes.

With EconLit and the health JEL codes we feel confident we are getting a very large share of the corpus of "health economics" understood to be publications that involve the discipline of economics being applied to the topic health. We acknowledge, however, that our 33,000 publications may exclude some that should be in our database, and may include some that perhaps ought not to be in it. On omissions, we miss the genuine health economics articles in non-economics journals not included in EconLit. We also miss health economics publications in EconLit when the author did not choose a health JEL code even if his or her publication contains a substantial amount of material on health.[10] For reasons explained earlier we cannot do anything about the former, and of course we cannot do anything about the latter if we rely on JEL codes. On commissions, we will end up including some publications where, despite EconLit's inclusion criterion, the publication contains little if any economics. And we will end up including some publications where, despite the article having a health JEL code, the publication's health content is small or negligible: health could be just one of several issues addressed in the article (articles are permitted multiple codes, and many span health and other topics)[11], or health might be the chosen application for a paper outlining a new econometric method[12]. In most of our analysis we retain all records and do not attempt to identify clear or marginal false positives. We accept that there will be publications where the inclusion could be debated, but hope that with 33,000 records any variation in classification practices will get washed out when ranking institutions, individuals, countries, etc. However, in our analysis of topics, we have dropped publications that manifestly have zero economic content despite EconLit's inclusion criterion and/or zero health content despite the JEL code. We have, however, retained in the topical analysis publications with only a small amount of health content; we flag in the text such publications.

[9] See http://www.aeaweb.org/econlit/search_hints.php.

[10] An example of this is Anand and Ravallion (1993) which does not have a health JEL code despite the word "health" occurring 58 times in the article.

[11] Deaton (2006) is an example of this.

[12] Angrist et al. (1996) is an example of this.

Authorship

On multi-author papers, we give each author equal credit for the paper insofar as EconLit allows us to. This is in contrast to Rubin and Chang (2003) who gave authors of papers with two authors only half a paper's credit each, and authors of papers with three authors only one third a paper's credit. Unfortunately, EconLit lists only the first author when the original list includes more than three or four authors.[13] In such cases, authors other than the first get no credit in our study as in Rubin and Chang's; the EconLit user has no alternative in such cases.

The author data required a good deal of cleaning. Many authors appear in different forms, sometimes with different spellings. The top 250 authors in terms of publication counts were all checked manually for multiple spellings and forms, and the scattered records aggregated; the same manual cleaning was applied to other authors who ranked highly on one or more of the indicators. The trickiest person proved to be Matthias von der Schulenburg, whose name appeared in no less than ten different forms.[14] The funniest was Adam Wagstaff, who after years of writing with Eddy van Doorslaer became "Adam van Wagstaff" in one paper.

Affiliation

The EconLit author-address field gives the author's address (affiliation) at the time of publication of the article (actually at the time of proof-correction). The field is empty until the early 1980s, so the results below are for the period 1981-2010. The information in the author-address field needed some manual cleaning, and some explanation of what was done is in order. Some clarification is also in order on the issue of joint authorship.

Each unit record (one per publication) generated multiple author-address records depending on the number of authors and whether or not they shared an affiliation. The maximum number of lines in the author-address field is equal to the number of authors listed. If a publication has, say, two authors working at two different institutions, we count the publication twice—both institutions get full credit for it. If the two authors share the same address, the

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[13] Rubin and Chang (2003) report this happens when the list exceeds three, but several recent EconLit records have four authors.

[14] For those anxious to dig up Prof von der Schulenburg's work, here are the ten permutations: J. M. Graf von der Schulenburg, J. Matthias von der Schulenburg, J. Matthias Schulenburg, J. Matthias Graf von der Schulenburg, J. Matthias Graf von Schulenburg, J. Matthias Graf van der Schulenburg, J. Matthias Graf v.d. Schulenburg, J. Matthias Graf v. d. Schulenburg, J. Matthais Graf van der Schulenburg, and J. M. Graf v.d. Schulenburg. Prof von der Schulenburg's records were cleaned because he was in the top 250 on the basis of publication count.

shared address appears only once in the EconLit record, and we count the article only once for that institution. Where an author has multiple affiliations, these appear on the same line in the EconLit record, we retained only the first-listed address—the first-listed institution gets all the credit. Adopting these rules, we inevitably end up with more records than publications: we have over 37,000 "publications" just for the sub-period 1981-2010.

We then aggregated these "publications" by address, and then by institution. Sometimes, an author's address was the institution itself, and the aggregation involved simply checking for variations in spelling or format and deciding on a common one. So, for example, the US Department of Agriculture sometimes appeared as "USDA" and sometimes as "US Department of Agriculture"; we renamed the former "US Department of Agriculture" and the two sets of records were aggregated. Other examples include the World Health Organization (which appeared also as WHO) and the International Food Policy Research Institute (which also appeared as IFRPI). Sometimes, the author address was not an institution but rather a unit within an institution. For example, authors affiliated to the University of York's Centre for Health Economics (CHE) often listed their address as CHE not the University of York. Other authors at York listed their address as the Department of Economics and Related Studies. Often these and other addresses appeared in multiple forms, with, for example, abbreviations. In such cases, we aggregated records up to the institution level—the University of York in the example above. The same rule was applied to records relating to the colleges of the universities of Cambridge and Oxford, but was not applied to constituent colleges of state universities in the US or the universities of London and Wales.[15] So, Berkeley stayed as University of California Berkeley, and the London School of Economics and the London School of Hygiene and Tropical Medicine (both part of the University of London) stayed as distinct institutions.

We identified 13,500 distinct author addresses in our dataset. We quickly realized that the cleaning and aggregation process would require a lot of manual input by someone familiar with the names and common abbreviations thereof of academic institutions and think tanks. To turn this into a manageable exercise, we required that an address had to occur at least five times for it to be retained for cleaning and aggregation. So, for example, the inappropriately Americanized

[15] Some authors listed their affiliation simply as the University of London; in such cases, there was obviously no choice but to leave the affiliation at the university rather than college level.

"Center for Health Care Econ, U York" (1 publication) was not retained for cleaning and aggregation, while the appropriately Anglicized "Centre for Health Econ, U York" (81 publications) was. Imposing this rule resulted in us dropping 12,500 of our 13,500 author addresses. This would be a calamity were it not for the fact that publications are highly unequally distributed across author addresses. The 980 records we retained accounted for around 21,500 (60 percent) of our 37,000 "publications". We think it unlikely that our "rule of five" will have had much—if any—effect on the ranking of institutions, at least at the top of the distribution: it seems likely that (say) Harvard and Yale will be just as likely to have lots of odd spellings for their various departments and research institutes; and in any case, almost 85 percent of the dropped author address records had only one publication to their name.

Citation data

Like Medline, and in contrast to SSCI and SCOPUS, EconLit has no citation data. For the purpose of this study, therefore, each publication was looked up in Google Scholar[16] and the number of citations recorded (the numbers in the paper reflect citations as of June/July 2011). Google Scholar has some attractions over SSCI and SCOPUS as a source of citation data. It captures a very broad set of publications, including books, book chapters, established journals, new journals, open-access journals, technical reports, and even dissertations. This means that we end up finding citation data for a large fraction (85%) of our EconLit records. It also means that the citation data capture scholarly influence across a wide range of publication types, not just a narrow range of academic journals.

As a source of citation data, Google Scholar does, however, have its disadvantages. Titles are also sometimes incorrect, incomplete, ambiguous, or appear in multiple versions. The tool we used to "harvest" citation data went through multiple versions before we could be sure it could cope with mispunctuation and misspellings. Even then we found mistakes, and had to correct manually or drop records that were flagged as outliers and/or which erroneously appeared highly ranked in the tables below. One defect of Google Scholar we have not corrected is the scattering of citations across multiple documents. Some publications appear with somewhat different titles in draft form or in working paper form, and will appear as different publications in Google

[16] For details of Google Scholar coverage, see http://scholar.google.com/intl/en/scholar/inclusion.html.

Scholar. Modifying the harvesting tool to aggregate across these variants would be very hard, because one needs to know which records are indeed variants of a single publication and which are simply similarly named publications.

Finally, we should note that our citation data are discipline-blind. We do not—and could not—impose the requirement that the citing author be an economist. Doing so would necessitate working manually through each document citing each of the 33,000 records in or database and establishing the discipline of the citing author. In any case, it is not clear whether such an exercise make sense; we are, after all, interested in the overall impact of each item in our database. We should also point out that we do not eliminate self-citations. Doing so would necessitate another manual check all documents citing each of our 33,000 publications. This would have the advantage of eliminating gratuitous self-citation. But insofar as an author is citing his or her previous work in taking the idea forward in a new publication, a self-citation is no different from a citation by anyone else. So even if it were feasible to eliminate self-citations in our citation data, it is not clear we would want to.

Topic classification

Beyond influence measured through citations we are also interested in the topics covered by the more influential of our 33,000 publications, and how the topic mix has varied over time and varies across the more influential institutions.

The JEL system used by EconLit does have subcodes, but as the article by Rubin and Chang (2003) makes clear, it is not a very informative one. Alternative classifications exist that we could have used to apply a topic code to the EconLit records. The first was developed by Cooper and Culyer (1973). At that time, the subject was relatively undeveloped and the literature sparse. They used four categories: “economic efficiency”, “improving decisions”, “hospitals”, and “the value of human lives”, revealing a British set of interests (though the literature selected for inclusion was not merely British). Much later Williams (1987) developed a “plumbing” diagram for categorizing and linking topics within health economics. This still betrayed a British focus (for example ‘medical insurance’ found little space in it) and Culyer enlarged and modified it in a number of ways in his four volume collection of reprinted papers (Culyer, 2006). Jones’ (2006) classification scheme for “The Elgar Companion to Health

Economics" is yet another recent and reasonably comprehensive set of topics. The JHE uses yet another classification system, grouping articles into: production of health and health services; demand and utilization of health services; financing of health services; measurement of health; behavioral models of demanders, suppliers and other health care agencies; manpower planning and forecasting; the prevention of sickness; cost-benefit and cost-effectiveness analyses and issues of budgeting; and efficiency and distributional aspects of health policy.

In the event, we opted for the following 12 topic groups: (1) health and its value; (2) efficiency and equity; (3) determinants of health and ill-health; (4) public health; (5) health and the economy; (6) health statistics and econometrics; (7) demand for health and health care; (8) medical insurance; (9) supply of health services; (10) human resources; (11) markets in health care; and (12) economic evaluation. The classification scheme is explained more fully in the Appendix.

The assignment of topics to publications was done manually. To ensure consistency, process was completed by just one of us (Culyer). Many articles could be assigned readily on the basis of their titles but in more than half of cases the abstract was also used. In about one quarter of cases, the full pdf was downloaded in Google Scholar before the final assignment was made. Assigning a topic to all 32,000 publications was clearly infeasible. Instead, we assigned topics to all publications in each of the following groups: the most-cited 300 publications; the most-cited 50 publications in each of the four decades studied; the most-cited 50 publications by each of the following institutions: Harvard, Berkeley, MIT, Chicago, the World Bank, and the University of York; the most-cited 50 publications from each of the United States, the United Kingdom, Canada and the Netherlands. In total, a topic was assigned to 694 publications.

The allocation is a little arbitrary at times: some articles span multiple categories, as when, for example, they are methodologically innovative (which might get them into category (6) but also have a specific application, which will typically place them elsewhere. Three categories—(7), (10) and (11)—are somewhat prejudiced by being elements in a very large number of papers in all topic areas, whereas we have included in these three groups only papers whose particular focus appeared to be on one of these three.

Just under 11 percent (74) of the 694 publications allocated for topic assignment were not in the event assigned to a topical group. The most-cited items amongst these were textbooks (led by Paul Feldstein) which, by definition, paint on a much broader canvas. Others included the quite extensive reference made by economists to the literatures of demography and epidemiology written by scholars of those disciplines. The most frequently cited excluded source that was not a textbook was Scott and Meyer's book on organization theory and application "Institutional environments and organizations: Structural complexity and individualism": a pioneering and hugely influential sociological work whose impact on economists is indicated by its being the 63rd most cited source.

Some titles were found to be superficially misleading. For example, Kremer's excellent "The Illusion of Sustainability" (Kremer and Miguel, 2007) may appear superficially to belong to category 5 (Health and the economy) but is in fact about the evaluation of public health options in Kenya (category 12, Economic evaluation). Some authors excel at the invention of intriguing but slightly baffling titles. Mark Kamstra's "Losing Sleep at the Market: The Daylight Saving Anomaly" (Kamstra et al., 2000) turned out to about equity returns in international capital markets in consequence of sleep disruption, and so was excluded. Contoyannis et al. on "The Dynamics of Health in the British Household Panel Survey" (Contoyannis et al., 2004) could on the face of it have been assigned either to category 1 (Health and its value) or 3 (Determinants of health and ill-health) but on closer inspection was assigned to category 3 given its concentration on the impact of health status in a previous period on the probability distribution of current health status, and on the impact of socio-economic determinants. Articles that were about both supply and demand were assigned according where the balance of emphasis seemed to lie or, where the balance was even, to category 11 (Markets in health care). Siciliani and Hurst's (2004) "Explaining Waiting-Time Variations for Elective Surgery across OECD Countries" was thus assigned to category 11.

IV. **RESULTS**

Figure 3 shows the cumulative growth of health economics publications in EconLit since 1969. Also shown is the cumulative growth of publications in the economics of education. The two fields ran neck and neck up the early 1980s, whereupon health economics started to grow much faster. As noted by Blaug (1998), the two sub-fields took different routes with health economics inspired by Arrow's work on medical insurance, interest in the way that health institutions operated (especially the non-profit sector), in the economic aspects of wider political controversies about health care financing, in the measurement of the outputs of health care systems, in addressing issues of ‘equity’ almost as much as those of ‘efficiency’ and, especially of late, in the application of cost-effectiveness methods in the multi-disciplinary field of what has become known as “Health Technology Assessment”.[17] By the end of our period (2010) health economics had notched up over 33,000 publications, 12,000 more than education economics.

Articles and topics

Table 1 lists the 300 most-cited publications in health economics for the full period, organized by topic and excluding publications, such as textbooks, that traversed the whole field.[18] The largest category (‘Determinants of health’ – 16%) includes several classic articles such as Becker et al. (Becker et al., 1994), the fourth most cited article in health economics as a whole. It also includes a classic book by the Frank Ramsey Professor at Cambridge (Dasgupta, 1993), followed at some distance by Fogel (1994) again on a ‘big’ theme. Other heavily cited classics include Smith (1999) on the health-wealth nexus, Mosley and Chen (1984) on childhood survival in poor countries, Pritchett and Summers (1996) again on the health-wealth nexus, Chaloupka and Warner (2000) on smoking and health, and Deaton (2003) on inequality and economic development. This category also includes several papers looking at behavioral determinants of health, the economics of ‘bad’ habits in addition to the addictions, the role of education in shaping lifetime health, other determinants of lifetime health such as early parenting and childhood nutrition.

The second largest category is ‘Economic evaluation’ (11%) led by three classics each having more than 1,000 citations: Torrance (1986) on standard gambles and health measurement, Weinstein (1991) on the key ideas of cost-effectiveness analysis, and Tengs’ (2004) review of 500 life-saving interventions. Very close in size are ‘Public health’ and ‘Health and the

[17] According to Google Books Ngram Viewer, HTA took off spectacularly in 1980.
[18] The percentages are defined in terms of the 260 articles among the top 300 that were assigned a topic. Not all of the top-300 were assigned a topic. Some, for example, were considered too general and some were not considered part of the health economics corpus despite their JEL code and inclusion in EconLit.

economy'. None of the most cited items in 'Public health' exceeds 1,000 citations but it is led by two classic applied papers: Becker, Grossman and Murphy (1994) on cigarette addiction (placed here rather than 'Determinants' on account of its emphasis on smoking reduction), and Cutler, Glaeser and Shapiro (2003) on American obesity. This category also includes economic analyses of risk factors, heat waves, AIDS and violence. 'Health and the economy' is led by Rodrik (2004) on economic development and DiMasi et al. (2003) on pharmaceutical innovation. The other papers explore further the two-way links between health (or health care) and the wider economy: growth, the economic cycle, unemployment, and private and public expenditure.

'Supply of health services' has a historically characteristic focus on hospitals as non-profit institutions, managed health care organizations and the ways in which such institutions respond to changes in their financial environments. None of the items in this category reach the rates of citation of the most cited papers. The most cited paper in this group (Cleary and McNeil, 1988) was 32nd in the overall ranking, the next most highly cited paper was 40th (Scott and et al., 2000). Newhouse's (1970) pioneering paper and Pauly's (1973) classic are two of the earliest papers referenced in health economics. Most of the papers in this group originate from the US and reflect US institutional concerns. 'Medical insurance' is long-standing health economics territory and the first four items in the group were each cited more than 1000 times. These include Arrow (1963) (cf. Arrow, 2001, reprinted on several other occasions too), which many consider the founding paper of the sub-discipline, Manning et al. (1987) reporting of the RAND Health Insurance Experiment, Pauly's (1968; 1991) comment on Arrow (though not Arrow's reply!), and Barsky et al. (1997) with their famous paper on risk tolerance, time preference, and intertemporal substitution.

'Efficiency and equity' as a group has relatively few US contributions and, given the dominance of US economists in the field, this may also explain why the citation rates are not higher. The group includes both methodological contributions and applied studies, including international comparisons, and covers equity in both the financing and delivery of health services. 'Health statistics and econometrics' contains six contributions with citation rates above 1,000 and relatively few published before 2000. Some of these publications (e.g. Angrist et al., 1996) simply have health as an application and the usefulness of the paper extends well beyond the health field. In other cases (e.g. Duan and et al., 1983) the paper sets out to address an econometric or statistical issue that crops up only in or disproportionately in the health field. Like ‘Economic evaluation’ ‘Health statistics and econometrics’ is a relatively mature development within health economics. ‘Health and its value’, although not a major focus of work for most health economists, contains the most cited article of all (Acemoglu et al., 2001) as well as many articles relating to the concept of health, its measurement and its valuation. (Valuation questions specifically in the context of economic appraisals were placed in ‘Economic evaluation’.) ‘Human resources’ focuses mainly on physicians and their professional behavior patterns. ‘Demand for health care’, despite its centrality for economists, was a relatively small group but dominated by the extremely heavily cited classic by Grossman (1972). ‘Markets in health care’ is the smallest group – perhaps surprisingly. There is, of course, a sense in which the idea of markets, exchange and the interaction of demand and supply underlie nearly all health economics and this may help to explain the puzzle. Beyond Shleifer’s (1985) classic, which far transcends health, most of the items in this group were much less frequently cited than those in the other groups.

Table 3 shows the topical breakdown of the 50 most-cited publications in each decade. (The numbers do not add to 50 necessarily because some publications were not allocated to a topic.) Some exhibit no clear trend: the 1990s saw classic papers appear in the areas of ‘Health and its value’ and ‘Economic evaluation’. By contrast, the topics ‘Medical insurance’ and ‘Supply of health services’ show a clear downward trend, while the topics ‘Determinants of health and ill-health’ and ‘Health statistics and econometrics’ show a clear upward trend. These diverging trends may also reflect of course the prior discovery effect: the early years saw a large volume of publications on insurance and supply issues, and the big breakthroughs had already occurred by the end of the 1980s. But it seems likely that the changes also reflect a broadening of interest in health economics.

The impression of a broadening scope of the sub-discipline is indicated in Figures 4 and 5, which are based on the commonest 150 words in the titles of all articles, not just the most cited ones. Judging from the title words, the topical focus of health economics articles has indeed broadened over the four decades, away from hospitals, insurance and the demand for health and health care, to a more diverse set of topics, with a greater degree of attention to specific applications, substantial technical developments in econometrics, and more interest being shown in the health economics of low-income countries.

Countries studied

Our bibliographic metadata include the country or countries studied by each paper. Figure 6 shows the frequency distribution of countries studied for the full period 1969-2009. The dominance of the US is striking. What Figure 6 conceals is the broadening that has occurred over the last 40 years in the countries studied by health economists, revealed by the maps in Figures 7 and 8. The second map, which has the same cut-off points as the first, is distinctly darker in all continents; the darkening is more pronounced, however, in Africa, Asia (especially China and South East Asia), Europe, and South America than in Australasia and North America. Despite the broadening of geographic focus during the last two decades, however, central Asia, Africa, and the Middle East remain relatively under-researched by health economists.

