

Financial Acknowledgements on the Web of Science: a New Resource for Bibliometric Analysis

Grant Lewison

g.lewison@ucl.ac.uk

Department of Information Studies, University College London, Gower Street, London WC1E 6BT, England

Introduction

Financial acknowledgements on research papers enable research sponsors to identify and then analyse their outputs (Dawson *et al.*, 1998), and the number of such acknowledgements is associated with measures of impact (Lewison, 2003). Until this year, their examination and recording involved much manual work in libraries, or online, and the sheer number of different sponsors – probably in excess of 30,000 world-wide – has made analysis difficult. Moreover, there are no established conventions on when authors should give such an acknowledgement, or whether it should be recorded for analysis, and the names of funding bodies are written in a wide variety of forms.

From 2009, however, the Web of Science (WoS) has started to record these acknowledgements, both as a list of names (FO) of funding organizations and as the full text of the acknowledgement paragraph (FT) including personal thanks (Cronin and Franks, 2008). Both fields are searchable as if they were paper titles, and both can be downloaded to file along with other bibliographic data. How useful is this new resource and how can it best be used?

Methodology and results

We carried out a small preliminary study to gather some data, mainly in the field of health-related research (HRR) – clinical medicine and “biomedical research”, identified by means of a filter based on address terms. We distinguished between papers without and with financial acknowledgements, the latter being defined by the search strategy FO=(A* OR B* OR C* OR Z*). Figure 1 shows the percentage of papers, both HRR and other, with explicit funding acknowledgements, from 17 leading countries. China and Spain have the most acknowledgements and India and Greece, the least.

Details of the 2009 papers from Italy with acknowledgements (N = 1954) were downloaded to file, and all the individual acknowledgements (n = 3550) were tabulated. The funding bodies were then listed in descending order of frequency. Most of these names appeared in many different forms, notably the Ministry of Universities and Research

(MIUR), which was written in over 300 styles, including differently-named programmes that it ran.

Closer inspection, however, showed that a relatively simple search strategy:

FO=(FIRB OR (ITALIAN* AND MINIST* AND (EDUC* OR ISTR* OR RES* OR UNIV*)) OR MIUR* OR MUR OR MURST OR PRIN)

would retrieve virtually every one of the acknowledgements. A similar approach allowed individual search strategies to be developed for the other leading organisations funding HRR in Italy, see Table 1.

The role of the major pharmaceutical companies in supporting HRR was investigated both with their explicit funding acknowledgements and also those implicit from their presence among the papers' addresses. Figure 2 compares the total outputs attributable to the 10 largest companies (see Table 2) with their research spends in 2005 (from the EU R&D scoreboard). Of these papers, 44% had intramural support, 70% extramural, and 14% both.

Conclusions

The new capability of the WoS has the potential to inform bibliometric analyses, but it is only in its infancy. Some effort is needed to create a definitive tally of papers acknowledging individual funders. Moreover, for some of them, implicit funding (from paper addresses) also needs to be taken into account.

References

- Dawson, G, Lucocq, B, Cottrell, R & Lewison, G. (1998) *Mapping the Landscape: National Biomedical Research Outputs 1988-95*. London: The Wellcome Trust, Policy rep. no 9.
- Lewison G (2003) The publication of cancer research papers in high impact journals. *Aslib Proceedings*, 55, 379-387..
- Cronin, B & Franks, S (2008) Trading cultures: Resource mobilization and service rendering in the life sciences as revealed in the journal article's paratext. *Journal of the American Society for Information Science and Technology*, 57, 1909-1918

