General Information about Bibliometric Profiles

(Individual Bibliometric Assessment Version)

By the Department for Bibliometrics and Publication Strategies @ University of Vienna
Contact: bibliometrie@univie.ac.at
Last update: 15th July, 2020

Introduction

The generated bibliometric profiles are custom-tailored for each professor according to individually relevant aspects and to the accepted publication culture in the according discipline. They provide a quantitative analysis[1] of the researcher's publication output in the report period, which consists of an evaluation and a reference period (e.g., five years before and after professorial appointment), and are based on publications indexed in renowned international data sources, primarily the Web of Science Core Collection Citation Indexes (WoS-CC). Due to the fact that not all disciplines are equally well covered in WoS-CC, alternative data sources such as Scopus or relevant subject specific databases (e.g., Chemical Abstracts, Mathematical Reviews) are also used for complementary analyses. Google Scholar (GS)[2] is additionally considered as a source because of its high coverage concerning specific publication types (e.g., monographs, book chapters, reports), which are especially relevant in the social sciences and the humanities. GS data are either retrieved from a candidate's curated GS profile (preferable option) or by an author search via 'Publish or Perish'[3].

The bibliometric profiles comprises three main parts:

1. **Activity analysis** according to the number of publications in the data sources,
2. **Visibility analysis** according to WoS-indexed journals used as publication channels by the scientist with consideration of the assigned Journal **Impact Factor**[4] (IF), if available, and
3. **Impact analysis** according to citations attracted by each publication in WoS-CC and the other selected data sources as well as and normalized citation indicators calculated via the analytical tool InCites from Clarivate Analytics.

All underlying data for the bibliometric profiles is available on request.

1. Activity: publication output

First, in order to put the bibliometric analysis in context of the overall publication output by the researcher, a **coverage analysis** is performed, i.e., the full publication list is either retrieved from u:cris[5] for internal academic staff or provided by external candidates (preferably via ORCID records). These data are then compared to the publications indexed in WoS-CC and in any other considered data sources. Since the bibliometric profiles report on the researcher's publication output, but are entirely based on data from sources that usually do not contain all publications, it is crucial to know to what extent publications are actually indexed.

---

[1] Note that citations are only used as a proxy for the impact (and not for the quality) of the publications.
[2] Analyses in GS should be taken with a pinch of salt. GS is rather a search engine than a database, and therefore indexing remains non-transparent and documentation is lacking.
[3] 'Publish or Perish' is a software programme that retrieves and analyses academic citations. It uses GS to obtain the raw citations (see also: https://harzing.com/resources/publish-or-perish)
[4] Retrieved from the most recent edition of Journal Citation Reports available when the report is compiled.
[5] u:cris is the official current research information system of the University of Vienna (see also: https://ucris.univie.ac.at).

Second, the **annual number of publications** from the report period included in the data sources is given considering citable items and all document types, respectively. Citable items are journal articles, reviews, proceedings papers and book chapters (if also considered as journal articles or reviews in the data sources). The main objective is giving an overview of the researcher's productivity and thereby identifying peculiarities, e.g., increase or decrease of productivity, or strong fluctuations in the annual number of publications, or occurrence of particular document types.

Third, **affiliation information** in WoS-CC is also checked **for correctness**, because only correct affiliations can enhance individual as well as institutional visibility and result in a more favourable positioning in university rankings (most of them relying on data from WoS-CC or Scopus).

2. Visibility: publication channels

This part sheds light on the researcher's **publication strategies** and addresses major questions such as: Which journals are used as preferred publication channels? How are these journals ranked according to the IF in the corresponding WoS Categories?

It should be stressed that a visibility analysis is by no means useful for the assessment of scientific quality or impact of individual publications. It is rather intended to assess the reputation or impact of the journals, in which original research was published. The analysis is usually performed for citable items only.

First, an overview of the publication channels indexed in WoS-CC is given, focusing on the top journals (and series if applicable) by the number of publications.

Second, the distribution of publications according to the **IF quartiles** assigned to the corresponding source titles[6] is given for the whole report period as well as for the evaluation and the reference period. The IF quartiles (Q1 = top 25%, Q2 = top 25-50%, etc.) are calculated for each WoS Category separately. Therefore, journals might be assigned to several IF quartiles if they are included in several WoS Categories. In this case the most favourable IF quartile is used. Also note that IFs of journals are not set in stone but subject to change. Over the years, there can be fluent transitions between IF quartiles. It is important to bear this in mind for the interpretation of all visibility analyses.