Authors

Our data contain 1,876 economists with 5 or more health economics publications in EconLit over the period 1969-2010. Twenty-eight percent of these have produced 10 or more publications. To get a sense of how the different bibliometric measures rank the authors of health economics publications we report in Table 4 the rank correlations across (a) the publication count (equal to the I^3 index with α=0), (b) total citations (equal to the I^3 index with α=1), (c) the *h*-index (referred to above as I^2), (d) the QIF index (referred to above as I^2), (e) the I^3 index with α=0.5, and (f) the citations of the author's most-cited publication. Note that the citations of the most-cited paper is highly (rank) correlated with total citations and the QIF index; unsurprisingly, its (rank) correlation with the count is very low, and its (rank) correlation with the *h*-index is also a good deal lower than with most of the other indicators. Authors like Acemoglu, Arrow and Becker, who have published classic papers in the field, have not necessarily published a lot of other highly cited papers in health economics: Arrow's (1963) paper, for example, is the second most cited paper in health economics (Table 1) but Arrow is not among the top 100 health economists on the *h*-index (table 5). Conversely, authors like Cutler who have published a large number of quite highly cited papers have not necessarily published any of the most cited papers in the field: Cutler has the highest *h*-index (Table 5) but his most cited paper is only the 42nd most cited paper in the field (Table 1) and he ranks only 78th in the author ranking in terms of the maximum citations (Table 5).[19] Note also that the QIF index is perfectly (rank) correlated with total citations; thus in practice the QIF index simply tracks total citations. Note finally that the I^3 index with α=0.5 is also highly—though not perfectly—(rank) correlated with total citations, but is more correlated with the *h*-index and with total publications than the QIF index is. Thus whilst the I^3 index with α=0.5 also rewards citations, it penalizes authors whose citations come from one or two papers—albeit less so than the *h*-index. So, for example, Grossman comes top on total citations and on the QIF index, 6th on the *h*-index, but 4th on the I^3 index with α=0.5 (Table 5).

Table 5 shows the world's top-100 health economists in terms of the *h*-index.[20] Also shown are the other indices, the fraction of publications not found in Google Scholar, and the citations of the author's most-cited publication. We have not imposed a minimum number of publications to be considered a health economist; in the event the top 100 all have at least 15 health economics publications to their name. Cutler emerges top on the *h*-index and on the I^3 index with α=0.5, Pauly comes out top on publications, and Grossman comes top on total citations.[21] Five authors come in the top 10 on total publications, total citations, the *h*-index and I^3 with α=0.5, namely Cutler, Gruber, Newhouse, Pauly and Viscusi. Five more emerge in the top 20 on all four measures, namely Currie, Grossman, Sloan, Wagstaff and van Doorslaer. The rest of the top-20 are not in the top-20 on all four measures, but are all in the top-100 on all four measures, and most are also in the top 50 on all four measures. Among the 80 authors ranked 21-100 on the *h*-index, only 25 are in the top-100 on all four indices. The list includes several elder statesmen (and one woman) of health economics: Alderman, Deaton, (Martin) Feldstein, Manning, Fuchs, Wolfe, and Williams (deceased).

Seventy one of the top-100 health economists are Americans. The rest include 17 Britons (at least one of whom—Haddad—has dual nationality), four Swedes, three Dutch, a Belgian, an Indian, a Swiss, and a Zimbabwean; many of the non-Americans work—or have worked for

[19] The two ranks differ because of coauthors.

[20] There were multiple ties around the 100 cutoff point, so we list here the top 95. Including the next tied batch would have taken us well over 100.

[21] Grossman also comes top on and on the QIF index, I^2, hardly surprising given how closely it tracks total citations.

large parts of their careers—in the US. Most (85) of the top-100 are also men. The US dominance is a little less pronounced in the top-50 (only 62 percent are Americans), but the male dominance is equally pronounced in the top-50 (88 percent of the top-50 are men).

Institutions

Our dataset contains 738 institutions with five or more health economics publications in EconLit. (Recall the author's affiliation is at the time the publication was published.) Over half of these (420) have ten or more, and 30 percent have 20 or more.

Table 6 shows the top 100 institutions in terms of the *h*-index. These 100 institutions account for 62% of health economics publications since the start of the 1980s when author affiliation data started to appear in EconLit records. Also shown in Table 6 are the other indices, the fraction of publications not found in Google Scholar, and the citations of the institution's most-cited publication. Harvard emerges the clear winner, beating others on the *h*-index, the publication count, total citations and the I^3 index with α=0.5. Seven institutions come in the top 10 on total publications, total citations, the *h*-index and I^3 with α=0.5, namely Harvard, the World Bank, UC Berkeley, U Chicago, U PA, U MI, and U York. Among the top-10, only MIT is not in the top-20 on all four measures. Eight of those ranked 11-20 are in the top-20 on all four measures, the exceptions being Cornell U, Princeton U and PA State U. Among the 80 institutions ranked 21-100 on the *h*-index, 61 are in the top-100 on all four indices. Most of the 39 not in the top-100 on all four measures appear in the lower part of the top-100 on the *h*-index. It is noteworthy that many of the top-100 institutions are not universities.

Table 7 shows the 10 most cited publications of each of the top-10 institutions (based on the *h*-index, as listed in Table 6). The table suggests some differences in topical specialization across the institutions. This is borne out by Table 8 which shows the distribution by topic of the most-cited 50 publications of the top-5 US institutions and Europe's top institution. The (normalized) Herfindahl index shows (in this instance) the degree of concentration of an institution's publications on a small number of topics. A value of 0.33 would occur if an institution's top-50 publications were evenly split across just three topics. Harvard U is the least specialized—appreciably less specialized than MIT (which has a high degree of specialization in

'Medical insurance') and U CA Berkeley and Chicago U, both of which show a fairly high degree of specialization in 'Determinants of health and ill-health'. Harvard U is dramatically less specialized than U York, which specializes heavily in 'Economic evaluation' and to a lesser extent 'Health and its value' and 'Efficiency and equity', and the World Bank, which is fairly specialized in 'Determinants of health and ill-health' and to a lesser extent 'Health and the economy'.

Countries of origin

Unsurprisingly in view of Table 6, the US dominates health economics. As table 9 shows, the US comes top by a substantial margin on total publications, total citations, the *h*-index, and the I^3 index with α=0.5. (We base the country of origin on the author's affiliation at the time of publication of each publication.) The UK comes second on all four indices, but the UK's *h*-index is just half that of the US's. Canada comes third on all four measures; it is some way behind the UK and only marginally ahead of Australia, the Netherlands and Sweden whose rankings vary across the four indices and who all come fourth or fifth on at least one index. The US, of course, may do less well on a population-adjusted basis, but it is not obvious whether such an adjustment makes sense. Arguably the US *ought* to be doing more research than other countries since its health system is so different from those of other countries—there may be thus less complementarity of research between the US and the OECD countries than there is among the other OECD countries.

Unsurprisingly, few non-OECD countries make it into the top-25. Taiwan (China) is the highest-ranking non-OECD territory, the next being China and S Africa. Table 10 shows the top 25 institutions on the *h*-index from non-OECD countries. U Cape Town comes out top on publications, but the National Taiwan U comes out top on total citations, the *h*-index and the I^3 index with α=0.5. Taiwan (China) and S Africa both have four institutions in the top-25, while China and India both have three, two of China's being in Hong Kong SAR, China.

Table 11 shows the topical distribution of the top four countries' top-50 publications, along with the (normalized) Herfindahl index computed as in Table 8. The United Kingdom is the most specialized country, focusing heavily on the topic 'Economic evaluation'. The

Netherlands is somewhat less specialized (covering ‘Efficiency and equity’ and ‘Economic evaluation’), but is still more specialized than Canada and the United States. Interestingly, the topics of the most-cited papers in the US are not on topics such as ‘Medical insurance’ and ‘markets in health care’, but rather the topics ‘Determinants of health and ill-health’, ‘Health and the economy’, and ‘Health statistics and econometrics’.

Journals and edited volumes

Table 12 shows the top-100 journals in health economics on the basis of their *h*-index for health economics articles only. Also shown are number of articles, total citations of these articles in Google scholar, the I^3 index with α=0.5, and the normalized *h*-index. The JHE dominates Health Economics on both the *h*-index and the normalized *h*-index, which in turn dominates PharmacoEconomics and the other specialized health economics journals on both criteria. The JHE fares worse than many journals on the normalized *h*-index: over 60% of health economics articles in Econometrica have been cited 60 times or more, as is the case for health economics articles in the J Political Economy, the Quarterly J of Economics and the J Economic Literature; several other general journals also fare better than the JHE on the normalized *h*-index though less spectacularly than these top journals. These are all general journals, of course; their editors have the freedom to change the fraction of articles they publish on health economics according to the quality of submissions—an option that is not open to the editors of JHE and other specialized health economics journals.

Table 13 shows the top-25 edited volumes in health economics based on the *h*-index. The Handbook of Health Economics dominates the others by quite a wide margin on both the *h*-index and the normalized *h*-index; at 76 percent, the Handbook’s normalized *h*-index is better than any journal, suggesting a remarkably adept choice of chapters and authors by the editors as well as a consistently high quality of papers. Two other collections also fare well on both the *h*-index and the normalized *h*-index, namely “The economics of health” and “Health sector reform in developing countries: Making health development sustainable”.

V. **CONCLUSIONS**

We have focused on the past 40 years. Health economics did, of course, exist before 1971 as we have already noted. Here we reflect on what went on before our starting date and offer some comments on the state of the subject. In his Foreword to Uncertain times: Kenneth Arrow and the changing economics of health care (Hammer, 2003), the 40th birthday Festschrift celebrating Ken Arrow's 1963 classic, Mark Pauly nicely observed that this article "made research in health economics respectable. But it did more than that. It made it interesting." He went on to identify two attributes of the article that laid the foundations for health economics: "It showed how some behaviors in medical markets could be brought within the purview of standard economic models of competing, maximizing agents … (and) offered an explanation that atypical institutional arrangements in medical care markets are a reaction to special features of this market. … In doing so, it discussed concepts that made (and make) economists attentive but uncomfortable, like trust and morals" (pp. vii-viii).

Prior to "Uncertainty" and, indeed, for some while after its appearance, the literature of health economics was exceedingly thin and more descriptive than analytical. The first textbook in health economics (Klarman, 1965) was in part a plea for more attention from economists: "Few economists work actively on the problems of the health field" (p.10). The bibliography in this book has remarkably few items, by today's standard, by health economists – nor, indeed, by economists of any hue. Much the same was true in 1972, when Victor Fuchs published his celebrated Who shall live? (Fuchs, 1972) whose bibliographies still contain few contributions by economists. Much was made of listing the characteristics of health and health care that seemed to mark it out from other goods and services, often with the implication that the mere recitation of (qualitative) characteristics provided sufficient grounds for public intervention. An early pioneer in this vein was Selma Mushkin (1958) who also, however, laid some of the foundations for health as investment (Mushkin, 1962). Those few economists who did take an interest would scarcely have described themselves as 'health economists', typically having much broader research interests: economists like James Buchanan in the US (Buchanan, 1965) and the Jewkeses in the UK (Jewkes and Jewkes, 1961) who gave some ad hoc (and usually critical) attention to the UK's National Health Service. A notable exception was Burton Weisbrod, whose article on human capital (Weisbrod, 1961) was an analytical precursor of Grossman (1972) though not in fact cited by him (Mushkin (1962) was, however, cited). In the early 1960s, as now, the US was dominant. In the UK only two economists spent a substantial amount of their time researching (and none teaching) health economics: Michael Cooper at Exeter and Dennis Lees at Nottingham. None of the aforementioned economists is highly cited in our database. Weisbrod has several items, the highest scoring one coming 80th. Klarman has several, the highest place being well out of the top 1,000. Mushkin has but one (a 1999 Spanish lecture) also well out. Buchanan's one and only foray was well out as well, as was Lees. Cooper and the Jewkeses did not appear in the database at all. Sic transit gloria economisti!

Another signal talent also appeared on the scene in 1963. This was Martin Feldstein with his article on the application of econometrics to the National Health Service (Feldstein, 1963) which reached its apogee with the publication of his tour de force in 1967 (Feldstein, 1967). This text heralded the birth of health econometrics. Indeed, the book was used in some universities at the time as a text in applied econometrics. Although the article does not feature in our database, his subsequent work on physician services (Feldstein, 1970), hospital cost inflation (Feldstein, 1971) and welfare loss of 'excess' insurance (Feldstein, 1973) all pioneered the use of econometric methods – with substantial policy controversy tantalizingly spicing up the mixture.

Since then we have charted the course of health economics through its literature. The growth has been astonishing, well outrunning its initial stable-mate, the economics of education. Economists writing on health and health care have plainly become a great deal more specialized than was the case, though some of the most cited contributions have come from economists who would not consider themselves health economists at all. Some topics, such as 'Health and its value' and 'Economic evaluation', show no clear trend in popularity, while others display a clear trend: the topics 'Medical insurance' and 'Supply of health services' have lost favor, while the topics 'Determinants of health and ill-health' and 'Health statistics and econometrics' show a clear upward trend. While not analyzed in our paper, Rubin and Chang's (2003) analysis of a subset of our data confirms our suspicion that the frequency of joint authorships has increased over time; we speculate that much of that trend is due to multi-disciplinary collaborations. The geographic focus of health economics publications has broadened considerably over the last four decades, though central Asia, Africa, and the Middle East remain relatively under-researched by health economists.

There are few surprises among the most cited names in health economics – though the order is much determined by the choice of index. The ten most cited health economists are Cutler, Gruber, Newhouse, Pauly, Viscusi, Currie, Grossman, Sloan, Wagstaff and van Doorslaer. All citation indices probably tend to discriminate against those who go against the grain, which probably accounts for the relative lack of prominence of economists like Robert Evans, the father of 'supplier-induced demand' (Evans, 1974) and numerous well-aimed Canadian diatribes against his southerly neighbor. The highest scoring institutions (according to the *h*-index) are Harvard and the World Bank followed by MIT, Berkeley and Chicago, Pennsylvania, and Michigan and York (UK). Harvard is the least specialized of the top institutions in terms of topics studied; the World Bank and York are more specialized. The US dominates health economics, being home to 38 of the top 50 institutions. The UK has seven top-50 institutions, and Canada two. The most influential journal (in terms of aggregate citations) is the Journal of Health Economics followed by Health Economics. The Handbook of Health Economics and the Quarterly Journal of Economics are better cited, however, than either of these two leading journals in terms of the citation rates.

An interesting question might be whether health economics has fulfilled the promise diagnosed by Pauly in his reflections on Arrow's pioneering piece. 'Respectable'? Apparently so judging from the thorough permeation of policy circles by health economists and the ample flow of research funding (at least to those deemed 'respectable'!). 'Interesting'? Certainly, and not least because of the challenges that have had to be faced up to in adapting economists' 'standard economic models'. The question cries out "When is the standard 'purview' being embraced or rejected?" Our estimate is that, if the standard is taken as that of "competing, maximizing agents", there is much in health economics that challenges the usefulness of competitive models, or maximizing models, and that uses alternative maximands, especially in normative analyses. Health economics has yet, we think, to face up to many of the ethical dilemmas in health economics – how, for example, to embody in non-arbitrary and non-partisan ways some of the 'moral' issues mentioned by Pauly, especially in health care investment decisions and the design of insurance systems. Likewise, applied health economists have not really faced up to the implications, both positive and normative, of the assault by cognitive psychologists and experimental economists on the utilitarian (especially expected utility) foundations of the economics core. But in this they probably cannot be held to be more accountable than applied economists of any kind.

Table 1: 300 most-cited publications in health economics, by topic

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Health and its value	2001	The Colonial Origins of Comparative Development: An Empirical Investigation	Daron Acemoglu	American Economic Review	4355	1
Health and its value	1993	The RAND 36-Item Health Survey 1.0	R. D. Hays	Health Economics	826	28
Health and its value	1993	The Value of Risks to Life and Health	W. Kip Viscusi	Journal of Economic Literature	790	29
Health and its value	2003	The Value of a Statistical Life: A Critical Review of Market Estimates throughout the World	W. Kip Viscusi		627	48
Health and its value	1995	Multi-attribute Health Status Classification Systems: Health Utilities Index	David Feeny	PharmacoEconomics	489	83
Health and its value	1985	The Value of Safety: Results of a National Sample Survey	M. W. Jones-Lee	Economic Journal	412	105
Health and its value	1997	Disability-Adjusted Life Years: A Critical Review	Sudhir Anand	Journal of Health Economics	399	111
Health and its value	2008	How to Value a Life	W. Kip Viscusi	Journal of Economics and Finance	367	127
Health and its value	1990	Utility Functions That Depend on Health Status: Estimates and Economic Implications	W. Kip Viscusi	American Economic Review	319	169
Health and its value	1992	Quality-of-Life Assessment: Can We Keep It Simple?	D. R. Cox	Journal of the Royal Statistical Society: Series A (Statistics in Society)	302	191
Health and its value	1997	Measuring the Health of the U. S. Population	David M. Cutler	Brookings Papers on Economic Activity	291	208
Health and its value	1999	Preferences for Life Saving Programs: How the Public Discounts Time and Age	Maureen L. Cropper	Valuing environmental benefits: Selected essays of Maureen Cropper	286	213
Health and its value	2003	The Health of Nations: The Contribution of Improved Health to Living Standards	William D. Nordhaus	Measuring the gains from medical research: An economic approach	286	213
Health and its value	2006	The Value of Health and Longevity	Kevin M. Murphy	Journal of Political Economy	254	263
Health and its value	2001	Scarring: The Psychological Impact of Past Unemployment	Andrew E. Clark	Economica	236	299
Efficiency and equity	2002	Economic Status and Health in Childhood: The Origins of the Gradient	Anne C. Case	American Economic Review	627	48
Efficiency and equity	2003	Motivation, agency, and public policy: Of knights and knaves, pawns and queens	Julian Le Grand		533	65
Efficiency and equity	2006	Poverty and Inequality in India: A Re-examination	Angus S. Deaton	Indian Economy since Independence	417	100
Efficiency and equity	1997	Socioeconomic Inequalities in Health: Measurement, Computation, and Statistical Inference	Nanak Kakwani	Journal of Econometrics	415	103
Efficiency and equity	1998	Mortality as an Indicator of Economic Success and Failure	Amartya K. Sen	Economic Journal	413	104
Efficiency and equity	1997	Income-Related Inequalities in Health: Some International Comparisons	Eddy van Doorslaer	Journal of Health Economics	405	108
Efficiency and equity	2000	On Limiting the Domain of Inequality	James Tobin	The foundations of the welfare state. Volume 1	403	109
Efficiency and equity	1997	Intergenerational Equity: An Exploration of the 'Fair Innings' Argument	Alan Williams	Health Economics	356	139
Efficiency and equity	1993	Equity and Equality in Health and Health Care	A. J. Culyer	Journal of Health Economics	324	166
Efficiency and equity	2005	The Quantity and Quality of Life and the Evolution of World Inequality	Gary S. Becker	American Economic Review	307	183
Efficiency and equity	2000	Equity in the Delivery of Health Care in Europe and the US	Eddy van Doorslaer	Journal of Health Economics	281	221
Efficiency and equity	1997	Understanding DALYs	Christopher J. L. Murray	Journal of Health Economics	280	224
Efficiency and equity	1996	Economics, Values, and Health Care Reform	Victor R. Fuchs	American Economic Review	274	232
Efficiency and equity	2000	Equity in Health Care Finance and Delivery	Adam Wagstaff	Handbook of health economics. Volume 1B	271	241

