



**Handbook of Bibliometric Indicators**

Quantitative Tools for Studying and Evaluating Research

By Roberto Todeschini and Alberto Baccini. Wiley-VCH, Weinheim 2016. 484 pp., hardcover, € 69.00.— ISBN 978-3527337040

## Handbook of Bibliometric Indicators

This handbook deals with the field of “bibliometry”, a field that has been of interest for quite some time and not only for the specialists in this field. The handbook claims to be the first systematic guide to the growing jungle of citation indices and many other bibliometric indicators. Indeed many old and new parameters are out in the field of bibliometry and more of them appear to be generated continuously.

Measuring scientific quality in a quantifiable way (“evaluation bibliometrics”) has been the wish or perhaps the dream of many (university) administrators for the last decades. And even members of research panels are sometimes required to use such parameters in the evaluation of research proposals. Despite international counter actions, such as the San Francisco Declaration on Research Assessment (DORA) from 2012–2015 (<http://www.ascb.org/files/SFDeclarationFINAL.pdf?69d413>, meanwhile signed by over 600 organisations and over 12000 scientists) and a similar IEEE report from 2013 (<https://www.ieee.org/index.html>), research councils do still and often require grant applicants to provide some of these parameters, such as their current h index, themselves. The so-called Leiden Manifesto (D. Hicks, P. Wouters, L. Waltman, S. de Rijcke, I. Rafols, *Nature*, **2015**, 520, 429) has made constructive and moderating comments on how to use such parameters in an appropriate way. But the critics remain.

Very recent papers in *Nature* have addressed this issue from two perspectives, namely a warning to watch out for cheats in citations (M. Biagoli, *Nature*, **2016**, 535, 201), and a commentary addressing the observation that the publishing elite is trying to stop the inappropriate use of impact factors (E. Callaway, *Nature*, **2016**, 535, 210–211). The American Society of Microbiology even announced they will remove the Journal Impact Factor (JIF) from their journals and their websites (<http://mbio.asm.org/content/7/4/e01150-16.full>). However, it appears that at least for some time the use of bibliometric quality indicators will remain and so will literature about its use; therefore this handbook will still have a use for (new) researchers in this field and it will be valid for quite some time.

This handbook tries to provide advice for a route in this jungle of bibliometric and quality parameters, by explaining the several parameters in (mathematic) detail and in-depth. In fact this encyclopedic format immediately introduces a problem, as one would normally not start reading such a book easily. One would therefore better use it as an encyclopedic reference work.

The authors claim to provide a “complete and unbiased overview” of all available statistical measures and parameters used in evaluating scientific productivity. They have chosen to use an alphabetic dictionary of currently used indices and other algorithms in bibliometrics. In about 150 major items, the authors describe these parameters and indices in only descriptive and mathematical terms, and they carefully avoid discussing their relative merits, or their (dis)advantages. The handbook starts with a two-page User’s Guide, which explains the three types of entries: 1) regular entries; 2) referenced entries; and 3) (many) synonyms. After a very clear and informative five-page introduction, the encyclopedic part starts and runs from A to Z in just over 400 pages. In addition to the above-mentioned “evaluative bibliometrics”, also “positive” and “normative bibliometrics”, dealing with research trends and with research policy, respectively, are introduced. A long alphabetic bibliography with some 1900 references completes the book.

Some of the items listed are perhaps of less interest for the non-experts, like the DCI index, or the J index. Other terms are quite well known, like the h index, journal impact factors (IF, or JIF) and Google Scholar. But also the many variations of the h index are explained. Other very useful items include those that one will rarely find explained in detail and compared with related parameters. This is e.g. the case for the popular “newspaper” topic: “University rankings”. The authors present some 7 worldwide used rankings and compare them, including the very well-known (and oldest) Shanghai Ranking (ARWU, used since 2003), the Times Higher Education (THE, used since 2004), the Leiden Ranking (used since 2008), as well as other more recently introduced university rankings. The input parameters for all these rankings are presented and explained in enough details.

The authors state they cover all indicators currently in use in the sciences and humanities and—indeed—I was unable to find any missing current parameter. The book is perhaps of most interest for individual researchers, be it in bibliometrics, or in other fields. Research funders, administrators and publishing houses, however, may also find it a useful source of information, perhaps helping them also to realize that the quality of science is hard or perhaps impossible to measure accurately using numbers only.

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International Edition: DOI: 10.1002/anie.201608447

German Edition: DOI: 10.1002/ange.201608447