The heterogeneous landscape of bibliometric indicators

EVALUATING MODELS FOR ALLOCATING RESOURCES AT SWEDISH UNIVERSITIES

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Aim

1. to map and describe the various models and indicators that currently are applied across Swedish universities

2. to systematically evaluate allocation models used by universities in Sweden
Background

- Increasing use of bibliometric indicators for assessing ‘research quality’ in academia
- Few overviews and studies on the use of bibliometrics at the institutional level
- Need for a ‘evaluation of evaluation’ (Dahler-Larsen, 2012)
- Call for guidelines, standards, ethics (Glänzel & Wouters, 2013, Gingras 2014, Furner 2014)
- Debate regarding different models for bibliometric evaluation in Swedish academia (e.g. Swedish and Norwegian) (Nelhans, 2013)
- The effects of evaluation models on research practices (Henriksen & Schneider, 2014, Hammarfelt & De Rijcke, to appear)
Present performance based funding model (2008/2012)

Basic funding (80 %)

Performance based share (20 %)
1. External funding (50 %)
2. Publication performance (50 %) as normalized data for publication & citation rates

Main features
- Four year moving average
- Author fractionalization
- Normalization:
  - Publications: Waring Distributions
  - Citations: Field Normalized Citation Level
- Additional Weighting
  - Medicine + Technology: 1.0; Science: 1.5; Social Sci + Humanities 2.0; Other: 1.1

Evaluation systems

- Permanent
- Routinized
- Extended across time and space

Three criteria

1. Legitimacy and appropriateness
2. Organizational and methodological soundness and stability
3. Degree of transparency and learning
(1) Legitimacy and appropriateness

- Is an integrated evaluation system appropriate to assess the activity?
- Do the evaluation system reinforce ‘micro-accountability’?
- How are people under the evaluation system likely to behave if they take the criteria seriously? “Thus, if activity is good, evaluation criteria will be met” and vice versa.

(Dahler-Larsen, 2012)
Organizational and methodological soundness

- How reliable is the ‘techno-structure’?
- How is the evaluation system anchored in the organizational structure?
- Is the evaluation system able to provide reliable and trustworthy information? Capacity to protect, analyse and report?
- How mandatory is the system?

(Dahler-Larsen, 2012)
(3) Degree of transparency and learning

- Are the costs well-described?
- Has the evaluation system been piloted? Evaluated in practice?
- Have alternatives to evaluation systems been considered – why is evaluation deemed as the most productive way to better quality?
- Does the evaluation system incorporate learning and responsiveness?

(Dahler-Larsen, 2012)
Swedish Academia

47 HEIs

27 awarding third cycle degrees (doctorates)
Preliminary findings - overview

- All universities – with the exception of Chalmers and Stockholm School of Economics - use bibliometric measures to some extent for resource allocation at one or several levels
- The types of measures and models used differs considerably, but models counting publication are more common than citation based models
- The largest and most diversified universities often use a range of measurements depending on faculty
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<tr>
<th>Publication based (10)</th>
<th>Citation based (2)</th>
<th>Combination of C &amp; P (11)</th>
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Indicators & measures

- Raw publication counts
- Field normalized citation scores
- JIF
- Publication points – normalized in relation to field
- Percentile in subject area
- Norwegian system (modified)
- Swedish system (mechanistic model)
- Publications in WoS
- Swedish system (modified)
Preliminary findings - evaluation

Legitimacy and appropriateness

- Activities reduced to a few quantifiable factors: publishing, external grants etc.
- Micro-accountability is reinforced but to various degrees depending on the level where evaluation takes place
- Behavior according to the system might, especially in less intricate models, divert from what is commonly perceive as quality research in many fields
Preliminary findings - evaluation

Organizational and methodological soundness

- Institutional repositories not reliable enough (e.g. peer review)
- Dependence on WoS data, External consulting
- Often not mandatory for all fields
- Location of bibliometric function
Preliminary findings - evaluation

Degree of transparency and learning

- Cost of systems seldom mentioned
- Rarely piloted or evaluated (see Umeå University)
- Alternatives not discussed in our material (so far)
- Systems not used for learning, little feedback to researchers
- Proper documentation on construction and implementation often inaccessible or missing
Summary

- Almost all universities use bibliometrics at some level
- Models for allocating resources are very diverse
- Most universities use a mixed model, but there are examples of systems using publications and citations only
- Variants of the Norwegian model are popular
- Evaluation takes place on all levels, but faculty and departmental levels are the most common
Discussion and outlook

- Risk for micro-accountability
- Behavior according to the model might not always be ideal
- Materials and methods used can be questioned (def. of peer review, JIF, normalization)
- Little feedback and transparency
- Is Sweden unique? Few studies on the use of bibliometrics on the university level.
- Why so many different models?


