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Bibliometric uncertainty: data quality, reliability, and validity

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Defense Propositions

For the Universiteit Leiden PhD thesis “Bibliometric uncertainty: Data quality, reliability, and validity” by Paul Donner

Propositions on subject of dissertation

1. Although metadata errors of the category of *document type* occur relatively infrequently, their impact on publication and citation analysis is often underestimated (chapter 2).
2. By using *month-precision citation counting windows* rather than conventional year-precision windows the validity of citation indicators is improved, regardless of the concept for which they are invoked as a proxy (chapter 3).
3. The data quality of the on-board institution disambiguation systems of Web of Science and Scopus and their coverage remain insufficient for reliable scientometric research and applications in research policy and evaluation (chapter 4).
4. The uncertainty of bibliometric indicator values that is attributable to data quality should generally accompany indicator values in the form of numerical ranges in text and error bars in figures in bibliometric research and evaluation reports (chapter 5).

Propositions relating to the field

1. The growing availability of open bibliographic data creates new opportunities to increase the trustworthiness and credibility of metrics-based research assessment.
2. Besides open data, clear communication of the measurement reliability and measurement validity of methods used in metrics-based assessment should become core elements of open and transparent scientometric methodology.
3. Some advocates for research assessment reform may overestimate how much a shift from metrics to peer review in individual assessment can remedy ongoing escalation of research integrity breaches.
4. Systematic robustness analysis applied in bibliometric research and reporting is a very promising pathway to identify and ameliorate volatility from minor methodological variation and data quality problems.

Propositions on subjects of choice

1. Science cannot make do without the assessment of the work of researchers for career decision-making. In such contexts, bibliometrics should not be used as a substitute or shortcut for qualitative expert assessment of research outputs.