Four decades of health economics through a bibliometric lens

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A B S T R A C T

In this paper, we take a bibliometric tour of the last forty years of health economics using bibliographic “metadata” from EconLit supplemented by citation data from Google Scholar and our own topical classifications. We report the growth of health economics (we find 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. We 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). We also compare authors, countries, institutions and journals in 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).

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1. 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) characterizedly 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% 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 illuminating1 and the keywords in the EconLit metadata are freely chosen by authors and unsurprisingly are highly

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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.

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2. 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, 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. Fig. 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° 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 Fig. 1 have the same h-index even though A’s first few articles are cited far more often. In Fig. 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 influence than the latter. Where citation curves intersect, Ravallion and Wagstaff impose the assumption of concavity— Influence increases in citations but at

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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).
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