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Efficiency and equity	1999	Income Inequality and Health: Pathways and Mechanisms	Ichiro Kawachi	Health Services Research	270	244
Efficiency and equity	1987	Are User Fees Regressive? The Welfare Implications of Health Care Financing Proposals in Peru	Paul J. Gertler	Journal of Econometrics	265	252
Efficiency and equity	1989	The Normative Economics of Health Care Finance and Provision	A. J. Culyer	Oxford Review of Economic Policy	254	263
Efficiency and equity	1991	QALYs and the Equity-Efficiency Trade-off	Adam Wagstaff	Journal of Health Economics	252	273
Efficiency and equity	1999	Equity in the Finance of Health Care: Some Further International Comparisons	Adam Wagstaff	Journal of Health Economics	247	279
Determinants of health and ill-health	2008	A Theory of Rational Addiction	Gary S. Becker	The Economics of Health Behaviours. Volume 1.	2260	5
Determinants of health and ill-health	1993	An inquiry into well-being and destitution	Partha Dasgupta		1613	10
Determinants of health and ill-health	1994	Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy	Robert W. Fogel	American Economic Review	909	24
Determinants of health and ill-health	1999	Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status	James P. Smith	Journal of Economic Perspectives	888	25
Determinants of health and ill-health	1984	An Analytical Framework for the Study of Child Survival in Developing Countries	W. Henry Mosley	Population and Development Review	845	26
Determinants of health and ill-health	1996	Wealthier Is Healthier	Lant Pritchett	Journal of Human Resources	704	38
Determinants of health and ill-health	2000	The Economics of Smoking	Frank J. Chaloupka	Handbook of health economics. Volume 1B	639	47
Determinants of health and ill-health	2003	Health, Inequality, and Economic Development	Angus S. Deaton	Journal of Economic Literature	624	50
Determinants of health and ill-health	1991	Rational Addictive Behavior and Cigarette Smoking	Frank J. Chaloupka	Journal of Political Economy	599	52
Determinants of health and ill-health	1991	Health Behavior, Health Knowledge, and Schooling	Donald S. Kenkel	Journal of Political Economy	516	72
Determinants of health and ill-health	2002	The Emergence of Lowest-Low Fertility in Europe during the 1990s	Hans-Peter Kohler	Population and Development Review	513	76
Determinants of health and ill-health	2001	Is Addiction 'Rational'? Theory and Evidence	Jonathan Gruber	Quarterly Journal of Economics	497	82
Determinants of health and ill-health	2005	The Relationship between Education and Adult Mortality in the United States	Adriana Lleras-Muney	Review of Economic Studies	434	95
Determinants of health and ill-health	2005	The Lasting Impact of Childhood Health and Circumstance	Anne C. Case	Journal of Health Economics	397	112
Determinants of health and ill-health	2006	Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-Validated Survey	Thomas J. Dohmen		386	118
Determinants of health and ill-health	1995	Mortality, Fertility, and Gender Bias in India: A District-Level Analysis	Mamta Murthi	Population and Development Review	383	120
Determinants of health and ill-health	2006	Long Term Consequences of Early Childhood Malnutrition	Harold Alderman	Oxford Economic Papers	370	125
Determinants of health and ill-health	1999	The Effect of Income on Child Development	David M. Blau	Review of Economics and Statistics	369	126
Determinants of health and ill-health	2000	Explaining child malnutrition in developing countries: A cross-country analysis	Lisa C. Smith		367	127
Determinants of health and ill-health	2006	The Determinants of Mortality	David M. Cutler	Journal of Economic Perspectives	367	127
Determinants of health and ill-health	2004	Health, Wealthy, and Wise? Tests for Direct Causal Paths between Health and Socioeconomic Status	Peter Adams	Perspectives on the economics of aging	354	140
Determinants of health and ill-health	2003	Healthy, Wealthy, and Wise? Tests for Direct Causal Paths between Health and Socioeconomic Status	Peter Adams	Journal of Econometrics	354	140
Determinants of health and ill-health	2004	Returns to Birthweight	Jere R. Behrman	Review of Economics and Statistics	312	174
Determinants of health and ill-health	1969	The Production of Health, an Exploratory Study	Richard Auster	Journal of Human Resources	312	174
Determinants of health and ill-health	2000	Parental Employment and Child Cognitive Development	Christopher J. Ruhm		311	176
Determinants of health and ill-health	1997	Effects of Education on Health	Michael Grossman	The social benefits of education	310	178

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Determinants of health and ill-health	1999	The Long-Run Growth in Obesity as a Function of Technological Change	Tomas J. Philipson		279	226
Determinants of health and ill-health	2004	Addiction and Cue-Triggered Decision Processes	B. Douglas Bernheim	American Economic Review	275	230
Determinants of health and ill-health	1995	Evaluation of the Subjective Probabilities of Survival in the Health and Retirement Study	Michael D. Hurd	Journal of Human Resources	274	232
Determinants of health and ill-health	1986	Nutrition and the Decline in Mortality since 1700: Some Preliminary Findings	Robert W. Fogel	Long-term factors in American economic growth	273	235
Determinants of health and ill-health	1996	The Demand for Food and Calories	Shankar Subramanian	Journal of Political Economy	271	241
Determinants of health and ill-health	2001	Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis	Paul Glewwe	Journal of Public Economics	269	245
Determinants of health and ill-health	1987	Will Developing Country Nutrition Improve with Income? A Case Study for Rural South India	Jere R. Behrman	Journal of Political Economy	269	245
Determinants of health and ill-health	2003	Maternal Employment and Overweight Children	Patricia M. Anderson	Journal of Health Economics	266	249
Determinants of health and ill-health	2008	Rational Addiction with Learning and Regret	Athanasios Orphanides	The Economics of Health Behaviours. Volume 1.	262	253
Determinants of health and ill-health	1991	How Does Mother's Education Affect Child Height?	Duncan Thomas	Journal of Human Resources	260	254
Determinants of health and ill-health	2002	Socioeconomic Status and Health: Why is the Relationship Stronger for Older Children?	Janet M. Currie		258	259
Determinants of health and ill-health	1989	Schooling, Self-Selection, and Health	Mark C. Berger	Journal of Human Resources	250	275
Determinants of health and ill-health	2001	Mortality, Education, Income, and Inequality among American Cohorts	Angus S. Deaton	Themes in the economics of aging	247	279
Determinants of health and ill-health	2005	Education and Nonmarket Outcomes	Michael Grossman		244	286
Determinants of health and ill-health	2008	Education and Health: Evaluating Theories and Evidence	David M. Cutler	Making Americans Healthier: Social and Economic Policy as Health Policy	243	288
Determinants of health and ill-health	1999	The Demand for Illicit Drugs	Henry Saffer	Economic Inquiry	239	295
Public health	1994	An Empirical Analysis of Cigarette Addiction	Gary S. Becker	American Economic Review	775	30
Public health	2003	Why Have Americans Become More Obese?	David M. Cutler	Journal of Economic Perspectives	684	42
Public health	2000	Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment	Lawrence F. Katz		592	54
Public health	1994	Violence against women: The hidden health burden	Lori L. Heise		576	59
Public health	2004	An Economic Analysis of Adult Obesity: Results from the Behavioral Risk Factor Surveillance System	Shin-Yi Chou	Journal of Health Economics	561	63
Public health	2002	Heat wave: A social autopsy of disaster in Chicago	Eric Klinenberg		515	73
Public health	2005	Experimental Analysis of Neighborhood Effects	Jeffrey R. Kling		460	90
Public health	2007	More Than 100 Million Women Are Missing	Amartya K. Sen	An Anthology Regarding Merit Goods: The Unfinished Ethical Revolution in Economic Theory	450	93
Public health	1981	The Effects of Government Regulation on Teenage Smoking	Eugene M. Lewit	Journal of Law and Economics	380	122
Public health	2004	The Impact of Obesity on Wages	John H. Cawley	Journal of Human Resources	361	134
Public health	2005	Preparing for the Next Pandemic	Michael T. Osterholm	Foreign Affairs	360	135
Public health	1991	The Effects of Excise Taxes and Regulations on Cigarette Smoking	Jeffrey Wasserman	Journal of Health Economics	357	138
Public health	2004	The escape from hunger and premature death, 1700-2100: Europe, America, and the third world	Robert W. Fogel		352	142
Public health	1996	New Evidence on the Relationship between Income and Health	Susan L. Ettner	Journal of Health Economics	330	158
Public health	2002	The Growth of Obesity and Technological Change: A Theoretical and Empirical Examination	Darius N. Lakdawalla		321	167
Public health	2005	Water for Life: The Impact of the Privatization of Water Services on Child Mortality	Sebastian Galiani	Journal of Political Economy	315	173

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Public health	1982	The potential for using excise taxes to reduce smoking	E. M. Lewitt	J Health Econ	311	176
Public health	1991	Rational Addiction and the Effect of Price on Consumption	Gary S. Becker	American Economic Review	306	186
Public health	1986	Evaluating the Effects of Optimally Distributed Public Programs: Child Health and Family Planning Interventions	Mark R. Rosenzweig	American Economic Review	298	199
Public health	1982	The Effect of Liquor Taxes on Heavy Drinking	Philip J. Cook	Bell Journal of Economics	281	221
Public health	1984	A Model of the Optimal Use of Liability and Safety Regulation	Steven Shavell	RAND Journal of Economics	280	224
Public health	1997	Price, Tobacco Control Policies and Smoking among Young Adults	Frank J. Chaloupka	Journal of Health Economics	273	235
Public health	1999	Willingness to Pay for Health Protection: Inadequate Sensitivity to Probability?	James K. Hammitt	Journal of Risk and Uncertainty	246	282
Public health	2002	Age, Health and the Willingness to Pay for Mortality Risk Reductions: A Contingent Valuation Survey of Ontario Residents	Alan J. Krupnick	Journal of Risk and Uncertainty	245	285
Public health	2006	Do Cigarette Taxes Make Smokers Happier?	Jonathan Gruber	Happiness and Public Policy: Theory, Case Studies and Implications	242	290
Public health	2003	The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession	Kenneth Y. Chay	Quarterly Journal of Economics	242	290
Public health	1990	The Role of Maternal Schooling and Its Interaction with Public Health Programs in Child Health Production	Albino Barrera	Journal of Development Economics	237	296
Public health	1991	Pricing Environmental Health Risks: Survey Assessments of Risk-Risk and Risk-Dollar Trade-Offs for Chronic Bronchitis	W. Kip Viscusi	Journal of Environmental Economics and Management	234	301
Health and the economy	2004	Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development	Dani Rodrik	Journal of Economic Growth	2033	6
Health and the economy	2003	The Price of Innovation: New Estimates of Drug Development Costs	Joseph A. DiMasi	Journal of Health Economics	1921	8
Health and the economy	1998	Health, Nutrition, and Economic Development	John Strauss	Journal of Economic Literature	962	22
Health and the economy	1992	Medical Care Costs: How Much Welfare Loss?	Joseph P. Newhouse	Journal of Economic Perspectives	751	34
Health and the economy	2000	The Economic Burden of Malaria	John Luke Gallup		723	36
Health and the economy	2000	Are Recessions Good for Your Health?	Christopher J. Ruhm	Quarterly Journal of Economics	598	53
Health and the economy	1991	The Health Care Quadrilemma: An Essay on Technological Change, Insurance, Quality of Care, and Cost Containment	Burton A. Weisbrod	Journal of Economic Literature	510	77
Health and the economy	1991	Cost of Innovation in the Pharmaceutical Industry	Joseph A. DiMasi	Journal of Health Economics	502	80
Health and the economy	1977	Medical-Care Expenditure: A Cross-National Survey	Joseph P. Newhouse	Journal of Human Resources	416	102
Health and the economy	1999	Ageing of Population and Health Care Expenditure: A Red Herring?	Peter S. Zweifel	Health Economics	403	109
Health and the economy	1998	Does Better Nutrition Raise Farm Productivity?	John Strauss	Economic demography. Volume 1	390	114
Health and the economy	2002	The divided welfare state: The battle over public and private social benefits in the United States	Jacob S. Hacker		364	133
Health and the economy	1986	Inequality as a Determinant of Malnutrition and Unemployment: Theory	Partha Dasgupta	Economic Journal	349	145
Health and the economy	1985	Further Evidence on the Economic Effects of Poor Health	Thomas N. Chirikos	Review of Economics and Statistics	347	147
Health and the economy	2000	Unemployment and Suicidal Behaviour: A Review of the Literature	Stephen Platt	The economics of unemployment. Volume 4	336	155
Health and the economy	2001	The Impact of Legalized Abortion on Crime	John J. Donohue	Quarterly Journal of Economics	335	156
Health and the economy	2001	Consequences of Employment Protection? The	Daron Acemoglu	Journal of Political Economy	327	161

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
		Case of the Americans with Disabilities Act				
Health and the economy	1990	Economic analysis of product innovation: The case of CT scanners	Manuel Trajtenberg		316	170
Health and the economy	1999	Health Problems as Determinants of Retirement: Are Self-Rated Measures Endogenous?	Debra Sabatini Dwyer	Journal of Health Economics	305	187
Health and the economy	1989	Measuring the Effect of Disability on Labor Force Participation	Steven Stern	Journal of Human Resources	282	218
Health and the economy	2007	Disease and Development: The Effect of Life Expectancy on Economic Growth	Daron Acemoglu	Journal of Political Economy	273	235
Health and the economy	2001	Modeling the Effects of Health on Economic Growth	Alok Bhargava	Journal of Health Economics	273	235
Health and the economy	1992	Healthcare Resource and Lost Labour Costs of Migraine Headache in the U.S	Jane T. Osterhaus	PharmacoEconomics	271	241
Health and the economy	2004	The Effect of Health on Economic Growth: A Production Function Approach	David E. Bloom	World Development	268	247
Health and the economy	1978	Productivity, Wages and Nutrition: Part I: The Theory	Christopher Bliss	Journal of Development Economics	260	254
Health and the economy	2001	Fiscal Implications of Ageing: Projections of Age-Related Spending	Thai Than Dang		253	270
Health and the economy	2007	Accounting for the Effect of Health on Economic Growth	David N. Weil	Quarterly Journal of Economics	244	286
Health and the economy	1992	An Econometric Analysis of Health Care Expenditure: A Cross-Section Study of the OECD Countries	Ulf- G. Gerdtham	Journal of Health Economics	237	296
Health statistics and econometrics	2000	Modeling survival data: Extending the Cox Model	Terry M. Therneau		1938	7
Health statistics and econometrics	1996	Identification of Causal Effects Using Instrumental Variables	Joshua D. Angrist	Journal of the American Statistical Association	1862	9
Health statistics and econometrics	2003	Interaction Terms in Logit and Probit Models	Chunrong Ai	Economics Letters	1133	15
Health statistics and econometrics	2006	Measuring Social Class in US Public Health Research: Concepts, Methodologies, and Guidelines	N. Krieger	Social Planning	1116	16
Health statistics and econometrics	2000	Intra-Household Resource Allocation: An Inferential Approach	Duncan Thomas	Readings in development microeconomics. Volume 1. Micro-theory	1105	17
Health statistics and econometrics	2007	A Statistical Model for the Analysis of Ordinal Level Dependent Variables	Richard D. McKelvey	Positive Changes in Political Science: The Legacy of Richard D. McKelvey's Most Influential Writings	1088	18
Health statistics and econometrics	2000	Analysis of multivariate survival data	Philip Hougaard		739	35
Health statistics and econometrics	1983	A Comparison of Alternative Models for the Demand for Medical Care	Naihua Duan	Journal of Business and Economic Statistics	716	37
Health statistics and econometrics	2006	Global Burden of Disease and Risk Factors	Alan D. Lopez		665	44
Health statistics and econometrics	1992	Modeling and Forecasting U.S. Mortality	Ronald Lee	Journal of the American Statistical Association	609	51
Health statistics and econometrics	2001	Estimating Log Models: To Transform or Not to Transform?	Willard G. Manning	Journal of Health Economics	583	57
Health statistics and econometrics	1995	Analysis of Semiparametric Regression Models for Repeated Outcomes in the Presence of Missing Data	James M. Robins	Journal of the American Statistical Association	575	60
Health statistics and econometrics	1995	An Overview of the Health and Retirement Study	F. Thomas Juster	Journal of Human Resources	529	67
Health statistics and econometrics	1998	The Logged Dependent Variable, Heteroscedasticity, and the Retransformation Problem	Willard G. Manning	Journal of Health Economics	484	85
Health statistics and econometrics	2000	Physician Agency	Thomas G. McGuire	Handbook of health economics. Volume 1A	389	115
Health statistics and econometrics	1998	Much Ado About Two: Reconsidering Retransformation and the Two-Part Model in Health Econometrics	John Mullahy	Journal of Health Economics	339	152

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Demand for health and health care	1972	On the Concept of Health Capital and the Demand for Health	Michael Grossman	Journal of Political Economy	2478	4
Demand for health and health care	1991	Time Preference and Health: An Exploratory Study	Victor R. Fuchs	The economics of health. Volume 1	505	79
Demand for health and health care	1998	Estimating a Household Production Function: Heterogeneity, the Demand for Health Inputs, and Their Effects on Birth Weight	Mark R. Rosenzweig	Economic demography. Volume 1	469	86
Demand for health and health care	1991	Supplier-Induced Demand: Some Empirical Evidence and Implications	Robert G. Evans	The economics of health. Volume 2	465	89
Demand for health and health care	1981	A Theory of the Consumer Product Warranty	George L. Priest	Yale Law Journal	432	96
Demand for health and health care	2000	The Human Capital Model	Michael Grossman	Handbook of health economics. Volume 1A	377	123
Demand for health and health care	1995	An Econometric Model of the Two-Part Decisionmaking Process in the Demand for Health Care	Winfried Pohlmeier	Journal of Human Resources	358	137
Demand for health and health care	1988	A Microeconometric Model of the Demand for Health Care and Health Insurance in Australia	A. C. Cameron	Review of Economic Studies	327	161
Demand for health and health care	2000	Reluctance to Vaccinate: Omission Bias and Ambiguity	Ilana Ritov	Behavioral law and economics	305	187
Demand for health and health care	1978	The Supply of Surgeons and the Demand for Operations	Victor R. Fuchs	Journal of Human Resources	304	190
Demand for health and health care	1998	Understanding the Context of Healthcare Utilization: Assessing Environmental and Provider-Related Variables in the Behavioral Model of Utilization	Kathryn A. Phillips	Health Services Research	267	248
Demand for health and health care	1975	Nonmonetary Factors in the Demand for Medical Services: Some Empirical Evidence	Jan Paul Acton	Journal of Political Economy	255	261
Demand for health and health care	1997	Demand for Medical Care by the Elderly: A Finite Mixture Approach	Partha Deb	Journal of Applied Econometrics	241	292
Medical insurance	2001	Uncertainty and the Welfare Economics of Medical Care	Kenneth J. Arrow	Journal of Health Politics, Policy and Law	4082	2
Medical insurance	1987	Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment	Willard G. Manning	American Economic Review	1196	13
Medical insurance	1991	The Economics of Moral Hazard: Comment	Mark V. Pauly	The economics of health. Volume 1	1064	20
Medical insurance	1997	Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study	Robert B. Barsky	Quarterly Journal of Economics	1056	21
Medical insurance	2004	Judged Frequency of Lethal Events	Sarah Lichtenstein	Classics in risk management. Volume 2	842	27
Medical insurance	1994	The Incidence of Mandated Maternity Benefits	Jonathan Gruber	American Economic Review	641	46
Medical insurance	1993	Free for all? Lessons from the RAND Health Insurance Experiment	Joseph P. Newhouse		575	60
Medical insurance	1981	The Demand for Deductibles in Private Health Insurance: A Probit Model with Sample Selection	Wynand P. M. M. van de Ven	Journal of Econometrics	528	68
Medical insurance	2000	The Anatomy of Health Insurance	David M. Cutler	Handbook of health economics. Volume 1A	425	98
Medical insurance	1970	Medical Insurance: A Case Study of the Tradeoff between Risk Spreading and Appropriate Incentives	Richard J. Zeckhauser	Journal of Economic Theory	365	131
Medical insurance	1973	The Welfare Loss of Excess Health Insurance	Martin S. Feldstein	Journal of Political Economy	352	142
Medical insurance	2002	Insuring Consumption Against Illness	Paul J. Gertler	American Economic Review	347	147
Medical insurance	2000	Genetic Risk and the Birth of the Somatic Individual	Carlos Novas	Economy and Society	300	195
Medical insurance	1981	Contractual Provisions, Organizational Structure, and Conflict Control in Insurance Markets	David Mayers	Journal of Business	299	197
Medical insurance	1978	Some Results on Incentive Contracts with Applications to Education and Employment, Health Insurance, and Law Enforcement	Milton Harris	American Economic Review	296	202
Medical insurance	1998	Paying for Health Insurance: The Trade-Off	David M. Cutler	Quarterly Journal of Economics	291	208

