Overview

1. The citation debate: 'Quality'
   - The classic debate: Do citations indicate quality of research?
   - My perspective: The 'performative perspective' on citations

2. Bibliometric aspects of resource allocation models in the higher education system in Sweden

3. What impact does bibliometric measures have?
   - At three levels: National, within academia and individual levels

Focus on the citation, but it is argued that other measures (e.g. Journal Impact Factor, H-index) are implied.

Merton’s norm system of science

- Communalism
- Universalism
- Disinterestedness
- Originality
- Scepticism

Garfield, E. 1955. Citation Indexes for Science: A New Dimension in Documentation through Association of Ideas. Science 122 (319) 108-111

CUDOS vs. PLACE

- Communalism → Proprietary
- Universalism → Local
- Disinterestedness → Authoritarian
- Originality → Commissioned
- Scepticism → Expert

Key arguments for using citations for evaluation

Classic debate:
- Citations as influence vs.
- Citations as indicator of rhetoric/persuasion

Citer motivations:
- Negative citations
  - Perfunctory (slentrianmässig)
  - Redundant
- But of course also
  - Conceptual/operational
  - Evolutionary or
  - Confirmational
  (from a classification by Moravcsik and Murugusan, 1975)

The citation as an indicator of quality

- Eugene Garfield (1963):
  - "One purpose of this communication is to record my forewarning concerning the possible promiscuous and careless use of quantitative citation data for sociological evaluations, including personnel and fellowship selection"
  - "Impact is not the same as importance or significance"

- At the same time, he also argued SCI to be used to evaluate Journal performance
  - Journal Impact Factor (JIF)

Kessler and F. E. Heart

- The warning reads: "CAUTION! Any attempt to equate high frequency of citation with worth or excellence will end in disaster; nor can we say that low frequency of citation indicates lack of worth."


Kessler, M.M., and F. E. Heart (1963) 'Concerning the probability that a given paper will be cited', Report (Massachusetts Institute of Technology, Cambridge)
Argument for the use of citation analysis as a quality indicator:

“The observation that citations indicate use, and therefore usefulness as well as impact, is the basic argument for using them as an indicator of quality.”


Citations as performativity - “being cited”

 Traditionally:
  — Citations as reward; (passive)
  — Citation Index as representation of publication patterns

 My proposal: Performativity of “being cited”
  — What research work do citations do?
  — Citations as construction and epistemological networking
  — The citation viewed as an outcome of active achievement or “performance”
  — Reflexive, active actors

 Citation index as a performative arena
  — for publishers, authors, citers, publications and articles; indeed the whole “citation culture”
  — Authors actively position themselves by choosing journal/field to publish in & research problems to publish on
  — Making themselves “cite-able”

Resource allocation models in Sweden

Torn between qualitatively different systems of research impact measures
Present performance based funding model (2008)

Performance based share (10%)

i. External funding (5%)

ii. Publication performance (5%) as normalized data for publication & citation rates

Comparable:
- Four year moving average
- Author fractionalization
- Normalization:
  - Publications: Waring Distributions
  - Citations: Field Normalized Citation Level
- Additional Weighting

Normalization of data

- Publications: Waring Distributions
- Citations: Field Normalized Citation Level

“By multiplying the production number with the field normalized citation level, a number is given that includes both field aligned production quantity and the relative level of quality.”


Motives for weighting

- “We have made some runs when it comes to what effects different variants of the allocation system would give. /…/ I can only say that a big problem for me was that this system—pure and naked—would turn out negative for the humanities and social sciences. We introduced this doubling factor ‘to make sure to have a cupped, a protective hand, especially for the humanities.’
- We’ll see how it goes.
Our assessment is that this multiplier 2 is sufficient to protect the humanities. I cannot guarantee that it is so. Of course, we will follow up on it. But I think it will turn out positive.
- (Applause).”


Weighting

The Ministry of education and research introduced an additional (arbitrary) weighting factor:

<table>
<thead>
<tr>
<th>Subject area</th>
<th>Weighting factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine and engineering</td>
<td>1.0</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>1.5</td>
</tr>
<tr>
<td>Humanities and social sciences</td>
<td>2.0</td>
</tr>
<tr>
<td>“Other” areas</td>
<td>1.1</td>
</tr>
</tbody>
</table>

(Prop. 2008/09:50 2008, 57)
Criticism against Swedish model

Criticism from the Swedish Research Council (VR)
1. The bibliometric model not robust enough
2. The problem of humanities and social sciences

Does the model represent humanities and social science (HSS) realistically?
- Publication data available (although at low level)
- Citation data not comparable (in practice)
  - Solution: citations don’t count for humanities (normalized to ‘1.0’)

- Additionally: The Government arbitrarily introduced a weighting factor awarding double score for each HSS article

The ‘problem of the humanities’

Citing practices differ and are not comparable
- between different disciplines, e.g. natural sciences, social sciences & humanities

There is order of magnitude
- handled by weighting (normalization, fractionalization…)

But could these be compensated for?
- By quantitative measures?
- or qualitative measures?

