

Funding Programs for Young Scientists – Who applies, and who does not?

A bibliometric comparison of factual and potential applicants to the
Emmy Noether Program (German Research Foundation, DFG)

Session:

Evaluation of research policies and programs

Jörg Neufeld

Phone: +49-228-97273-22

Phone alt.: +49-208-62574-55

Fax: +49-228-97273-49

neufeld@forschungsinfo.de

Institute for Research Information
and Quality Assurance
Godesberger Allee 90
D-53175 Bonn

Research subject and hypothesis

Providers of funding programs for young scientists intend to design their programs for fitting both certain science policy demands and the special needs of talented young scientist. In this regard funding organizations usually know their applicants or at least make efforts in getting to know them in terms of *past performance* (publications, awards, etc.) and competences relevant for a career in research. On the level of individual applications this knowledge is part of the information funding decisions are based on. Beyond that, it should be taken for granted that funding organizations aggregate this data in order to get an impression of how far the group of applicants corresponds to the intended target group and the announced funding criteria respectively.

Furthermore, in evaluation studies of application based funding programs normally the question is raised if the "best" applicants (in terms of past publication performance) are selected for funding (e.g. Bornmann, Wallon and Ledin 2008, Hornbostel et al. 2009, Bornmann, Leydesdorff and van den Besselaar 2010). Hence, *factual* applicants seem to be a 'well known' group.

Though, for a comprehensive appraisal of the applicants' group some details about the performance distribution in the group of *potential* applicants would be valuable.

We think that the *relative* performance of *factual* applicants (compared to the *potential*

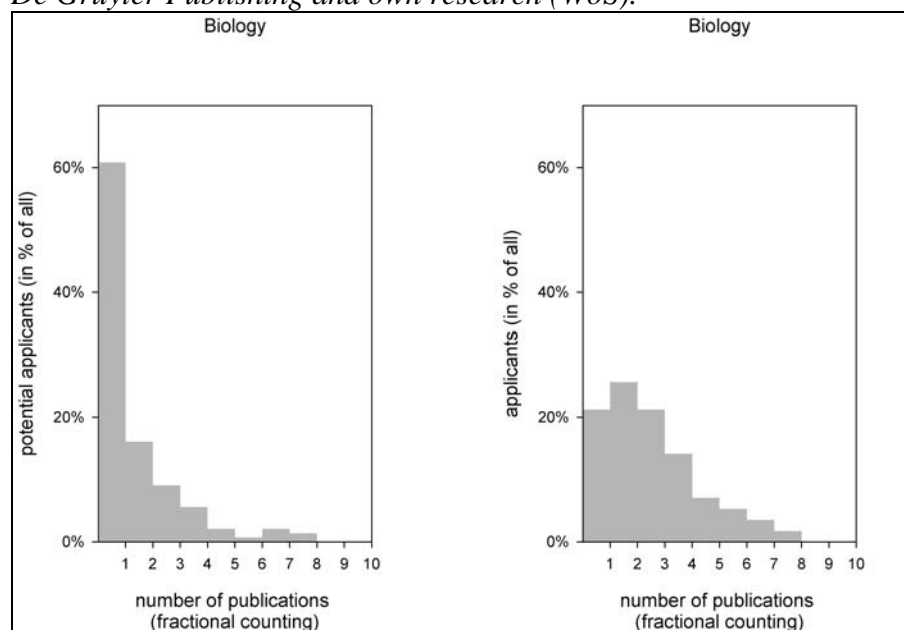
applicants' performance) is of funding organizations' interest when developing, rearranging and promoting their funding schemes. The 'new' question is: "Does the funding scheme attract the 'best' young scientists?"¹

In this paper we follow that question by bibliometrically investigating a sample of *potential* applicants and comparing them with *factual* applicants of the Emmy Noether Program (ENP) provided by the German Research Foundation (DFG)

Methods, existing and expected results

From our own recent research (Neufeld and von Ins 2011) we know that regarding *fractional publications* the group of *factual* applicants is characterized by a lack of “low performers” which can be ascribed to a negative acting ‘self selection’ effect (cf. Figure 1). In this study (conference paper) we want to expand the spectrum of bibliometric indicators to focus the question of *how publication performance* (output and impact) *is distributed in the group of potential applicants* in more detail.

Figure 1: Distribution of fractional publications: potential and actual ENP applicants – biology. De Gruyter Publishing and own research (WoS).



Source: Neufeld and von Ins 2011.

The Analysis is based on following data:

1. *Factual applicants*: The bibliometric analyses for the evaluation of the ENP involved the compilation of publication lists of 495 applicants (with funding decisions from 2000 to 2006) in the fields of medicine, physics, biology and chemistry. The compiled lists have been checked by the applicants for completeness and consistency. Only full articles have

¹ Provided that this is the defined target group.

been included and related citations (only from citing *articles*) have been researched in Web of Science (WoS, Thomson Reuters; ISI) in co-operation with the Institute for Science and Technology Studies (IWT), Bielefeld. For each publication a three years citation window (publication year plus two subsequent years) was chosen.

2. *Potential applicants*: The register "Kürschners Deutscher Gelehrten-Kalender" (De Gruyter 2009) contains data (affiliation, subject, CV-data, etc.) of nearly all active professors in Germany.² The included CV-data allows for building/drawing a sample of professors (n = 709) which corresponds to the cohort of the investigated *factual* applicants (obtaining their PhD during the interval 1992-2004). We researched publications from this group (appearing up to four years after obtaining their PhD).

Currently citations are researched and data are prepared for further output and impact analyses.

The ENP addresses "outstanding" young scientists with a "previous scientific track record [in form of] outstanding publications in high-ranking international specialist journals or comparable" (cf. DFG 2011). The results should show how far this group is reached by the program: For both groups the distributions of bibliometric output and impact factors (citations per publication, mean journal impact factor, share of cited publications, h-index, etc.) will be compared.

Besides conventional statistical testing, further measures/indicators will be discussed, which are intended to reflect the performance level of factual in relation to potential applicants of funding programs in general.

Selected references

Bornmann, Lutz, Loet Leydesdorff and Peter van den Besselaar 2010. A meta-evaluation of scientific research proposals: Different ways of comparing rejected to awarded applications. *Journal of Informetrics*, 4(3), July 2010, 211-220.

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DFG 2011: Emmy Noether Program: http://www.dfg.de/en/research_funding/program+mms/individual/emmy_noether/in_brief/index.html (28 Feb., 2011).

Hornbostel, S., S. Böhmer, B. Klingsporn, J. Neufeld and M. von Ins 2009. Funding of Young Scientist and Scientific Excellence. In: Special Issue of *Scientometrics* on the 11th International Conference of the International Society for Scientometrics and Informetrics (Madrid 2007). Vol. 79, No. 1, 171-190.

² Coverage varies between fields. Life sciences and natural sciences are covered nearly in total, whereas arts and humanities are less represented.

De Gruyter 2009. Kürschners Deutscher Gelehrten-Kalender, De Gruyter Publishing 2009.

Neufeld, Jörg and Markus von Ins 2011. Informed Peer Review and uninformed Bibliometrics? *Research Evaluation*, 20(1), March 2011, forthcoming.