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		between Competition and Adverse Selection				
Medical insurance	1999	Economic Analysis of Transfer Programs Targeted on People with Disabilities	John Bound	Handbook of labor economics. Volume 3C	283	216
Medical insurance	1996	Health Insurance Eligibility, Utilization of Medical Care, and Child Health	Janet M. Currie	Quarterly Journal of Economics	281	221
Medical insurance	2000	Risk Adjustment in Competitive Health Plan Markets	Wynand P. M. M. van de Ven	Handbook of health economics. Volume 1A	276	228
Medical insurance	1998	Creaming, Skimping and Dumping: Provider Competition on the Intensive and Extensive Margins	Randall P. Ellis	Journal of Health Economics	258	259
Medical insurance	1995	Altruism, the Samaritan's Dilemma, and Government Transfer Policy	Stephen Coate	American Economic Review	254	263
Medical insurance	2008	An Empirical Examination of Information Barriers to Trade in Insurance	John H. Cawley	Insurance and Risk Management. Volume 1.	249	277
Medical insurance	1994	Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job-Lock?	Brigitte C. Madrian	Quarterly Journal of Economics	237	296
Medical insurance	2000	Moral Hazard and Consumer Incentives in Health Care	Peter S. Zweifel	Handbook of health economics. Volume 1A	234	301
Supply of health services	1988	Patient Satisfaction as an Indicator of Quality Care	Paul D. Cleary	Inquiry	768	32
Supply of health services	2000	Institutional change and healthcare organizations: From professional dominance to managed care	W. Richard Scott		691	40
Supply of health services	1970	Toward a Theory of Nonprofit Institutions: An Economic Model of a Hospital	Joseph P. Newhouse	American Economic Review	688	41
Supply of health services	1996	League Tables and Their Limitations: Statistical Issues in Comparisons of Institutional Performance	Harvey Goldstein	Journal of the Royal Statistical Society: Series A (Statistics in Society)	655	45
Supply of health services	1987	The Hospital and Its Negotiated Order	Anselm Strauss	The 50% solution: How to bargain successfully with hijackers, strikers, bosses, oil magnates, Arabs, Russians, and other worthy opponents in this modern world	563	62
Supply of health services	1987	Health maintenance organizations: Dimensions of performance	Harold S. Luft		533	65
Supply of health services	1973	The Not-For-Profit Hospital as a Physicians' Cooperative	Mark V. Pauly	American Economic Review	508	78
Supply of health services	2006	Gender and Organizational Performance: Determinants of Small Business Survival and Success	Arne L. Kalleberg	Women and Entrepreneurship: Contemporary Classics	501	81
Supply of health services	1996	Reimbursing Health Plans and Health Providers: Efficiency in Production versus Selection	Joseph P. Newhouse	Journal of Economic Literature	408	106
Supply of health services	1994	Productivity Developments in Swedish Hospitals: A Malmquist Output Index Approach	Rolf Fare	Data envelopment analysis: Theory, methodology, and application	393	113
Supply of health services	2002	Error Reduction and Performance Improvement in the Emergency Department through Formal Teamwork Training: Evaluation Results of the MedTeams Project	John C. Morey	Health Services Research	366	130
Supply of health services	1986	Provider Behavior under Prospective Reimbursement: Cost Sharing and Supply	Randall P. Ellis	Journal of Health Economics	348	146
Supply of health services	1995	Assessing the Impact of Continuous Quality Improvement/Total Quality Management: Concept versus Implementation	Stephen M. Shortell	Health Services Research	330	158
Supply of health services	1971	Hospital Cost Inflation: A Study of Nonprofit Price Dynamics	Martin S. Feldstein	American Economic Review	308	179
Supply of health services	1989	In sickness and in wealth: American hospitals in the twentieth century	Rosemary Stevens		308	179
Supply of health services	1999	Costs of Medical Injuries in Utah and Colorado	Eric J. Thomas	Inquiry	302	191

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Supply of health services	1977	The Internal Organization of Hospitals: Some Economic Implications	Jeffrey E. Harris	Bell Journal of Economics	299	197
Supply of health services	1987	Measuring Hospital Performance: A Non-parametric Approach	Shawna Grosskopf	Journal of Health Economics	293	204
Supply of health services	1985	The Impact of Hospital Market Structure on Patient Volume, Average Length of Stay, and the Cost of Care	James C. Robinson	Journal of Health Economics	289	210
Supply of health services	1994	Health Care Payment Systems: Cost and Quality Incentives	C. T. Albert Ma	Journal of Economics and Management Strategy	283	216
Supply of health services	1988	The Effects of Hospital Competition and the Medicare PPS Program on Hospital Cost Behavior in California	Jack Zwanziger	Journal of Health Economics	260	254
Supply of health services	2003	Is More Information Better? The Effects of 'Report Cards' on Health Care Providers	David Dranove	Journal of Political Economy	259	257
Supply of health services	1993	Public hospitals in developing countries: Resource use, cost, financing	Howard Barnum		254	263
Supply of health services	1997	Generic Entry and the Pricing of Pharmaceuticals	Richard G. Frank	Journal of Economics and Management Strategy	253	270
Supply of health services	1994	Measuring Hospital Efficiency with Frontier Cost Functions	Stephen Zuckerman	Journal of Health Economics	247	279
Human resources	2004	Social Contagion and Innovation: Cohesion versus Structural Equivalence	Ronald S. Burt	Networks. Volume 2	1188	14
Human resources	2004	The Diffusion of an Innovation among Physicians	James Coleman	Networks. Volume 2	681	43
Human resources	1991	A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services	Willard G. Manning	The economics of health. Volume 2	527	69
Human resources	1995	On the need for evidence-based medicine	D. L. Sackett	Health Economics	520	71
Human resources	1984	The Evolution of the Labor Market for Medical Interns and Residents: A Case Study in Game Theory	Alvin E. Roth	Journal of Political Economy	514	74
Human resources	1999	Health, Health Insurance and the Labor Market	Janet M. Currie	Handbook of labor economics. Volume 3C	455	92
Human resources	2004	Human Resources for Health: Overcoming the Crisis	Initiative Joint Learning		389	115
Human resources	1996	Do Doctors Practice Defensive Medicine?	Daniel P. Kessler	Quarterly Journal of Economics	325	164
Human resources	1992	Health Care Dollars and Regulatory Sense: The Role of Advanced Practice Nursing	Barbara J. Safriet	Yale Journal on Regulation	275	230
Human resources	2005	The Effects of Health, Wealth, and Wages on Labour Supply and Retirement Behaviour	Eric French	Review of Economic Studies	272	239
Human resources	1999	The Redesign of the Matching Market for American Physicians: Some Engineering Aspects of Economic Design	Alvin E. Roth	American Economic Review	266	249
Human resources	2006	Missing in Action: Teacher and Health Worker Absence in Developing Countries	Nazmul Chaudhury	Journal of Economic Perspectives	253	270
Human resources	1999	The Dynamic Effects of Health on the Labor Force Transitions of Older Workers	John Bound	Labour Economics	250	275
Human resources	1997	Health and Wages: Evidence on Men and Women in Urban Brazil	Duncan Thomas	Journal of Econometrics	246	282
Human resources	2000	The Wage and Employment Effects of the Americans with Disabilities Act	Thomas DeLeire	Journal of Human Resources	240	294
Human resources	1985	The Retirement-Health Nexus: A New Measure of an Old Puzzle	Kathyrn H. Anderson	Journal of Human Resources	231	305
Markets in health care	1985	A Theory of Yardstick Competition	Andrei Shleifer	RAND Journal of Economics	914	23
Markets in health care	1988	The Painful Prescription: Rationing Hospital Care	Henry J. Aaron	Readings, issues, and questions in public finance	388	117
Markets in health care	2007	Redefining Health Care: Creating Value-Based Competition on Results	Erwin A. Blackstone	Atlantic Economic Journal	347	147

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Markets in health care	1986	Taxation, Health Insurance, and Market Failure in the Medical Economy	Mark V. Pauly	Journal of Economic Literature	342	151
Markets in health care	2000	Is Hospital Competition Socially Wasteful?	Daniel P. Kessler	Quarterly Journal of Economics	293	204
Markets in health care	2000	Equilibrium Price Dispersion in Retail Markets for Prescription Drugs	Alan T. Sorensen	Journal of Political Economy	251	274
Markets in health care	1993	Supply-Side and Demand-Side Cost Sharing in Health Care	Randall P. Ellis	Journal of Economic Perspectives	232	304
Economic evaluation	1986	Measurement of Health State Utilities for Economic Appraisal: A Review	George W. Torrance	Journal of Health Economics	1455	11
Economic evaluation	1991	Foundations of Cost-Effectiveness Analysis for Health and Medical Practices	Milton C. Weinstein	The economics of health. Volume 2	1370	12
Economic evaluation	2004	Five-Hundred Life-Saving Interventions and Their Cost-Effectiveness	Tammy O. Tengs	Classics in risk management. Volume 2	1076	19
Economic evaluation	2002	The Estimation of a Preference-Based Measure of Health from the SF-36	John Brazier	Journal of Health Economics	774	31
Economic evaluation	1991	Economics of Coronary Artery Bypass Grafting	Alan Williams	The economics of health. Volume 2	587	55
Economic evaluation	2004	Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities	Edward Miguel	Econometrica	587	55
Economic evaluation	1995	The Friction Cost Method for Measuring Indirect Costs of Disease	Marc A. Koopmanschap	Journal of Health Economics	486	84
Economic evaluation	1997	Economic Foundations of Cost-Effectiveness Analysis	Alan M. Garber	Journal of Health Economics	422	99
Economic evaluation	1991	Economic Evaluation of Neonatal Intensive Care of Very-Low-Birth-Weight Infants	Michael H. Boyle	The economics of health. Volume 2	417	100
Economic evaluation	1995	Multi-attribute Preference Functions: Health Utilities Index	George W. Torrance	PharmacoEconomics	386	118
Economic evaluation	2006	Willingness to Pay and Quality Adjusted Life Years	James K. Hammitt	Economic Valuation of Environmental Health Risks to Children	359	136
Economic evaluation	2000	Handling Uncertainty in Cost-Effectiveness Models	Andrew Briggs	PharmacoEconomics	339	152
Economic evaluation	1997	Modeling in Economic Evaluation: An Unavoidable Fact of Life	Martin J. Buxton	Health Economics	330	158
Economic evaluation	1997	Pulling Cost-Effectiveness Analysis Up by Its Bootstraps: A Non-parametric Approach to Confidence Interval Estimation	Andrew Briggs	Health Economics	326	163
Economic evaluation	2001	Representing Uncertainty: The Role of Cost-Effectiveness Acceptability Curves	Elisabeth Fenwick	Health Economics	321	167
Economic evaluation	1999	Determining Clinically Important Differences in Health Status Measures: A General Approach with Illustration to the Health Utilities Index Mark II	Greg Samsa	PharmacoEconomics	316	170
Economic evaluation	2000	A Comparative Review of Generic Quality-of-Life Instruments	Stephen Joel Coons	PharmacoEconomics	308	179
Economic evaluation	1997	Accounting for Future Costs in Medical Cost-Effectiveness Analysis	David O. Meltzer	Journal of Health Economics	308	179
Economic evaluation	1998	An Introduction to Markov Modelling for Economic Evaluation	Andrew Briggs	PharmacoEconomics	307	183
Economic evaluation	1976	The Economic Cost of Illness Revisited	Barbara S. Cooper	Social Security Bulletin	305	187
Economic evaluation	2004	Does NICE Have a Cost-Effectiveness Threshold and What Other Factors Influence Its Decisions? A Binary Choice Analysis	Nancy Devlin	Health Economics	302	191
Economic evaluation	1999	The Irrelevance of Inference: A Decision-Making Approach to the Stochastic Evaluation of Health Care Technologies	Karl Claxton	Journal of Health Economics	300	195
Economic evaluation	1996	The Time Trade-Off Method: Results from a General Population Study	Paul Dolan	Health Economics	296	202

Topic	Year	Title	First author	Journal / Edited volume	Citations	Rank
Economic evaluation	1994	Uncertainty in the economic evaluation of health care technologies: the role of sensitivity analysis	A. Briggs	Health Economics	293	204
Economic evaluation	1988	Outcome Measurement: Concepts and Questions	Kathleen N. Lohr	Inquiry	286	213
Economic evaluation	1993	The Validity and Reproducibility of a Work Productivity and Activity Impairment Instrument	Margaret C. Reilly	PharmacoEconomics	277	227
Economic evaluation	1998	Health Care Contingent Valuation Studies: A Review and Classification of the Literature	Alan Diener	Health Economics	272	239
Economic evaluation	1997	Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation	Kenneth J. Arrow	Environment and Development Economics	249	277
Economic evaluation	1996	Health-Related Quality of Life in Inflammatory Bowel Disease	Glenn M. Eisen	PharmacoEconomics	243	288
Economic evaluation	1998	Confidence Intervals or Surfaces? Uncertainty on the Cost-Effectiveness Plane	Andrew Briggs	Health Economics	236	299

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. The 300 most-cited publications were then assigned either one of the 12 topics listed in the appendix or a “topic not assigned” code. The latter included publications that were too general (some were actually textbooks) some had no economic content despite being in EconLit, and some had no health content despite the JEL code.

Table 2: Top 10 publications according to teachers and citations

Rank	Teachers' ranking in 2004	Ranking based on citations in 2011
1	Arrow (1963)	Acemoglu et al. (2001)
2	Manning et al. (1987)	Arrow (1963)
3	Torrance (1986)	Grossman (1972)
4	Grossman (1972)	Becker et al. (1994)
5	Newhouse (1996)	Rodrik et al. (2004)
6	Pauly (1968) (tied 5th)	Therneau & Grambsch (2000)
7	Buxton et al. (1997) (tied 7th)	DiMasi et al. (2003)
8	Cutler & Reber (1998) (tied 7th)	Angrist et al. (1996)
9	McGuire & Pauly (1991) (tied 7th)	Dasgupta (1993)
10	Harris (1977)	Torrance (1986)
10	Labelle et al. (1994) (tied 10th)	

Note: The teachers' ranking was based on an interview of members of the International Health Economics Association as reported in Culyer (2006). The starting point for the rankings based on citations in 2011 was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011.

Table 3: Topics of most-cited 50 publications by decade

	1970s	1980s	1990s	2000s
Health and its value	3	1	4	2
Efficiency and equity	2	2	3	4
Determinants of health and ill-health	2	4	6	9
Public health	2	5	2	6
Health and the economy	5	4	5	4
Health statistics and econometrics		1	5	9
Demand for health and health care	3	3	3	1
Medical insurance	9	3	4	3
Supply of health services	12	9	3	2
Human resources	6	4	3	3
Markets in health care		3		
Economic evaluation	1	2	5	3
Total	45	41	43	46

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. The 50 most-cited publications were then assigned either one of the 12 topics listed in the appendix or a "topic not assigned" code. The latter included publications that were too general (some were actually textbooks) some had no economic content despite being in EconLit, and some had no health content despite the JEL code.

Table 4: Rank correlations on author data

	Publication count (I^3 α=0)	Total citations (I^3 α=1)	*h*-index (I^1)	Quadratic Influence Function (I^2)	I^3 α=0.5	Citations of most-cited publication
Publication count (I^3 α=0)	1.000					
Total citations (I^3 α=1)	0.477	1.000				
h-index (I^1)	0.376	0.678	1.000			
QIF (I^2)	0.479	1.000	0.677	1.000		
I^3 α=0.5	0.554	0.991	0.696	0.991	1.000	
Citations of most-cited publication	0.399	0.991	0.660	0.991	0.967	1.000

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed author was given full credit for a publication in the case of a co-authored publication. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2). All authors were included in calculating these (rank) correlations however few publications in health economics they had to their name.

Table 5: Top 100 health economists based on *h*-index over period 1969-2010

Rank on h-index	Author	% publications not found in Google Scholar	I^3 α=0 Publication count	Rank on I^3 *with* α=0	I^3 α=0.5	Rank on I^3 *with* α=0.5	I^3 α=1 Total citations	Rank on I^3 *with* α=1	*h*-index (I^1)	I^2 Quadratic influence function	Rank on I^2	Maximum citations	Rank on maximum citations
1	David M. Cutler	14%	114	2	629	1	6384	2	44	2.859	2	684	78
2	Jonathan Gruber	12%	86	4	548	2	5742	3	39	2.569	3	641	91
3	Frank A. Sloan	8%	106	3	500	3	3409	19	36	1.552	12	211	503
4	Adam Wagstaff	10%	63	15	441	7	4620	10	34	2.078	6	415	178
4	W. Kip Viscusi	10%	69	9	474	5	5408	4	34	2.397	4	790	60
6	Janet M. Currie	3%	64	13	406	9	3792	17	32	1.708	11	455	160
6	Michael Grossman	9%	64	13	499	4	8206	1	32	3.349	1	2478	5
8	Mark V. Pauly	24%	117	1	472	6	4725	9	31	2.076	7	1064	44
9	Eddy van Doorslaer	5%	58	19	385	10	4344	13	29	1.948	8	415	178
10	Frank J. Chaloupka	6%	48	26	358	11	4329	14	28	1.922	9	639	92
10	Joseph P. Newhouse	24%	83	5	420	8	5130	5	28	2.255	5	751	67
12	Tomas J. Philipson	11%	65	12	322	12	2937	22	27	1.324	20	321	263
13	Jere R. Behrman	17%	41	43	275	19	2870	23	26	1.293	21	312	274
13	Magnus Johannesson	9%	47	30	288	17	2361	30	26	1.073	28	188	583
13	Thomas G. McGuire	16%	68	10	317	13	3031	21	26	1.363	17	389	198
16	David Dranove	10%	50	23	292	16	2534	26	24	1.148	23	259	389
16	Richard G. Frank	14%	73	7	304	14	2125	39	24	0.964	36	253	402
18	Mark B. McClellan	8%	50	23	265	20	2178	38	23	0.984	33	325	257
18	Roger D. Feldman	7%	75	6	302	15	1799	63	23	0.820	52	146	833
18	Ulf- G. Gerdtham	2%	43	36	240	23	1988	50	23	0.901	39	237	438
21	Mandy Ryan	3%	37	57	202	29	1449	84	22	0.659	82	213	492
22	Carol Propper	7%	59	18	242	22	1679	68	21	0.765	57	133	940
22	Frank R. Lichtenberg	14%	44	34	178	44	1159	115	21	0.529	107	112	1172
22	John Mullahy	16%	32	76	213	25	2545	25	21	1.132	24	583	108
22	Willard G. Manning	12%	34	68	282	18	4444	11	21	1.908	10	1196	23
26	Alan Williams	28%	47	30	226	24	2314	33	20	1.032	29	587	105
26	Angus S. Deaton	19%	31	84	255	21	3491	18	20	1.548	13	624	98
26	Michael A. Morrisey	7%	46	32	194	35	1035	145	20	0.473	133	77	1921
26	Paul J. Gertler	15%	33	72	200	32	1993	49	20	0.896	40	347	238
26	Donald S. Kenkel	18%	38	52	186	38	1709	67	19	0.765	56	516	128
31	Martin Gaynor	5%	38	52	202	30	1577	76	19	0.716	68	159	736
31	Michael F. Drummond	22%	45	33	173	48	1121	124	19	0.511	113	185	606
31	Robert Kaestner	12%	51	22	204	28	1387	88	19	0.629	87	310	280
31	Amy N. Finkelstein	4%	27	105	144	70	933	159	18	0.425	156	153	773
35	Barbara L. Wolfe	13%	40	45	199	33	1590	75	18	0.722	67	202	533
35	Christopher J. Ruhm	4%	27	105	210	26	2513	28	18	1.120	25	598	101
35	Edward C. Norton	17%	42	38	202	31	2316	32	18	0.991	32	1133	27
35	Mark R. Rosenzweig	5%	19	217	180	43	2181	37	18	0.975	34	469	149
35	Patricia Danzon	30%	40	45	183	42	1542	77	18	0.699	72	220	474
35	Stephen Birch	7%	30	89	152	62	1052	142	18	0.479	129	191	573
35	T. Paul Schultz	8%	25	126	142	75	1133	119	18	0.515	111	198	554
35	Amiram Gafni	11%	37	57	159	58	1183	112	17	0.536	104	272	356
43	Andrew Briggs	9%	22	162	185	41	2258	35	17	1.011	31	339	244
43	Andrew M. Jones	10%	49	25	193	36	1516	79	17	0.688	76	180	629
43	Bengt Jonsson	32%	41	43	145	68	1079	137	17	0.489	124	231	447
43	Cam Donaldson	21%	34	68	143	73	1016	148	17	0.462	137	230	451
43	David S. Salkever	16%	37	57	140	79	992	151	17	0.449	140	253	402
43	Ernst R. Berndt	11%	44	34	186	39	1296	95	17	0.590	91	126	992