The ‘Flodström Inquiry’

Was proposed to be introduced 2014
Dismisses qualitative “peer review” evaluations

Introduced a performance-based model for distribution
1. Scientific publishing impact of published research (50 %)
2. External funding (35 %)
3. Public engagement (15 %)

Bibliometric model: national data base for publication.
- Points based on “impact factors” (JIF & “negotiated”)
- Reminiscent of the “Norwegian” model:
  * publication channel
  * level of the channel

’Norwegian system’

<table>
<thead>
<tr>
<th>Publication channel</th>
<th>Level 1 (80%)</th>
<th>Level 2 (20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monograph</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Article in journal or serial publication</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Article in edited work</td>
<td>0,7</td>
<td>1</td>
</tr>
</tbody>
</table>

Arguably
- ‘Secondary peer review’
- ‘Impact factor’ based system
Research and innovation bill 2013-2016
‘Research and innovation’ (Prop. 2012/13:30)

Key points:
• Performance based share doubled (20 %)
• ‘Peer review’ instead of bibliometrics?
  – Cf. the British RAE/REF system or
    Universitetskanslersämbetets ”kvalitetsutvärderingsystem för högre utbildning”
• But, implemented "not before 2018"
• Meaning:
  – two general elections (2014, 2018)
  – one innovation bill (expected in 2016)
  • …will pass before the new model is implemented.

Bibliometric "issues" by stakeholders 2013

Proposed alternatives:
1. Qualitative peer review model (VR)
2. Impact factor instead of citation based metrics
   — Consequences for Humanities and Social Science
3. Field normalization of impact factor measures
4. Combining citation & impact-factor based models
   1. "combining the citation data of the WoS with SwePub data with negotiated weighting factors" (KB)
   2. Proposed multiplex model (Lund University)
5. Open access 0.2 bonus for “freely available research” (KB)

Transparency vs. Obfuscation?

Renegotiated shares of Gov’t performance based funding (2014)

Universities
University Colleges

University of Borås in the Resource allocation model in Sweden
HB publications 2009-2012

HB: total of 146.6 author fractioned publications
c.f. GU: 3915; Skövde (H), 140; Karlstad (U): 308.7

University of Gothenburg: 3915.6, 1.19, 4359.2, 10.27%
University of Borås: 146.4, 0.71, 96.0, 0.23%

Part 4: Performance based allocation models on three levels

Torn between qualitatively different systems of research impact measures

At the departmental level

- National level:
  - Field normalized publication and citation measures
- Within universities
  - Norwegian "impact factor" model based on secondary peer review
- Individual level
  - H-Index

- A large number of universities within higher education sector have adopted a system based on the 'Norwegian model'
- Allocation and re-allocation:
  - at the faculty level
  - department level
  - (individual level)
Comparison Sw/No model

**Swedish model**
- Transparency:
  - Variables in the calculated model are relative
- Selection:
  - Only published material that is indexed in WoS ISI
- Measure of quality:
  - Citation measures, field normalized
- Source of data:
  - Already available data [WoS ISI]

**Norwegian model**
- Transparency:
  - Pre-determined 'point system'
- Selection:
  - More research channels (monographs, conf. proc., journal articles)
- Measure of quality:
  - "Secondary peer review"
- Sources of data:
  - An authorization index must be created (Cristin, NSB) and publication lists must be updated.

Individual level

**H-index**
- Introduced as "an index to quantify an individual's scientific research output" (Hinch, 2005)
- Measure of individual performance
- Calculated as the break point value for an individual's publications where No. of published papers meets frequency of citations

What are the results

- 'curriculum vitae AND h-index'
- 'Gaming the system' techniques:
  - Self (colleague) citation
  - Editor coercion
  - Citation cartels

Research policy advice:
Division of Analysis and Evaluation, GU
In response to university rankings:
- "Another way of advancing on the list would be to appoint highly cited researchers, since they ‘bring with them’ their earlier citations…" [2012, my literal translation]

Conclusion

- Bibliometrics in research evaluation:
  - Quantitative or
  - Qualitative solutions?
  - Prevalent both in 'citation' & 'impact factor' based models.
- "Field normalization" and other bibliometric techniques solve quantitative aspects, but what about qualitative differences in citation practices?
- Policy focus on question of individual performativity
  - E.g. "being cited" – how well researchers make themselves cite-able in citation based metrics
Workshop: Bibliometric assessment and mapping of research

Is it possible to measure research quality with quantitative methods and, if so, which aspects are valued? Publication and citation counts are currently used to evaluate research on national, institutional and individual levels. Measures such as impact factor of journals or the h-index of individual scholars, are regularly used for assessing research. Thus, being visible in bibliometric terms has in itself become an important addition to intra-scientific achievements as such performance is linked to resource allocation and financial incentives. The workshop provides an introduction to bibliometric measures and their use in evaluating research. The participants will also gain an understanding in using bibliometric tools to survey and map published research based on data from bibliometric databases such as Web of Science or Google Scholar.

Literature

- Wouters, P. 1999. The Citation Culture. Diss. Faculteit der Scheikunde, Universiteit van Amsterdam.


Thank you!

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