Note that visibility is considered to be higher with an increasing number of publications in the top quartiles (Q1 and Q2).

3. Impact: citation analyses

The citation analyses provide an assessment of the impact (number of citations) at publication level[7]. First, a citation analysis in the selected data sources is performed for citable items only as well as for all document types. It includes the following basic **absolute citation indicators**: total number of cited publications, total number of citations, mean and maximum of citations per publication, h-index[8] and

[6] For each publication, the source title's IF and the IF quartile is taken from the JCR edition of the corresponding publication year. If the publication year's JCR edition is not yet available, the most recent edition is used. Note that an IF can only be assigned to publications in journals that are included in JCR. Therefore, publications in conference proceedings and book series cannot be considered in the analysis of IF quartiles.

[7] It needs to be stressed that citations are only used as a proxy for the impact (and not for the quality) of the publications in the 'publish or perish' community, i.e., the scientists who are committed to publishing their results.

[8] The definition of the h-index is that a scholar with an index of N has published N papers each of which has been cited at least N times.

iX[9] (usually i10 and i50). The calculation of the h-index and iX is exclusively based on the years of the report period. The citation window is always specified in the bibliometric profile (the citation window starts with the publication date of the first paper in the report period and ends with the day of data retrieval).

Second, **normalized citation indicators** including percentiles data are retrieved from the analytical tool InCites for citable items indexed in WoS-CC. The data are often based on a slightly smaller set of publications compared to WoS-CC due to an indexing delay in InCites. The consideration of normalized citation indicators is particularly important to accommodate the publications' diverse citation windows ranging from a few months up to several years. Citations normalized by publication year, research field and publication type provide benchmarks for the researcher's impact. However, the results for the evaluation period should still be interpreted with a great deal of caution[10] .

Normalized citation indicators are the '**Category Normalized Citation Impact**' (CNCI) and the total number and percentage of publications within selected percentile ranges, especially **publications in the Top 1% and Top 10% most cited** publications of the corresponding WoS Category and in the same publication year (percentile scores).

The **CNCI** provides the citation impact (citations per paper) normalized for subject, year and document type. A publication with a CNCI value of 1.20 is 20% over the world expected citation rate in the corresponding WoS Category and in the same publication year, and a publication with a value of 0.80 is 20% below the world expected citation rate. For a collection of publications, the mean value of all CNCI is calculated and it is also named 'Crown Indicator'.

Percentile scores are calculated according to the baselines published in InCites for the corresponding WoS Categories. The percentiles represent the citation count threshold for different percentile cuts for each field and year. E.g., the 10th percentile represents the number of the top 10% most cited papers in the corresponding WoS Category and for the current publication year. Top 10% is usually considered as a measure of 'excellence'.

Further analyses

Following additional analyses are performed (usually for citable items only):

A) **Documents citing the researcher's publications** indexed in WoS-CC according to several criteria (e.g., countries, institutions, source titles) in order to demonstrate the wider impact of the researcher's publications.

B) **Co-publication analysis** at different levels including countries, institutions and authors, which provides information about following measures and their progress in time. The **co-publication analysis** can comprise the following parts (extent of analysis dependent on individual suitability):

- the average number and median of co-authors
- the number and percentage of single-authored publications

[9] Number of publications with at least X citations.

[10] This is especially true for percentages when the number of publications is considerably smaller than 100.

- the author's publication role (number and percentage of publications where the researcher is first, last and/or corresponding author)[11]. Potential 'co-author dependence' (i.e., percentage of publications with the same co-author) is always pointed out, especially when it exceeds 75%.
- Moreover, the percentage of publications assigned to 'International Collaboration' in WoS-CC for the periods before and after the professorial appointment is given, as well as the most collaborative countries and institutions according to the number of shared publications.

C) The **reference analysis** in WoS-CC focuses on the top most-cited source titles and their IF quartiles as well as the age (publication year) of the cited references. The given '**Aggregate Citing Half-Life**'(s) based on JCR data from InCites of the primary WoS Category(s) shows how far back articles in this category are citing. The researcher's citations are state-of-the-art if half of the cited source titles were published within the last Y years with Y being the corresponding Aggregate Citing Half-Life. The reference analysis should be compared with the results of the visibility analysis, e.g., regarding the researcher's own focus on publishing in journals within the IF quartiles Q1 and Q2.

[11] The succession of authors is mostly determined by the degree of contribution, but can also be alphabetical in some fields (different publication habits). This information is usually obtained from the researcher under evaluation during the initial interview and verified by the bibliometric analysis.