Rank on h-index	Author	% publications not found in Google Scholar	I^3 α=0 Publication count	Rank on I^3 *with* α=0	I^3 α=0.5	Rank on I^3 *with* α=0.5	I^3 α=1 Total citations	Rank on I^3 *with* α=1	*h*-index (I^1)	I^2 Quadratic influence function	Rank on I^2	Maximum citations	Rank on maximum citations
43	Harold Alderman	17%	29	91	170	50	1638	72	17	0.738	63	370	214
43	Hugh S. E. Gravelle	0%	35	66	153	61	802	195	17	0.367	182	75	2024
43	Jack Hadley	26%	42	38	162	55	1122	121	17	0.509	115	247	415
43	James P. Smith	19%	36	62	162	56	1716	66	17	0.744	60	888	49
43	Maarten Lindeboom	3%	29	91	134	85	951	155	17	0.432	151	159	736
43	Martin S. Feldstein	14%	28	96	158	59	1655	70	17	0.743	61	352	235
43	Peter C. Smith	17%	36	62	149	64	919	165	17	0.419	160	111	1187
43	Peter S. Zweifel	22%	73	7	206	27	1640	71	17	0.734	64	403	187
43	Samuel H. Preston	0%	22	162	163	54	1609	74	17	0.727	65	266	374
43	Bernie J. O'Brien	8%	24	137	139	81	1271	100	16	0.574	92	272	356
43	Christina Paxson	4%	24	137	196	34	2472	29	16	1.096	26	627	94
60	John H. Cawley	5%	39	48	170	49	1451	83	16	0.653	83	361	224
60	Laurence C. Baker	16%	31	84	139	80	951	155	16	0.433	150	155	767
60	M. Susan Marquis	0%	28	96	129	95	834	186	16	0.380	177	146	833
60	Maureen L. Cropper	9%	23	148	150	63	1422	86	16	0.642	86	286	324
60	Paul Dolan	19%	37	57	173	47	1492	80	16	0.674	78	296	307
60	Randall P. Ellis	20%	35	66	185	40	1975	51	16	0.886	43	348	237
60	William N. Evans	3%	29	91	160	57	1352	89	16	0.611	88	319	268
60	Alan C. Monheit	3%	29	91	110	120	676	254	15	0.309	243	76	1966
60	Bryan E. Dowd	6%	32	76	121	101	682	247	15	0.311	235	131	950
60	Charles E. Phelps	19%	26	114	149	65	1437	85	15	0.646	85	422	173
70	Dana P. Goldman	10%	48	26	136	83	764	209	15	0.348	202	178	634
70	David E. Bloom	12%	26	114	128	97	1166	113	15	0.527	108	268	370
70	Han Bleichrodt	0%	28	96	133	86	850	176	15	0.388	169	95	1484
70	Jeffrey S. Hammer	6%	17	259	120	103	1057	140	15	0.479	130	253	402
70	Jonathan S. Skinner	19%	27	105	118	108	773	207	15	0.353	195	85	1724
70	Lawrence Haddad	10%	21	180	158	60	1723	65	15	0.775	54	367	218
70	Peter A. Berman	21%	24	137	131	91	1049	143	15	0.477	132	173	670
70	Richard J. Zeckhauser	12%	33	72	177	45	1837	61	15	0.821	51	425	172
70	Ronald Lee	11%	27	105	175	46	2014	47	15	0.896	41	609	99
70	Sara Markowitz	10%	39	48	145	69	822	192	15	0.375	178	97	1443
70	Sean Nicholson	15%	26	114	99	143	570	302	15	0.260	296	106	1261
70	Sherry Glied	8%	38	52	133	87	668	258	15	0.305	249	80	1834
70	Victor R. Fuchs	32%	34	68	169	52	1945	52	15	0.867	46	505	138
70	Anna Alberini	4%	27	105	109	122	752	211	14	0.341	208	191	573
84	Anne C. Case	11%	27	105	169	51	2104	40	14	0.930	37	627	94
84	Brigitte C. Madrian	6%	18	237	143	74	1658	69	14	0.742	62	455	160
84	Burton A. Weisbrod	10%	21	180	115	113	1144	118	14	0.509	114	510	136
84	Darius N. Lakdawalla	5%	42	38	146	67	1100	131	14	0.497	122	321	263
84	Duncan Thomas	0%	18	237	191	37	3390	20	14	1.432	16	1105	35
84	Henry Saffer	5%	21	180	167	53	2080	42	14	0.926	38	561	116
84	James M. Poterba	15%	26	114	110	121	789	203	14	0.359	191	192	565
84	Michael Chernew	13%	32	76	118	105	750	213	14	0.342	207	129	968
84	Thomas C. Buchmueller	11%	27	105	138	82	1037	144	14	0.472	134	140	883
84	Werner B. F. Brouwer	9%	32	76	118	106	662	260	14	0.302	253	121	1065
84	A. J. Culyer	36%	39	48	129	96	1122	121	13	0.505	116	324	262
95	Alan M. Garber	26%	39	48	113	116	893	169	13	0.400	166	422	173
95	Alok Bhargava	5%	22	162	100	138	717	229	13	0.325	225	273	352
95	Alvin E. Roth	7%	15	316	144	71	1833	62	13	0.817	53	514	130
95	Dora L. Costa	10%	21	180	108	123	818	193	13	0.371	181	195	558
95	Douglas O. Staiger	0%	16	293	106	126	860	173	13	0.391	168	148	818

Rank on h-index	Author	% publications not found in Google Scholar	I^3 α=0 Publication count	Rank on I^3 *with* α=0	I^3 α=0.5	Rank on I^3 *with* α=0.5	I^3 α=1 Total citations	Rank on I^3 *with* α=1	*h*-index (I^1)	I^2 Quadratic influence function	Rank on I^2	Maximum citations	Rank on maximum citations
95	Frans F. H. Rutten	25%	24	137	97	147	825	191	13	0.373	180	199	544

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed author was given full credit for a publication in the case of a co-authored publication. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2). All authors were included in calculating the figures however few publications in health economics they had to their name.

Table 6: Top 100 institutions in health economics based on *h*-index

	Institution	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	I^2 Quadratic influence function	Rank	Maximum citations	Rank
1	Harvard U	19%	777	1	3304	1	31490	1	87	13.792	1	2033	4
2	World Bank	27%	452	2	1435	2	11028	6	56	4.979	5	704	16
3	MIT	14%	177	22	1090	8	15514	2	55	5.851	2	4355	1
3	U CA, Berkeley	15%	271	6	1282	5	14947	3	54	5.755	3	4355	1
5	U Chicago	10%	245	9	1221	7	11814	5	54	5.254	4	909	13
6	U PA	19%	346	4	1297	4	9509	8	50	4.302	8	513	25
7	U MI	11%	311	5	1241	6	9300	9	49	4.158	9	1056	10
7	U York	19%	398	3	1434	3	10285	7	49	4.650	6	587	21
7	RAND	9%	233	12	1069	10	8703	10	48	3.876	10	962	11
10	Stanford U	14%	231	13	1079	9	12111	4	48	4.622	7	4082	3
11	Erasmus U Rotterdam	8%	213	16	937	12	7908	12	47	3.561	11	486	30
12	Columbia U	20%	266	7	894	14	5751	16	42	2.618	16	204	88
12	Duke U	13%	207	18	881	15	8229	11	42	3.523	12	1921	6
12	Johns Hopkins U	22%	241	11	797	17	5308	18	42	2.414	18	253	64
12	Princeton U	18%	132	29	695	20	7177	15	42	3.214	15	624	19
12	U MN	11%	221	14	797	18	4698	20	42	2.143	20	146	132
17	U NC	13%	263	8	996	11	7796	13	41	3.474	13	1133	8
17	UCLA	14%	221	14	928	13	7188	14	41	3.249	14	455	33
19	Yale U	15%	243	10	858	16	5751	16	37	2.602	17	469	31
20	Cornell U	12%	211	17	720	19	4243	22	36	1.931	22	361	41
20	PA State U	10%	130	30	552	24	4096	25	36	1.851	25	516	24
22	McMaster U	13%	144	25	558	23	4181	23	35	1.885	23	489	29
22	Stockholm School of Economics	13%	109	37	531	27	4019	27	35	1.826	26	237	73
22	U WI	13%	157	23	592	21	4475	21	35	2.015	21	583	22
25	U MD	15%	178	20	588	22	4118	24	33	1.862	24	319	50
25	Urban Institute	15%	155	24	534	26	3155	33	33	1.437	32	247	67
27	Boston U	23%	127	31	537	25	4759	19	32	2.145	19	389	38
28	Northwestern U	9%	116	34	503	28	3925	29	31	1.772	28	510	27
29	U Aberdeen	7%	114	35	456	33	2996	36	30	1.363	36	213	83
29	U CA, San Francisco	15%	108	38	398	40	2350	43	30	1.072	42	150	128
31	LSHTM	23%	121	33	430	35	2612	40	29	1.189	40	326	47
31	Rutgers U	13%	134	28	473	31	2776	39	29	1.265	39	207	87
33	International Food Policy Research Institute	12%	97	46	417	36	3074	35	28	1.396	34	228	76
33	U IL, Chicago	9%	123	32	478	30	3814	30	28	1.710	29	639	17
33	U Toronto	16%	135	26	448	34	2810	38	28	1.279	38	199	91
36	Agency for Healthcare Research & Quality	13%	112	36	415	37	2433	42	27	1.108	41	216	81
36	U Oxford	16%	101	42	412	38	3417	31	27	1.540	31	339	45
38	LSE	19%	194	19	461	32	2219	45	26	1.014	43	128	148
38	U AL	9%	103	40	339	44	1784	54	26	0.815	53	105	178
38	U TX	13%	178	20	492	29	2824	37	26	1.281	37	430	34
41	CUNY	19%	57	81	332	46	4055	26	25	1.787	27	775	14
41	Research Triangle Institute	2%	61	73	288	51	1850	50	25	0.842	49	189	97
41	U Bristol	14%	66	65	253	55	1658	62	25	0.756	62	133	145
41	U Sheffield	14%	99	43	402	39	3109	34	25	1.387	35	774	15
41	U WA	12%	103	40	359	41	2059	46	25	0.938	46	211	85
46	Brown U	17%	65	66	255	54	1741	58	24	0.791	58	244	68
46	IN U	12%	83	57	298	49	1838	51	24	0.836	50	241	70
46	U Southampton	4%	56	83	275	52	1933	48	24	0.879	48	156	124

	Institution	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	I^2 Quadratic influence function	Rank	Maximum citations	Rank
49	Carnegie Mellon U	14%	57	81	249	57	1732	59	23	0.788	59	159	117
49	MI State U	14%	91	49	343	43	3190	32	23	1.404	33	962	11
49	U CO	11%	85	52	297	50	1807	53	23	0.823	52	191	95
49	U Rochester	18%	74	60	335	45	3996	28	23	1.629	30	1921	6
49	USDA	21%	135	26	345	42	1667	61	23	0.762	61	102	189
54	Dartmouth College	22%	59	78	244	58	1767	56	22	0.803	55	266	62
54	U IL	11%	99	43	313	47	2038	47	22	0.912	47	627	18
54	U Newcastle	17%	58	79	233	63	1751	57	22	0.793	57	296	56
57	Center for Studying Health System Change	0%	41	121	213	73	1452	68	21	0.661	67	214	82
57	Georgetown U	17%	99	43	311	48	1832	52	21	0.833	51	243	69
57	U CA, Davis	13%	53	89	214	72	1525	65	21	0.693	65	200	90
57	U CA, Irvine	3%	58	79	238	61	1486	66	21	0.677	66	140	138
57	U East Anglia	16%	74	60	239	60	1325	76	21	0.604	76	188	98
57	U Pittsburgh	20%	65	66	219	70	1327	75	21	0.605	75	186	100
63	SUNY	8%	85	52	236	62	1170	88	20	0.534	88	156	124
63	Syracuse U	17%	54	86	204	79	1407	72	20	0.639	72	283	58
63	U Melbourne	10%	94	48	267	53	1299	78	20	0.594	78	78	245
66	Australian National U	25%	87	51	210	75	1131	90	19	0.516	90	158	119
66	Emory U	8%	96	47	251	56	1037	93	19	0.474	92	131	146
66	IA State U	9%	46	111	189	84	1426	70	19	0.644	70	307	52
66	NYU	22%	50	97	185	85	1370	74	19	0.622	74	165	113
66	U British Columbia	15%	67	64	232	64	1782	55	19	0.801	56	465	32
66	U Houston	8%	49	105	208	76	1547	64	19	0.700	64	273	60
66	U Zurich	24%	78	58	225	68	1587	63	19	0.715	63	403	37
66	World Health Organization	30%	91	49	228	66	1409	71	19	0.640	71	217	80
74	City U London	14%	56	83	193	82	1223	82	18	0.556	82	177	106
74	Monash U	30%	105	39	231	65	1235	81	18	0.563	81	163	114
74	OH State U	24%	85	52	226	67	1294	79	18	0.590	79	186	100
74	Purdue U	11%	53	89	165	92	1007	96	18	0.459	95	188	98
74	Resources for the Future	14%	42	117	173	89	1445	69	18	0.652	68	286	57
74	TX A&M U	9%	85	52	239	59	1248	80	18	0.570	80	131	146
74	Temple U	15%	39	126	163	96	1396	73	18	0.630	73	347	44
74	Tilburg U	14%	50	97	150	101	889	104	18	0.405	104	186	100
74	Tulane U	14%	36	138	144	104	963	99	18	0.438	99	142	136
74	Vanderbilt U	16%	50	97	169	90	1217	84	18	0.549	84	367	40
84	Baruch College	9%	35	141	148	103	1009	95	17	0.458	96	223	77
84	Brandeis U	23%	61	73	159	98	745	113	17	0.341	112	80	237
84	FL State U	7%	71	62	223	69	1219	83	17	0.556	83	163	114
84	U CA, Santa Barbara	18%	45	113	141	107	818	107	17	0.373	108	118	159
84	U Calgary	15%	53	89	157	99	746	111	17	0.341	111	83	231
84	U College London	13%	63	70	201	80	1160	89	17	0.528	89	150	128
84	U FL	9%	46	111	176	88	1904	49	17	0.805	54	1133	8
84	U GA	9%	75	59	177	87	818	107	17	0.374	107	107	174
84	U KY	4%	49	105	160	97	904	103	17	0.411	103	250	65
84	U Miami	6%	64	68	167	91	734	117	17	0.336	116	70	274
84	U Nottingham	11%	55	85	197	81	1198	85	17	0.544	85	236	74
84	U Oslo	6%	69	63	217	71	1115	91	17	0.509	91	96	199
84	U Southern CA	11%	62	72	190	83	1187	86	17	0.539	86	196	94
84	U Sussex	16%	37	134	208	77	2234	44	17	1.000	44	415	35
84	VA Commonwealth U	5%	64	68	184	86	746	111	17	0.342	110	48	362
99	Brunel U	12%	41	121	165	93	1322	77	16	0.596	77	330	46
99	Lund U	23%	53	89	164	94	1179	87	16	0.536	87	158	119

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2).

Table 7: The 10 most cited publications of each of the top-10 institutions in health economics

Institution	Authors	Type	Year	Journal	Title	Citations
Harvard U	Dani Rodrik; Arvind Subramanian; Francesco Trebbi;	Journal Article	2004	Journal of Economic Growth	Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development	2033
Harvard U	Joshua D. Angrist; Guido W. Imbens; Donald B. Rubin;	Journal Article	1996	Journal of the American Statistical Association	Identification of Causal Effects Using Instrumental Variables	1862
Harvard U	Joseph P. Newhouse;	Journal Article	1992	Journal of Economic Perspectives	Medical Care Costs: How Much Welfare Loss?	751
Harvard U	David M. Cutler; Edward L. Glaeser; Jesse M. Shapiro;	Journal Article	2003	Journal of Economic Perspectives	Why Have Americans Become More Obese?	684
Harvard U	James M. Robins; Andrea Rotnitzky; Lue Ping Zhao;	Journal Article	1995	Journal of the American Statistical Association	Analysis of Semiparametric Regression Models for Repeated Outcomes in the Presence of Missing Data	575
Harvard U	Willard G. Manning; et al.;	Book Section	1991	The economics of health. Volume 2	A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services	527
Harvard U	David M. Cutler; Richard J. Zeckhauser;	Book Section	2000	Handbook of health economics. Volume 1A	The Anatomy of Health Insurance	425
Harvard U	Amartya K. Sen;	Journal Article	1998	Economic Journal	Mortality as an Indicator of Economic Success and Failure	413
Harvard U	Joseph P. Newhouse;	Journal Article	1996	Journal of Economic Literature	Reimbursing Health Plans and Health Providers: Efficiency in Production versus Selection	408
Harvard U	Sudhir Anand; Kara Hanson;	Journal Article	1997	Journal of Health Economics	Disability-Adjusted Life Years: A Critical Review	399
Harvard U	David M. Cutler; Angus S. Deaton; Adriana Lleras-Muney;	Journal Article	2006	Journal of Economic Perspectives	The Determinants of Mortality	367
Harvard U	Susan L. Ettner;	Journal Article	1996	Journal of Health Economics	New Evidence on the Relationship between Income and Health	330
World Bank	Lant Pritchett; Lawrence H. Summers;	Journal Article	1996	Journal of Human Resources	Wealthier Is Healthier	704
World Bank	Harold Alderman; John Hoddinott; Bill Kinsey;	Journal Article	2006	Oxford Economic Papers	Long Term Consequences of Early Childhood Malnutrition	370
World Bank	Paul Glewwe; Hanan G. Jacoby; Elizabeth M. King;	Journal Article	2001	Journal of Public Economics	Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis	269
World Bank	Paul Glewwe; Hanan Jacoby;	Journal Article	1994	Journal of Human Resources	Student Achievement and Schooling Choice in Low-Income Countries: Evidence from Ghana	259
World Bank	Nazmul Chaudhury; Jeffrey S. Hammer; Michael R. Kremer; Karthik Muralidharan; F. Halsey Rogers	Journal Article	2006	Journal of Economic Perspectives	Missing in Action: Teacher and Health Worker Absence in Developing Countries	253
World Bank	Paul Glewwe;	Journal Article	1999	Journal of Human Resources	Why Does Mother's Schooling Raise Child Health in Developing Countries? Evidence from Morocco	227
World Bank	A. Mead Over; Peter Piot;	Book Section	1993	Disease control priorities in developing countries	HIV Infection and Sexually Transmitted Diseases	217
World Bank	Adam Wagstaff; Eddy van Doorslaer; Naoko Watanabe;	Journal Article	2003	Journal of Econometrics	On Decomposing the Causes of Health Sector Inequalities with an Application to Malnutrition Inequalities in Vietnam	206
World Bank	Harold Alderman;	Journal Article	2001	Journal of Human Resources	Child Health and School Enrollment: A Longitudinal Analysis	198
World Bank	C. Arndt; J. D. Lewis;	Journal Article	2000	South African Journal of Economics	The Macro Implications of HIV/AIDS in South Africa: A Preliminary Assessment	188
MIT	Daron Acemoglu; Simon Johnson; James A. Robinson;	Journal Article	2001	American Economic Review	The Colonial Origins of Comparative Development: An Empirical Investigation	4355
MIT	Joshua D. Angrist; Guido W. Imbens; Donald B. Rubin;	Journal Article	1996	Journal of the American Statistical Association	Identification of Causal Effects Using Instrumental Variables	1862
MIT	Jonathan Gruber;	Journal Article	1994	American Economic Review	The Incidence of Mandated Maternity Benefits	641
MIT	Jonathan Gruber; Botond Koszegi;	Journal Article	2001	Quarterly Journal of Economics	Is Addiction 'Rational'? Theory and Evidence	497