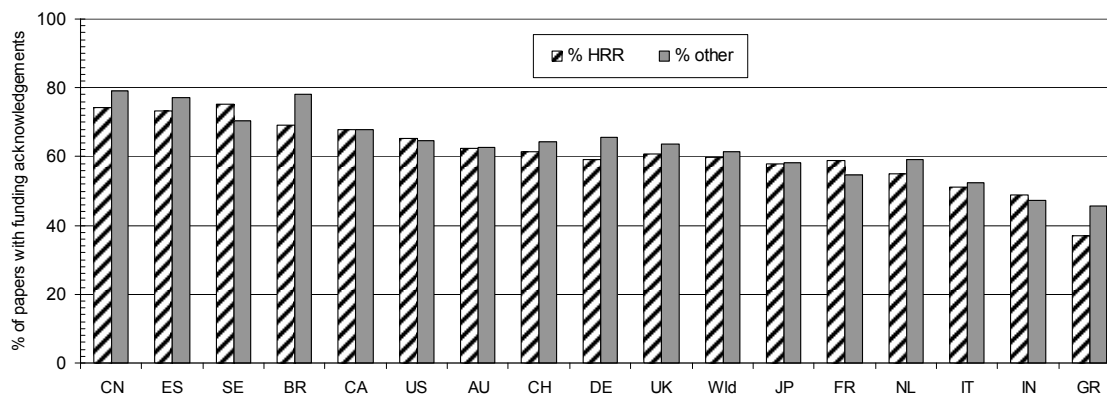


Figure 1. Percent of health-related research papers (HRR) in 2009 from different countries with explicit funding acknowledgements

Table 1. Leading organisations funding Italian health-related research, 2009.

Code	Funding body	Papers	%
MUR	Ministry of Universities and Research	306	28.7
CEC	European Union	169	15.9
SAP	Ministry of Health	95	8.9
AIR	Italian Association for Cancer Research	72	6.8
CNR	Consiglio Nazionale delle Ricerche	37	3.5
TEL	Telethon	37	3.5
Pharm	10 largest pharma companies	51	4.8

Table 2. Leading pharmaceutical companies (by research spend, 2006).

Code	Company	Country	Code	Company	Country
AZE	AstraZeneca	UK-SE	MRK	Merck	US
ELI	Eli Lilly	US	NOV	Novartis	CH
FHR	F Hoffmann la Roche	CH	PFZ	Pfizer	US
GSK	GlaxoSmithKline	UK-US	SFA	Sanofi-Aventis	FR
JJJ	Johnson & Johnson	US	WYT	Wyeth Pharmaceuticals	US

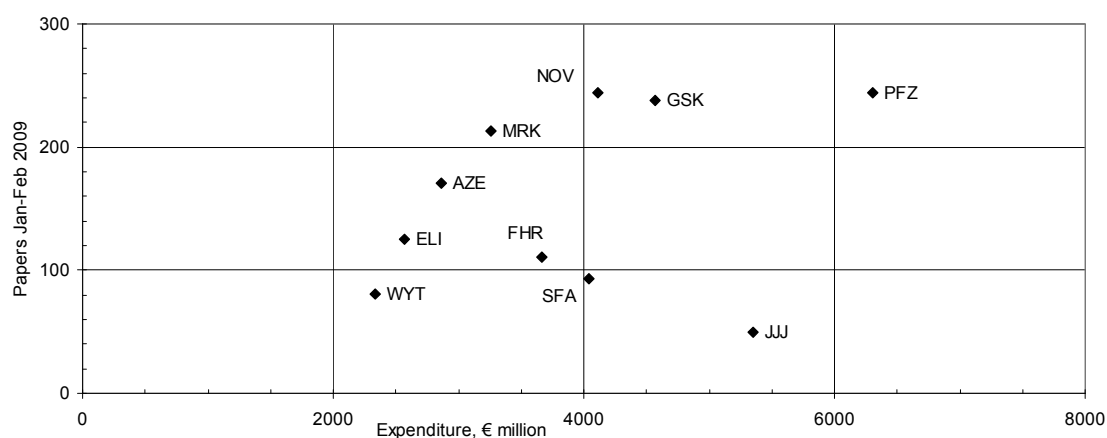


Figure 2. Comparison of attributable research outputs in early 2009 for each of ten leading pharmaceutical companies (for codes see Table 2) with their research spends in 2005.