Institution	Authors	Type	Year	Journal	Title	Citations
MIT	Paul J. Gertler; Jonathan Gruber;	Journal Article	2002	American Economic Review	Insuring Consumption Against Illness	347
MIT	Daron Acemoglu; Joshua D. Angrist;	Journal Article	2001	Journal of Political Economy	Consequences of Employment Protection? The Case of the Americans with Disabilities Act	327
MIT	Janet M. Currie; Jonathan Gruber;	Journal Article	1996	Quarterly Journal of Economics	Health Insurance Eligibility, Utilization of Medical Care, and Child Health	281
MIT	Daron Acemoglu; Simon Johnson;	Journal Article	2007	Journal of Political Economy	Disease and Development: The Effect of Life Expectancy on Economic Growth	273
MIT	Jonathan Gruber; Sendhil Mullainathan; Yew-Kwang Ng; Lok Sang Ho;	Book Section	2006	Happiness and Public Policy: Theory, Case Studies and Implications	Do Cigarette Taxes Make Smokers Happier?	242
MIT	Janet M. Currie; Jonathan Gruber;	Journal Article	1996	Journal of Political Economy	Saving Babies: The Efficacy and Cost of Recent Changes in the Medicaid Eligibility of Pregnant Women	214
U CA, Berkeley	Daron Acemoglu; Simon Johnson; James A. Robinson;	Journal Article	2001	American Economic Review	The Colonial Origins of Comparative Development: An Empirical Investigation	4355
U CA, Berkeley	Ronald Lee; Lawrence R. Carter;	Journal Article	1992	Journal of the American Statistical Association	Modeling and Forecasting U.S. Mortality	609
U CA, Berkeley	Edward Miguel; Michael R. Kremer;	Journal Article	2004	Econometrica	Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities	587
U CA, Berkeley	Jonathan Gruber; Botond Koszegi;	Journal Article	2001	Quarterly Journal of Economics	Is Addiction 'Rational'? Theory and Evidence	497
U CA, Berkeley	Peter Adams;	Journal Article	2003	Journal of Econometrics	Healthy, Wealthy, and Wise? Tests for Direct Causal Paths between Health and Socioeconomic Status	354
U CA, Berkeley	Paul J. Gertler; Jonathan Gruber;	Journal Article	2002	American Economic Review	Insuring Consumption Against Illness	347
U CA, Berkeley	Sebastian Galiani; Paul J. Gertler; Ernesto Schargrodsky;	Journal Article	2005	Journal of Political Economy	Water for Life: The Impact of the Privatization of Water Services on Child Mortality	315
U CA, Berkeley	Alejandro Gaviria; Steven Raphael;	Journal Article	2001	Review of Economics and Statistics	School-Based Peer Effects and Juvenile Behavior	274
U CA, Berkeley	Kenneth Y. Chay; Michael Greenstone;	Journal Article	2003	Quarterly Journal of Economics	The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession	242
U CA, Berkeley	Ronald Lee;	Journal Article	2003	Journal of Economic Perspectives	The Demographic Transition: Three Centuries of Fundamental Change	228
U Chicago	Robert W. Fogel;	Journal Article	1994	American Economic Review	Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy	909
U Chicago	Gary S. Becker; Michael Grossman; Kevin M. Murphy;	Journal Article	1994	American Economic Review	An Empirical Analysis of Cigarette Addiction	775
U Chicago	Willard G. Manning; John Mullahy;	Journal Article	2001	Journal of Health Economics	Estimating Log Models: To Transform or Not to Transform?	583
U Chicago	Willard G. Manning;	Journal Article	1998	Journal of Health Economics	The Logged Dependent Variable, Heteroscedasticity, and the Retransformation Problem	484
U Chicago	Janet M. Currie; Brigitte C. Madrian; Orley Ashenfelter; David Card;	Book Section	1999	Handbook of labor economics. Volume 3C	Health, Health Insurance and the Labor Market	455
U Chicago	David O. Meltzer;	Journal Article	1997	Journal of Health Economics	Accounting for Future Costs in Medical Cost-Effectiveness Analysis	308
U Chicago	Gary S. Becker; Tomas J. Philipson; Rodrigo R. Soares;	Journal Article	2005	American Economic Review	The Quantity and Quality of Life and the Evolution of World Inequality	307
U Chicago	Kevin M. Murphy; Robert H. Topel;	Journal Article	2006	Journal of Political Economy	The Value of Health and Longevity	254
U Chicago	Kenneth Y. Chay; Michael Greenstone;	Journal Article	2003	Quarterly Journal of Economics	The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession	242
U Chicago	Thomas DeLeire;	Journal Article	2000	Journal of Human Resources	The Wage and Employment Effects of the Americans with Disabilities Act	240
U PA	Hans-Peter Kohler; Francesco C. Billari; Jose Antonio Ortega;	Journal Article	2002	Population and Development Review	The Emergence of Lowest-Low Fertility in Europe during the 1990s	513

Institution	Authors	Type	Year	Journal	Title	Citations
U PA	Jere R. Behrman; Mark R. Rosenzweig;	Journal Article	2004	Review of Economics and Statistics	Returns to Birthweight	312
U PA	Debra Sabatini Dwyer; Olivia S. Mitchell;	Journal Article	1999	Journal of Health Economics	Health Problems as Determinants of Retirement: Are Self-Rated Measures Endogenous?	305
U PA	Ilana Ritov; Jonathan Baron; Cass R. Sunstein;	Book Section	2000	Behavioral law and economics	Reluctance to Vaccinate: Omission Bias and Ambiguity	305
U PA	Stephen Coate;	Journal Article	1995	American Economic Review	Altruism, the Samaritan's Dilemma, and Government Transfer Policy	254
U PA	Samuel H. Preston; Paul Taubman; Linda G. Martin;	Book Section	1994	Demography of aging	Socioeconomic Differences in Adult Mortality and Health Status	222
U PA	Jere R. Behrman;	Journal Article	1996	World Bank Research Observer	The Impact of Health and Nutrition on Education	217
U PA	Pradip K. Muhuri; Samuel H. Preston;	Journal Article	1991	Population and Development Review	Effects of Family Composition on Mortality Differentials by Sex among Children in Matlab, Bangladesh	208
U PA	Mark V. Pauly;	Journal Article	1990	Journal of Political Economy	The Rational Nonpurchase of Long-term-Care Insurance	198
U PA	Thomas G. McGuire; Mark V. Pauly;	Journal Article	1991	Journal of Health Economics	Physician Response to Fee Changes with Multiple Payers	198
RAND	John Strauss; Duncan Thomas;	Journal Article	1998	Journal of Economic Literature	Health, Nutrition, and Economic Development	962
RAND	James P. Smith;	Journal Article	1999	Journal of Economic Perspectives	Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status	888
RAND	Duncan Thomas; John Strauss; Maria-Helena Henriques;	Journal Article	1991	Journal of Human Resources	How Does Mother's Education Affect Child Height?	260
RAND	Lee A. Lillard; Constantijn W. A. Panis;	Journal Article	1996	Demography	Marital Status and Mortality: The Role of Health	254
RAND	Emmett B. Keeler; Glenn Melnick; Jack Zwanziger;	Journal Article	1999	Journal of Health Economics	The Changing Effects of Competition on Non-profit and For-Profit Hospital Pricing Behavior	196
RAND	Anne R. Pebley; Noreen Goldman; German Rodriguez;	Journal Article	1996	Demography	Prenatal and Delivery Care and Childhood Immunization in Guatemala: Do Family and Community Matter?	164
RAND	Michael D. Hurd; Kathleen McGarry;	Journal Article	2002	Economic Journal	The Predictive Validity of Subjective Probabilities of Survival	164
RAND	Willard G. Manning; M. Susan Marquis;	Journal Article	1996	Journal of Health Economics	Health Insurance: The Tradeoff between Risk Pooling and Moral Hazard	146
RAND	Melinda Beeuwkes Buntin; Alan M. Zaslavsky;	Journal Article	2004	Journal of Health Economics	Too Much Ado About Two-Part Models and Transformation? Comparing Methods of Modeling Medicare Expenditures	142
RAND	Duncan Thomas; Lawrence Haddad; John Hoddinott; Harold Alderman;	Book Section	1997	Intrahousehold resource allocation in developing countries: Models, methods, and policy	Incomes, Expenditures, and Health Outcomes: Evidence on Intrahousehold Resource Allocation	134
U MI	Robert B. Barsky; et al.;	Journal Article	1997	Quarterly Journal of Economics	Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study	1056
U MI	Frank J. Chaloupka; Kenneth E. Warner;	Book Section	2000	Handbook of health economics. Volume 1B	The Economics of Smoking	639
U MI	John Bound; Richard V. Burkhauser; Orley Ashenfelter; David Card;	Book Section	1999	Handbook of labor economics. Volume 3C	Economic Analysis of Transfer Programs Targeted on People with Disabilities	283
U MI	John Bound;	Journal Article	1999	Labour Economics	The Dynamic Effects of Health on the Labor Force Transitions of Older Workers	250
U MI	Hazem Adam Ghobarah; Paul Huth; Bruce Russett;	Journal Article	2003	American Political Science Review	Civil Wars Kill and Maim People--Long after the Shooting Stops	225
U MI	Rukmalie Jayakody; Sheldon Danziger; Harold A. Pollack;	Journal Article	2000	Journal of Health Politics, Policy and Law	Welfare Reform, Substance Use, and Mental Health	167
U MI	Arline T. Geronimus; John Bound; Lisa J. Neidert;	Journal Article	1996	Journal of the American Statistical Association	On the Validity of Using Census Geocode Characteristics to Proxy Individual Socioeconomic Characteristics	153
U MI	Michael Chernew; Dennis P. Scanlon;	Journal Article	1998	Inquiry	Health Plan Report Cards and Insurance Choice	129
U MI	Michael Chernew; Kevin Frick; Catherine G. McLaughlin;	Journal Article	1997	Health Services Research	The Demand for Health Insurance Coverage by Low-Income Workers: Can Reduced Premiums Achieve Full Coverage?	129

Institution	Authors	Type	Year	Journal	Title	Citations
U MI	Jane Banaszak-Holl; Jacqueline S. Zinn; Vincent Mor;	Journal Article	1996	Health Services Research	The Impact of Market and Organizational Characteristics on Nursing Care Facility Service Innovation: A Resource Dependency Perspective	124
U York	Alan Williams;	Book Section	1991	The economics of health. Volume 2	Economics of Coronary Artery Bypass Grafting	587
U York	Alan Williams;	Journal Article	1997	Health Economics	Intergenerational Equity: An Exploration of the 'Fair Innings' Argument	356
U York	A. J. Culyer; Adam Wagstaff;	Journal Article	1993	Journal of Health Economics	Equity and Equality in Health and Health Care	324
U York	Elisabeth Fenwick; Karl Claxton; Mark Sculpher;	Journal Article	2001	Health Economics	Representing Uncertainty: The Role of Cost-Effectiveness Acceptability Curves	321
U York	Theo Hitiris; John Posnett;	Journal Article	1992	Journal of Health Economics	The Determinants and Effects of Health Expenditure in Developed Countries	212
U York	Michael Jones-Lee;	Book Section	1991	The economics of health. Volume 1	The Value of Changes in the Probability of Death or Injury	205
U York	Tim Scott;	Journal Article	2003	Health Services Research	The Quantitative Measurement of Organizational Culture in Health Care: A Review of the Available Instruments	192
U York	Michael F. Drummond;	Journal Article	1992	PharmacoEconomics	Cost-of-Illness Studies: A Major Headache?	185
U York	Eddy van Doorslaer; Xander Koolman; Andrew M. Jones;	Journal Article	2004	Health Economics	Explaining Income-Related Inequalities in Doctor Utilization in Europe	180
U York	Eddy van Doorslaer; Andrew M. Jones;	Journal Article	2003	Journal of Health Economics	Inequalities in Self-Reported Health: Validation of a New Approach to Measurement	179
Stanford U	Kenneth J. Arrow;	Journal Article	2001	Journal of Health Politics, Policy and Law	Uncertainty and the Welfare Economics of Medical Care	4082
Stanford U	Victor R. Fuchs;	Book Section	1991	The economics of health. Volume 1	Time Preference and Health: An Exploratory Study	505
Stanford U	John J. Donohue; Steven D. Levitt;	Journal Article	2001	Quarterly Journal of Economics	The Impact of Legalized Abortion on Crime	335
Stanford U	Daniel P. Kessler; Mark B. McClellan;	Journal Article	1996	Quarterly Journal of Economics	Do Doctors Practice Defensive Medicine?	325
Stanford U	Daniel P. Kessler; Mark B. McClellan;	Journal Article	2000	Quarterly Journal of Economics	Is Hospital Competition Socially Wasteful?	293
Stanford U	B. Douglas Bernheim; Antonio Rangel;	Journal Article	2004	American Economic Review	Addiction and Cue-Triggered Decision Processes	275
Stanford U	Victor R. Fuchs;	Journal Article	1996	American Economic Review	Economics, Values, and Health Care Reform	274
Stanford U	Kenneth J. Arrow;	Journal Article	1997	Environment and Development Economics	Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation	249
Stanford U	Robert E. Hall; Charles I. Jones;	Journal Article	2007	Quarterly Journal of Economics	The Value of Life and the Rise in Health Spending	192
Stanford U	David M. Cutler; Mark B. McClellan; Joseph P. Newhouse;	Journal Article	2000	RAND Journal of Economics	How Does Managed Care Do It?	160

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating.

Table 8: Topical distribution of the most-cited 50 publications of the United States' top-5 institutions and Europe's top institution

	Harvard U	World Bank	MIT	U CA, Berkeley	Chicago U	U York
Health and its value	2		1	1	1	5
Efficiency and equity	4	6	1	1	2	6
Determinants of health and ill-health	6	14	5	11	14	3
Public health	5	5	5	6	5	
Health and the economy	5	9	8	10	2	5
Health statistics and econometrics	3	2	1	1	5	3
Demand for health and health care		3	3	3		2
Medical insurance	5		11	2	4	
Supply of health services	7	1	4	1	7	3
Human resources	6	3	7		2	
Markets in health care	1		1			4
Economic evaluation	2		1	4	1	19
Total	46	43	48	40	43	50
Normalized Herfindahl index	0.089	0.176	0.118	0.160	0.156	0.181

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. The 50 most-cited publications for each of the listed institutions were then assigned either one of the 12 topics listed in the appendix or a "topic not assigned" code. The latter included publications that were too general (some were actually textbooks) some had no economic content despite being in EconLit, and some had no health content despite the JEL code.

Table 9: Top 25 countries in health economics based on *h*-index

	Country	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	I^2 Quadratic influence function	Rank	Maximum citations	Rank
1	United States	16%	10995	1	37000	1	271014	1	189	120.01	1	4355	1
2	United Kingdom	16%	2214	2	7308	2	47056	2	96	21.32	2	774	2
3	Canada	18%	859	3	2492	3	15006	3	58	6.81	3	489	4
4	Netherlands	10%	408	5	1538	4	11223	4	51	5.07	4	486	5
5	Sweden	16%	260	8	954	6	6423	5	46	2.92	5	237	11
6	Australia	23%	467	4	1015	5	4993	6	36	2.27	6	415	6
7	Germany	17%	331	6	827	7	4125	7	34	1.88	7	358	8
8	Switzerland	28%	226	9	576	9	3538	8	31	1.60	8	403	7
9	Norway	7%	133	12	450	10	2479	10	30	1.13	10	223	12
10	Spain	15%	289	7	608	8	3005	9	28	1.36	9	513	3
11	New Zealand	14%	128	13	347	11	1536	13	24	0.70	13	154	20
12	Italy	12%	155	11	324	13	1296	14	20	0.59	14	72	27
13	Israel	9%	64	20	245	15	1757	11	19	0.80	11	305	10
13	Taiwan (China)	28%	97	18	189	20	888	18	19	0.41	18	89	24
13	France	28%	199	10	346	12	1623	12	19	0.74	12	157	18
16	Finland	13%	64	20	167	21	838	20	17	0.38	20	186	15
16	Denmark	12%	94	19	206	17	978	16	17	0.45	16	184	16
16	Belgium	13%	109	17	268	14	1083	15	17	0.50	15	71	28
19	China	27%	113	14	199	19	863	19	15	0.40	19	104	22
19	South Africa	19%	110	16	214	16	801	21	15	0.37	21	68	29
21	Ireland	21%	63	22	143	22	926	17	13	0.42	17	219	13
21	Japan	18%	113	14	199	18	629	22	13	0.29	22	75	26
23	Austria	11%	28	28	88	25	453	25	12	0.21	24	96	23
24	India	27%	63	22	125	23	613	23	11	0.28	23	105	21
25	Philippines	17%	18	37	62	26	398	26	9	0.18	26	157	18
25	Greece	24%	54	24	90	24	345	28	9	0.16	28	58	30

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2).

Table 10: Top 25 non-OECD institutions in health economics based on *h*-index

	Institution	Country	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	Rank	I^2 QIF	Rank	Maximum citations	Rank
1	Nat Taiwan U	Taiwan (China)	16%	32	150	97	147	563	150	12	141	0.257	151	89	214
2	U Witwatersrand	South Africa	32%	25	185	57	216	246	243	11	149	0.113	244	51	351
3	Chinese U Hong Kong	China	22%	23	200	64	196	394	186	10	168	0.180	187	104	183
4	U Cape Town	South Africa	18%	34	144	73	185	241	247	9	186	0.110	247	32	453
5	Academia Sinica	Taiwan (China)	46%	24	191	47	248	219	264	8	217	0.100	262	42	396
5	Peking U	China	17%	23	200	46	252	194	290	8	217	0.089	290	66	291
5	U Hong Kong	China	19%	21	210	34	316	114	389	8	217	0.052	389	26	482
5	U Nairobi	Kenya	7%	14	309	28	362	75	459	8	217	0.034	459	14	614
9	Nat U Singapore	Singapore	23%	26	174	35	313	122	379	7	248	0.056	379	25	493
10	Internatl Rice Res Inst	Philippines	14%	7	499	37	297	291	221	6	294	0.132	222	157	121
10	U Chile	Chile	13%	15	289	32	327	104	405	6	294	0.048	406	24	504
10	U Delhi	India	21%	14	309	31	338	137	356	6	294	0.063	356	63	308
10	U KwaZulu-Natal	South Africa	20%	20	223	36	307	146	344	6	294	0.067	344	68	286
14	Pakistan Inst of Dev Econ	Pakistan	19%	27	165	32	331	69	479	5	349	0.032	479	11	647
14	U Sao Paulo	Brazil	33%	15	289	22	425	76	457	5	349	0.035	457	30	461
14	U Stellenbosch	South Africa	0%	10	393	19	462	52	519	5	349	0.024	519	15	607
14	U West Indies	West Indies	59%	17	255	15	516	47	538	5	349	0.022	538	17	584
18	Indian Inst of Management	India	0%	5	619	21	440	120	380	4	429	0.055	381	82	234
18	Koc U	Turkey	0%	6	541	31	333	308	215	4	429	0.139	216	201	89
18	Makerere U	Uganda	17%	6	541	7	664	13	685	4	429	0.006	687	7	682
18	Nanyang Technological U	Singapore	0%	8	456	17	489	46	541	4	429	0.021	541	16	596
18	Nat Cheng-Chi U	Taiwan (China)	41%	17	255	18	468	50	528	4	429	0.023	529	19	562
18	Nat Coun of Appl Econ Res	India	17%	6	541	10	616	24	644	4	429	0.011	644	8	671
18	Nat Tsing Hua U	Taiwan (China)	0%	5	619	16	504	73	467	4	429	0.033	469	43	388
18	Pontificia U Catolica de Chile	Chile	13%	8	456	16	497	62	496	4	429	0.028	497	24	504
18	U Buenos Aires	Argentina	13%	8	456	16	500	70	475	4	429	0.032	476	23	522
18	U Philippines	Philippines	18%	11	370	25	398	107	402	4	429	0.049	403	58	331

Notes: Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2). The final rank column denotes the global rank among all institutions.

Table 11: Topical distribution of the most-cited 50 publications of the top four countries

	Canada	Netherlands	United Kingdom	United States
Health and its value	7	5	6	4
Efficiency and equity	2	16	9	3
Determinants of health and ill-health	5	3	4	12
Public health	2			4
Health and the economy	6	4	2	7
Health statistics and econometrics	2	2	3	7
Demand for health and health care	4		1	3
Medical insurance	2	3	1	4
Supply of health services	2	3	3	1
Human resources	2	1		2
Markets in health care	2	2	1	1
Economic evaluation	10	10	17	1
Total	*46*	*49*	*47*	*49*
Normalized Herfindahl index	0.100	0.163	0.185	0.113

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country. The 50 most-cited publications for each of the listed countries were then assigned either one of the 12 topics listed in the appendix or a "topic not assigned" code. The latter included publications that were too general (some were actually textbooks) some had no economic content despite being in EconLit, and some had no health content despite the JEL code.

Table 12: Top 100 journals in health economics based on *h*-index

	journal	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	I^2 QIF	Rank	Normalized *h*-index	Rank
1	Journal of Health Economics	7%	1308	2	7046	1	61402	1	118	27.440	1	39%	150
2	Health Economics	4%	1377	1	5794	2	37832	2	80	17.158	2	30%	210
3	Health Services Research	7%	819	5	4082	4	27944	3	75	12.708	3	36%	166
4	PharmacoEconomics	12%	1221	3	4552	3	26392	4	68	12.005	4	27%	234
5	Journal of Human Resources	5%	261	11	1583	8	14664	7	66	6.591	7	40%	131
6	American Economic Review	5%	259	12	1630	7	21515	5	62	8.558	5	37%	160
6	Demography	1%	213	14	1259	9	10498	9	62	4.755	8	39%	149
8	Inquiry	9%	1062	4	3457	5	18554	6	58	8.436	6	24%	295
9	Review of Economics and Statistics	2%	103	38	743	15	6999	13	48	3.160	13	48%	109
10	Population and Development Review	10%	147	24	785	14	7533	12	46	3.363	12	40%	130
11	Journal of Health Politics, Policy and Law	19%	519	6	1686	6	12260	8	43	4.732	9	26%	244
11	Journal of Political Economy	3%	62	62	656	17	10495	10	43	4.383	10	62%	58
11	World Development	5%	150	23	728	16	5151	18	43	2.342	18	37%	163
14	Journal of Public Economics	1%	103	38	575	20	4469	24	41	2.030	24	40%	129
15	Quarterly Journal of Economics	0%	53	75	582	19	8331	11	40	3.671	11	60%	59
16	Journal of the American Statistical Association	18%	132	28	573	21	6384	14	39	2.696	14	36%	165
16	Population Studies	6%	187	17	791	13	4809	20	39	2.193	20	32%	205
18	Applied Economics	4%	304	10	950	11	4536	23	36	2.073	22	23%	310
18	RAND Journal of Economics	0%	55	71	457	26	4965	19	36	2.210	19	51%	64
20	Health Care Management Science	2%	358	8	1184	10	5515	16	35	2.521	15	23%	313
20	Journal of Econometrics	18%	65	58	419	30	4608	22	35	2.062	23	47%	110
22	Studies in Family Planning	6%	140	27	548	22	3404	28	33	1.550	28	31%	206
23	Journal of Development Economics	3%	62	62	400	32	3617	26	32	1.637	26	45%	116
23	Journal of Law and Economics	8%	60	65	379	36	3463	27	32	1.565	27	45%	113
23	Law and Contemporary Problems	4%	99	41	470	25	3031	31	32	1.381	31	34%	170
26	Journal of Risk and Uncertainty	4%	73	52	358	38	2446	38	31	1.112	36	33%	204
27	Journal of the Royal Statistical Society: Series A (Statistics in Society)	27%	147	24	453	27	3320	29	30	1.490	29	28%	227
27	Southern Economic Journal	7%	141	26	530	23	3168	30	30	1.442	30	27%	236
29	Economic Development and Cultural Change	16%	77	51	312	44	2105	44	28	0.958	43	37%	161
29	Journal of Economic Perspectives	13%	62	62	403	31	5435	17	28	2.374	17	43%	125
31	Journal of Mental Health Policy and Economics	3%	228	13	625	18	2750	34	27	1.257	33	20%	386
32	American Journal of Agricultural Economics	11%	108	34	364	37	2139	42	26	0.975	41	26%	245
32	Journal of Policy Analysis and Management	10%	116	30	390	34	2153	41	26	0.982	40	25%	248
32	Journal of Risk and Insurance	9%	157	21	431	29	2115	43	26	0.966	42	23%	303
35	Journal of Applied Econometrics	3%	39	91	240	57	1884	47	25	0.855	47	39%	148
35	Social Security Bulletin	15%	128	29	391	33	2248	40	25	1.022	38	23%	311
37	Economics and Human Biology	8%	191	15	528	24	2262	39	24	1.035	37	20%	342
37	Industrial and Labor Relations Review	9%	47	82	240	56	1803	49	24	0.820	48	42%	126
37	Journal of International Development	3%	93	45	337	39	1916	46	24	0.873	46	27%	237
41	Economic Inquiry	4%	82	49	330	40	2098	45	23	0.953	44	25%	247
41	Economic Journal	9%	46	85	287	46	3008	32	23	1.348	32	45%	115
43	European Journal of Health Economics	24%	455	7	806	12	2661	36	22	1.219	34	15%	468
43	International Journal of Health Care Finance and Economics	0%	167	19	440	28	1714	56	22	0.785	53	19%	389
43	Journal of Development Studies	4%	55	71	207	63	1056	73	22	0.483	71	28%	226
43	Journal of Economics and Management Strategy	4%	48	80	234	59	1742	53	22	0.789	50	35%	169
47	Food Policy	11%	98	42	319	42	1653	57	21	0.755	56	22%	331
48	Canadian Public Policy	9%	110	32	243	55	898	79	20	0.411	79	20%	342

	journal	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	h-index (I^1)	I^2 QIF	Rank	Normalized h-index	Rank
48	Contemporary Economic Policy	2%	81	50	263	52	1227	65	20	0.561	65	22%	333
48	Journal of Consumer Affairs	4%	85	48	264	50	1217	66	20	0.557	66	22%	329
48	World Bank Economic Review	0%	27	141	150	71	1046	74	20	0.477	73	41%	127
52	Annals of the American Academy of Political and Social Science	13%	97	43	262	53	1060	72	19	0.485	70	20%	341
52	Environment and Planning A	8%	92	46	287	45	1417	62	19	0.646	62	21%	338
52	Family Economics and Nutrition Review	27%	110	32	276	47	1317	64	19	0.602	64	21%	336
52	Insurance: Mathematics and Economics	0%	68	56	267	49	1768	50	19	0.803	49	24%	297
52	Journal of Environmental Economics and Management	14%	35	103	180	69	1483	60	19	0.673	60	40%	132
57	Journal of Consumer Research	0%	32	112	204	64	1742	53	18	0.788	51	41%	128
57	Social Science Quarterly	17%	102	40	257	54	1165	70	18	0.532	67	20%	342
59	Applied Health Economics and Health Policy	9%	189	16	384	35	1387	63	17	0.634	63	14%	501
59	Journal of Economic History	9%	33	107	138	77	830	84	17	0.378	83	30%	207
59	Urban Studies	3%	38	95	150	72	845	83	17	0.386	82	27%	235
59	Yale Journal on Regulation	5%	22	181	142	75	1170	69	17	0.530	68	48%	108
63	Eastern Economic Journal	2%	53	75	143	74	568	119	16	0.260	118	17%	414
63	Economics of Education Review	3%	35	103	134	79	723	95	16	0.330	94	24%	297
63	Journal of African Economies	0%	32	112	101	100	453	144	16	0.207	141	22%	330
63	Monthly Labor Review	8%	107	36	264	51	1009	77	16	0.462	76	16%	450
63	Population Bulletin	24%	25	153	111	87	761	91	16	0.347	91	37%	162
69	Econometrica	0%	16	277	149	73	1768	50	15	0.787	52	63%	54
69	Journal of Business and Economic Statistics	23%	22	181	135	78	1609	58	15	0.707	58	47%	111
69	North American Actuarial Journal	34%	96	44	188	66	1024	76	15	0.466	75	17%	411
69	Social Service Review	2%	42	89	128	81	579	117	15	0.265	114	20%	387
69	Yale Law Journal	16%	25	153	154	70	1738	55	15	0.775	54	38%	152
74	Applied Economics Letters	3%	108	34	203	65	646	105	14	0.296	103	13%	505
74	Economics Letters	2%	59	67	181	68	1746	52	14	0.733	57	19%	393
74	Health Economics, Policy and Law	28%	171	18	233	60	689	99	14	0.316	98	13%	510
74	Industrial Relations	13%	39	91	111	86	604	110	14	0.276	110	24%	297
74	Journal of Economic Literature	11%	18	230	211	62	4147	25	14	1.771	25	63%	54
74	Journal of Labor Economics	6%	18	230	110	88	855	82	14	0.389	81	47%	111
74	Population Research and Policy Review	3%	106	37	239	58	762	90	14	0.349	88	14%	504
74	Quarterly Review of Economics and Finance	7%	29	133	85	122	358	176	14	0.164	176	22%	314
83	Bell Journal of Economics	0%	16	277	140	76	1563	59	13	0.703	59	56%	62
83	Economic Record	0%	36	100	115	84	524	125	13	0.240	124	19%	388
83	Expert Review of Pharmacoeconomics and Outcomes Research	13%	112	31	184	67	596	112	13	0.273	111	12%	531
83	Explorations in Economic History	4%	28	137	90	112	471	136	13	0.215	135	26%	246
83	Health Marketing Quarterly	35%	339	9	315	43	807	85	13	0.370	85	12%	533
83	Journal of Legal Studies	13%	31	115	106	94	672	101	13	0.305	100	22%	314
83	Journal of Population Economics	6%	36	100	129	80	758	92	13	0.345	92	24%	297
83	Journal of Productivity Analysis	0%	20	199	107	92	892	80	13	0.403	80	35%	167
83	World Bank Research Observer	11%	18	230	114	85	1033	75	13	0.468	74	44%	119
93	Canadian Journal of Economics	10%	30	122	90	115	401	157	12	0.183	156	22%	314
93	Development	6%	154	22	232	61	619	109	12	0.284	109	10%	560
93	Development Policy Review	4%	23	173	78	133	353	177	12	0.161	177	18%	401
93	European Economic Review	5%	21	188	100	101	736	94	12	0.334	93	30%	207
93	Fiscal Studies	0%	20	199	77	134	365	173	12	0.167	171	25%	248
93	Journal of Economic Behavior and Organization	0%	33	107	104	96	489	132	12	0.224	129	21%	337
93	Journal of Economic Psychology	6%	18	230	83	123	527	123	12	0.240	123	29%	211
93	Journal of Family and Economic Issues	0%	35	103	104	97	397	161	12	0.182	158	17%	415
93	Journal of Industrial Economics	7%	15	296	80	128	548	122	12	0.250	121	43%	120

	journal	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	I^2 QIF	Rank	Normalized *h*-index	Rank
93	Journal of Urban Economics	5%	21	188	94	108	636	107	12	0.289	107	35%	167
93	Journal of the European Economic Association	0%	16	277	90	111	598	111	12	0.273	112	38%	154

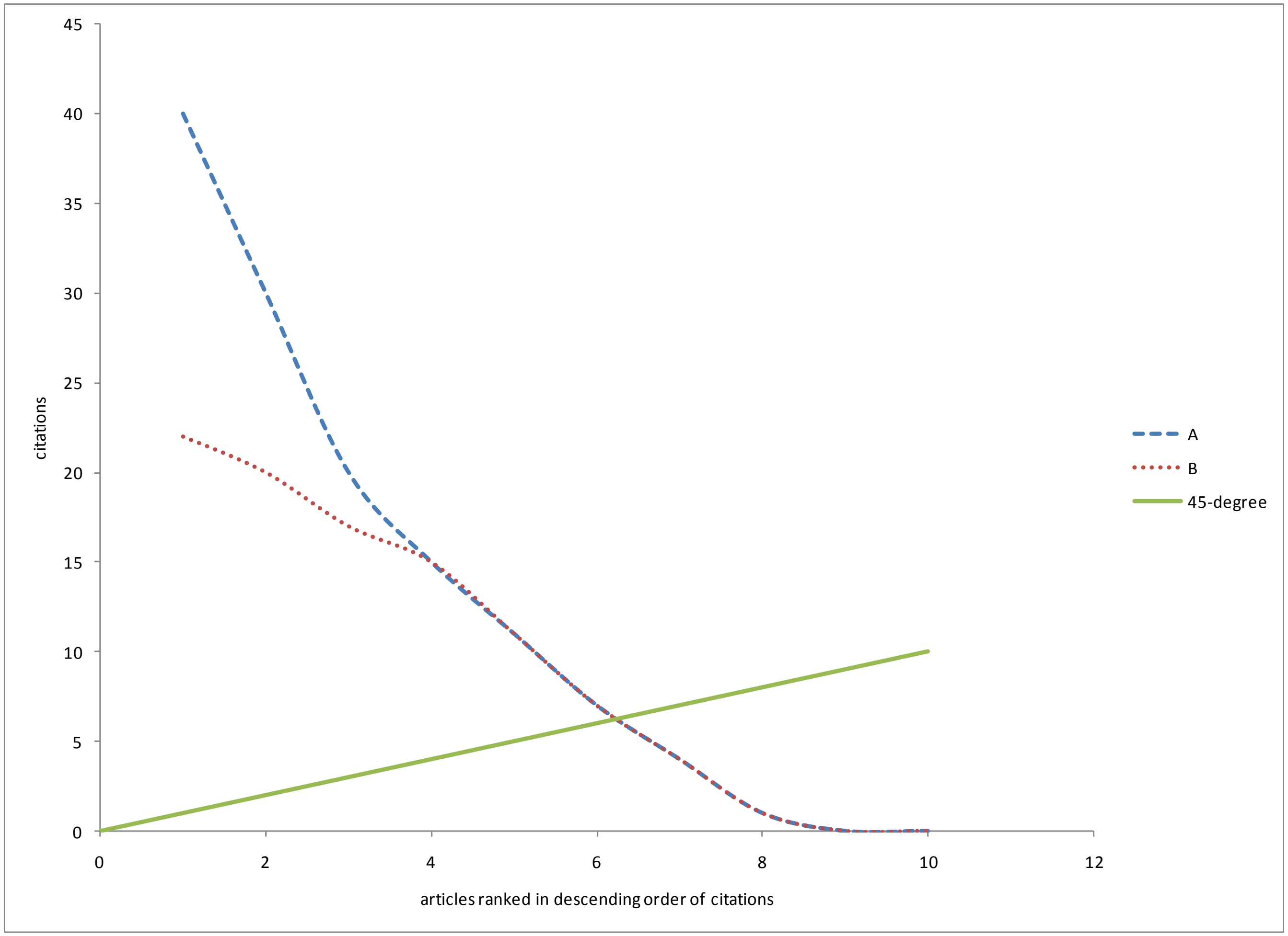
Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2). A normalized h-index of 20% means that 20% of articles in the journal have been cited at least 20 times.

Table 13: Top 25 edited volumes in health economics based on *h*-index

	Volume	% not found in Google Scholar	I^3 α=0 Publication count	Rank	I^3 α=0.5	Rank	I^3 α=1 Total citations	Rank	*h*-index (I^1)	Rank	I^2 QIF	Rank	Normalized *h*-index	Rank
1	Handbook of health economics	24%	33	107	319	41	4690	21	24	37	2.081	21	76%	44
2	The economics of health	5%	19	217	271	48	5792	15	16	63	2.429	16	67%	46
3	Health sector reform in developing countries: Making health development sustainable	12%	16	278	94	108	766	89	14	74	0.348	91	43%	120
4	Advances in Health Economics and Health Services Research	26%	39	91	103	99	514	127	13	83	0.235	126	24%	295
5	Evaluation in health promotion: Principles and perspectives	17%	23	173	74	137	398	161	12	93	0.182	158	26%	242
6	Being reasonable about the economics of health: Selected essays by Alan Williams	28%	18	230	83	125	650	104	11	109	0.296	105	38%	152
6	Health care and cost containment in the European Union	6%	16	278	55	187	219	260	11	109	0.100	260	27%	238
6	Valuing food safety and nutrition	24%	21	188	63	162	279	218	11	109	0.128	217	19%	395
9	Medical care output and productivity	44%	27	141	66	155	361	176	10	124	0.165	176	27%	238
9	Readings in American health care: Current issues in socio-historical perspective	27%	26	149	86	121	580	117	10	124	0.264	116	26%	242
9	Stature, living standards, and economic development: Essays in anthropometric history	21%	14	324	55	183	323	190	10	124	0.147	189	36%	165
12	Applications of social science to clinical medicine and health policy	37%	19	217	50	203	257	233	9	147	0.117	233	17%	417
12	Disease and mortality in sub-Saharan Africa	36%	22	181	56	180	259	232	9	147	0.119	230	29%	214
12	Econometrics, Statistics and Computational Approaches in Food and Health Sciences	15%	13	363	54	191	307	199	9	147	0.140	198	27%	231
12	For-profit enterprise in health care	6%	17	258	59	173	251	237	9	147	0.115	237	19%	395
12	Innovations in health care financing: Proceedings of a World Bank conference	0%	13	363	51	201	265	228	9	147	0.121	229	23%	304
12	Long-term care: Economic issues and policy solutions	14%	14	324	47	212	202	269	9	147	0.093	269	25%	249
12	Measuring up: Improving health system performance in OECD countries	6%	17	258	63	161	311	196	9	147	0.142	195	19%	395
12	Public Health, Ethics, and Equity	10%	10	458	47	213	273	222	9	147	0.125	222	33%	172
12	The Elgar Companion to Health Economics	70%	50	77	54	190	249	238	9	147	0.114	238	20%	343
21	AIDS, Poverty, and Hunger: Challenges and Responses: Highlights of the International Conference on HIV/AIDS and Food and Nutrition Security, Durban, South Africa	6%	18	230	53	193	194	276	8	177	0.089	274	18%	408
21	Disability, work and cash benefits	21%	14	324	41	243	197	273	8	177	0.090	271	18%	402
21	Environmental decision making and risk management: Selected essays by Ian Langford	0%	8	554	55	189	391	166	8	177	0.178	162	38%	155
21	Health economics worldwide	6%	16	278	52	195	254	235	8	177	0.116	235	20%	343
21	Healthy markets? The new competition in medical care	36%	14	324	60	170	495	132	8	177	0.225	129	44%	117

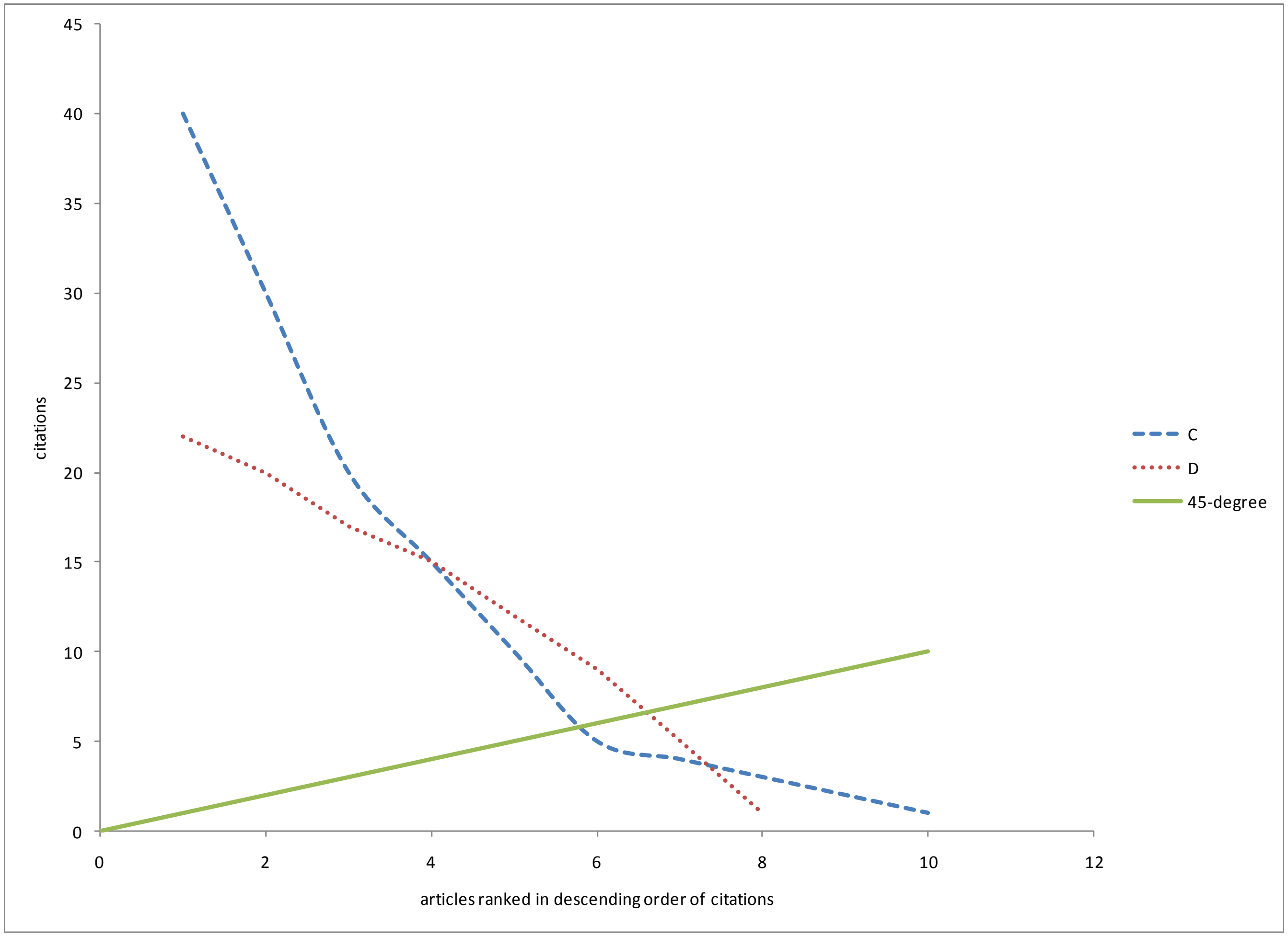
Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Google Scholar citation data were obtained for as many as possible (80 percent) in June 2011. An *h*-index of 10 means that the author has 10 publications to his or her name each of which has been cited at least 10 times. The quadratic influence function is defined in eqn (1). The measure I^3 is defined in eqn (2). A normalized h-index of 20% means that 20% of articles in the journal have been cited at least 20 times.

Figure 1: Measuring influence through citations (i)



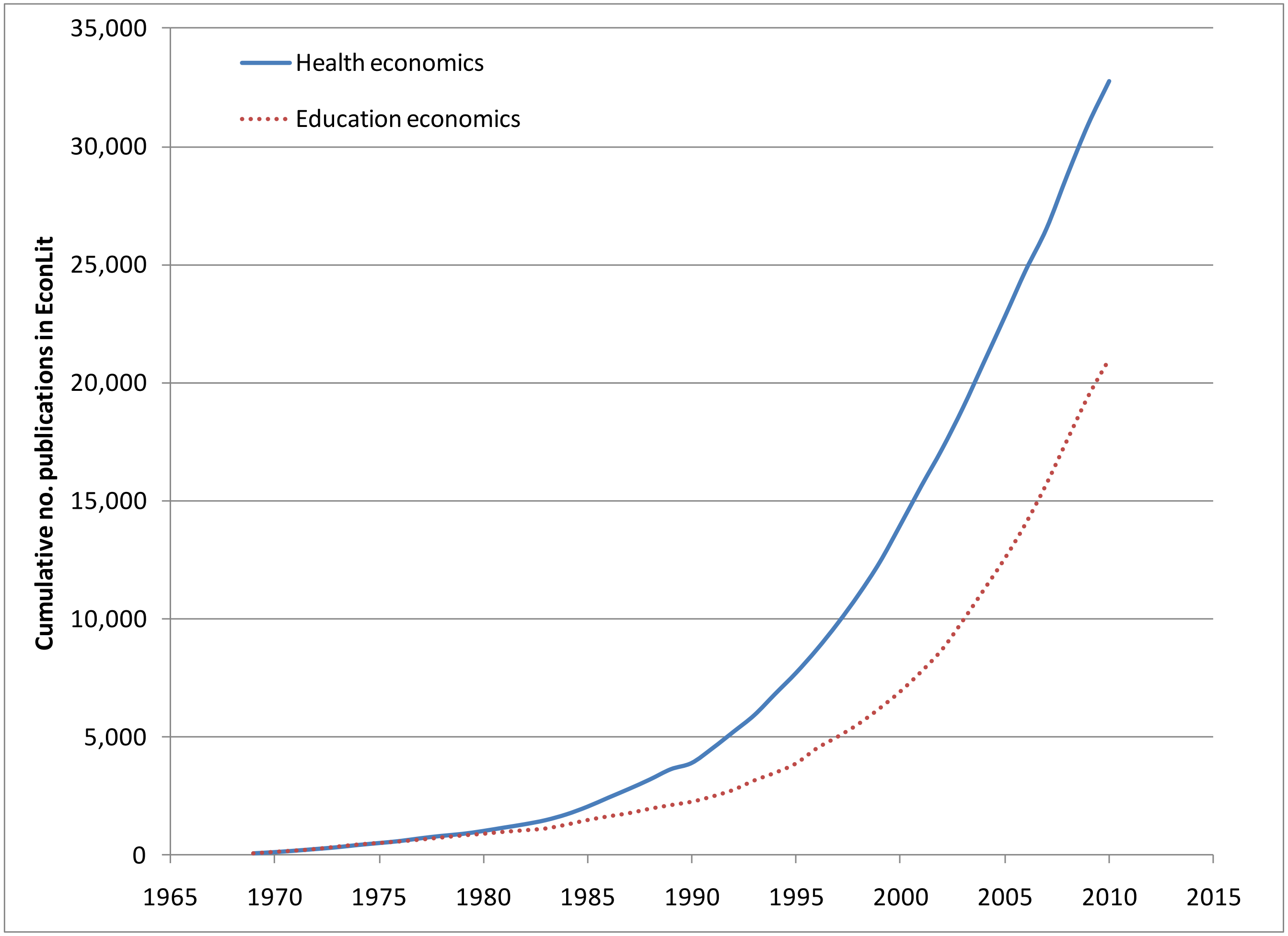
Note: The chart show the hypothetical citation curves of two individuals A and B. The portfolios of each are ranked in descending order of citations. Both have an *h*-index of 6 meaning that A and B have 6 publications to their name each of which has been cited at least 6 times. The *h*-index is found by reading off either axis at the point where the citation curve intersects the 45-degree line.

Figure 2: Measuring influence through citations (ii)



Note: The chart show the hypothetical citation curves of two individuals C and D. The portfolios of each are ranked in descending order of citations. D has an *h*-index of 7 meaning that he or she has 7 publications to his or her name each of which has been cited at least 7 times, while C has an *h*-index of 6. The *h*-index is found by reading off either axis at the point where the citation curve intersects the 45-degree line.

Figure 3: Cumulative numbers of publications in EconLit in health economics and education economics



Note: Health and education publications in EconLit are identified using the health and education JEL codes.

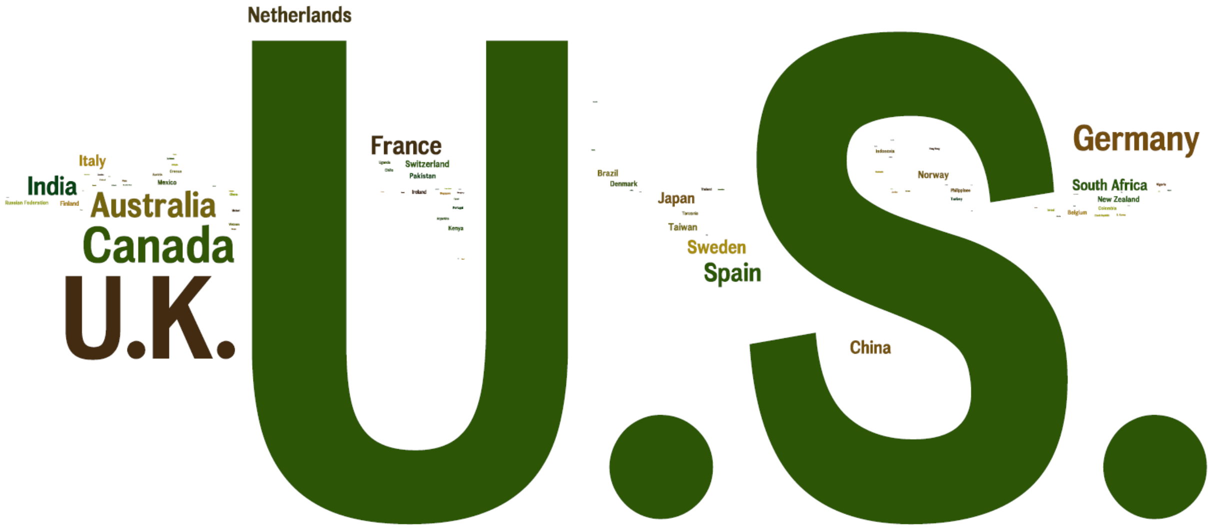
Figure 4: Top-150 title words in health economics articles in the 1980s

Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. The relative sizes of the title words reflect the frequency of their occurrence. The words “health”, “care”, “economic” and “analysis” have been removed, as have common words such as “the”, “and”, etc.

Figure 5: Top-150 title words in health economics articles in the 2000s

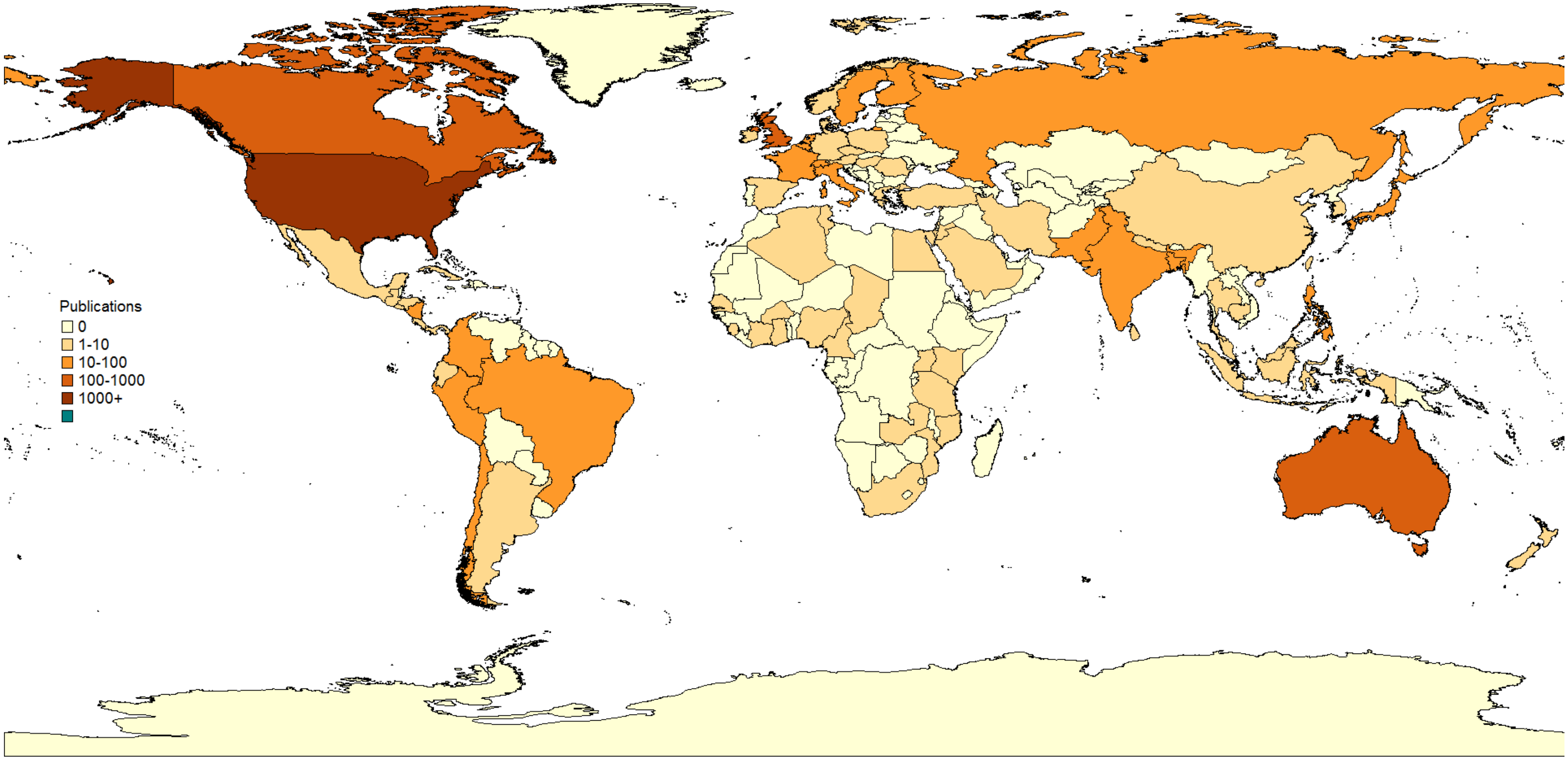
Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. The relative sizes of the title words reflect the frequency of their occurrence. The words "health", "care", "economic" and "analysis" have been removed, as have common words such as "the", "and", etc.

Figure 6: Country focus of health economics articles 1969-2009



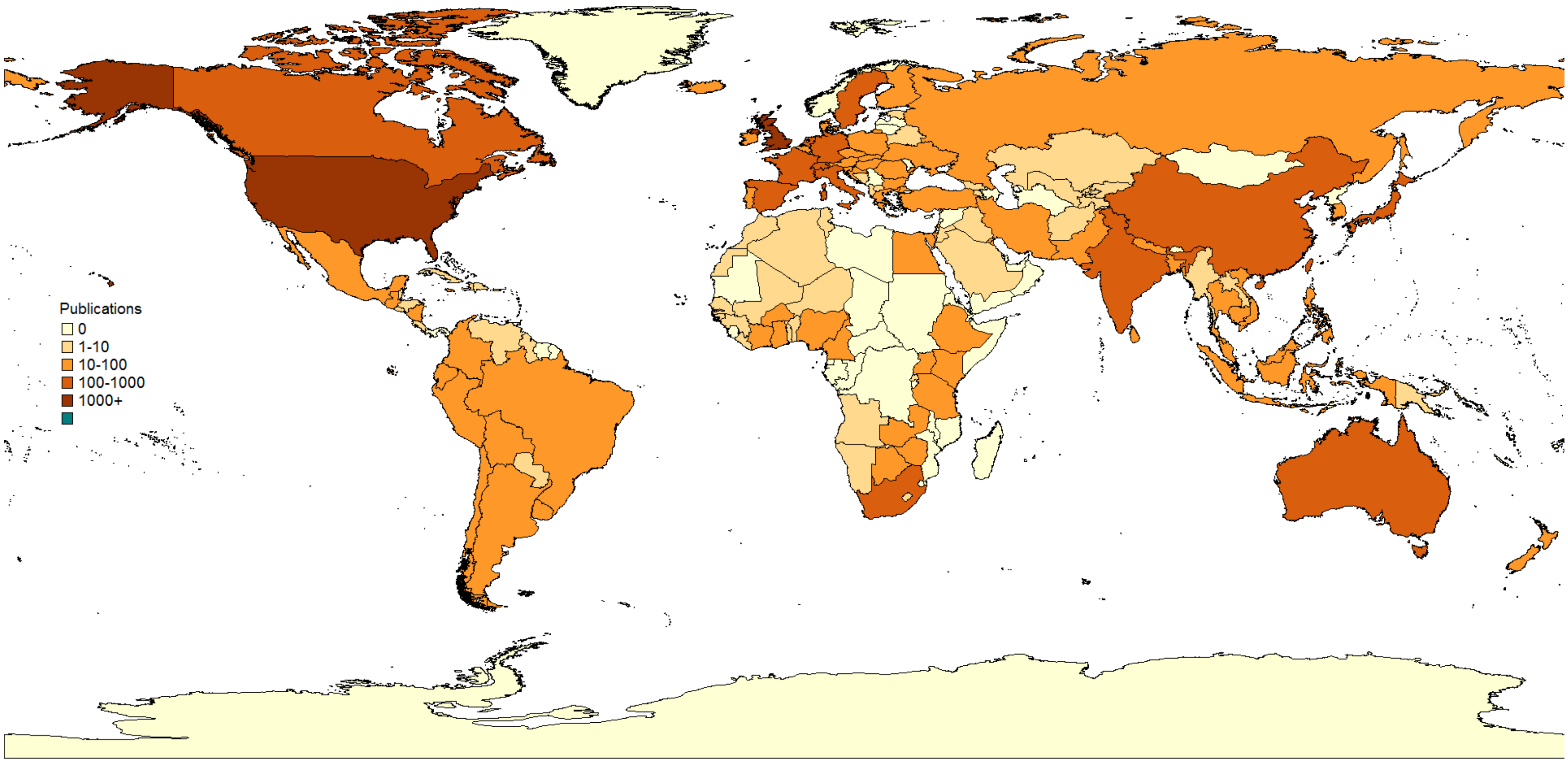
Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country. The size of the country's name reflects the frequency of its appearance in the author's country list.

Figure 7: Country focus of health economics articles 1969-89



Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country.

Figure 8: Country focus of health economics articles 1990-2009



Note: The starting point was our database of 33,000 publications in EconLit with a health JEL code. Each listed institution was given full credit for a publication in the case of a co-authored publication, but only the first institution was credited where an author listed multiple institutions. Institutional affiliations below the institution level were aggregated up to the level of the institution, so that for example publications originating from the Harvard School of Public Health were allocated to Harvard University along with publications originating from the Department of Economics at Harvard University. As explained in the text, only addresses with five or more articles to their name were retained for cleaning and aggregating. Institutions were then assigned a country.

Appendix: Topic classification scheme

1. Health and its value

Attributes of health; measurement of health; value of health; value of life; value of avoiding risk of ill-health; utility measures of health-related quality of life; stated and revealed preference methods of measuring willingness to pay; conjoint analysis.

2. Efficiency and equity

Welfare, efficiency, equity and possible conflicts; inequality and the socio-economic ‘gradient’; evaluating efficiency at system level: international comparisons in the developed world; techniques for measuring equity and inequity; evaluating equity at system level: equity in financing arrangements; evaluating equity at system level: equity in service access and delivery; evaluating equity at system level: equity in the distribution of health; institutional arrangements for efficiency and equity; implications for health care financing and delivery systems in the developed world; centralization and decentralization in health care; the role and regulation of markets in developed countries.

3. Determinants of health and ill-health

The population health perspective; income and wealth; early determinants of lifetime health (genetics, parenting, schooling, peer effects); aging; occupational and workplace health and safety; addiction: tobacco, alcohol, drugs; the environment: air/water pollution, carcigens, other chemicals, allergens, radiation, etc; economic and social inequality as a determinant of ill-health; epidemics: AIDS, obesity, malaria; prevention, primary and secondary; chronic diseases; infectious diseases; social capital, cultural factors.

4. Public health

Public health technologies; public goods and public health; policies towards health and safety at work; health education; financing public health; public health and public behavior; interplay between public health and health care services; interplay between public health and other sectors; economics of public health policy.

5. Health and the economy

Global expenditure patterns and their determinants; public expenditure and health care; health in macro models; health and the trade cycle; health and labor force productivity; health and growth; health and economic development; health and employment/unemployment; health and social security; health, savings and investment; health and foreign trade; health and innovation/entrepreneurship.

6. Health statistics and econometrics

Administrative data and data linkage; collecting health data for econometric analysis; categorical data methods; count data; duration analysis; econometric evaluation by non-experimental methods; econometric evaluation with randomized experiments; econometrics in technology assessment; macro panels; models of health care costs; models for risk adjustment; panel data methods; productivity analysis; simulation methods and mixture models; spatial econometrics.

7. Demand for health and health care

Demand and need; utility and demand; demand for health as human capital; derived demand for health care; income and price elasticities; information asymmetries and agency relationships; externalities and publicness; supplier-induced demand.

8. Medical insurance

Demand for insurance (including long-term care, supplementary insurance); supply of insurance services; moral hazard, its control and trade-offs with risk-pooling; adverse selection and cream skimming; tax-financed health care systems; tax policy, exemptions, personal subsidies and health care financing; private and public systems of health insurance; welfare effects of ‘excess’ insurance and the trade-off with internalizing externalities; insurance effects on health care providers; issues in coverage: services covered, individual eligibility.

9. Supply of health services

Monopoly and competition in health care supply; models of health care institutions (hospitals, nursing homes; for-profit, non-profit); care in the community: long term care, informal care; ambulance services; managed care; health care production functions; cost functions; economies of scale and scope; quality of care; regulation and price controls; the pharmaceutical and medical equipment industries.

10. Human resources

Models of professional behavior(s); doctors; nurses; other health professionals; health care managers; professional labor markets; training, continuing training and human capital; licensing; remuneration – fee for service, salary, capitation; doctors as entrepreneurs and employers; professionals and research; forecasting demand and supply.

11. Markets in health care

Information and markets; market failure; internal markets; rationing; waiting; discrimination; public goods and externalities; regulation (entry/exit); price controls; institutional subsidies; welfare economics and system evaluation; comparative systems.

12. Economic evaluation

Principles of Cost-Benefit Analysis, Cost-Utility Analysis, CEA, Cost-Consequences Analysis and Cost Analysis; techniques of CBA in health and health care; techniques of CUA and CEA in health and health care; techniques of CCA and CA in health and health care; decision theoretical approaches; pharmacoeconomics; economic evaluation of clinical devices; economic evaluation of public health interventions; outcome measures and their interpretation; evidence, efficacy and effectiveness; Health Technology Assessment; study design; risk and uncertainty; discounting; sensitivity analyses; modeling; systematic reviews and meta-analyses.

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