

Productivity ratings of institutions based on publication in Scientometrics, Informetrics, and Bibliometrics, 1981–2000

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The author surveyed a set of ten scholarly journals that publish the mainstream of papers in the field of Scientometrics, Informetrics, and Bibliometrics (SIB). The survey is limited only to the research articles published in the field for the two decades period 1981–2000. Each journal was examined issue by issue for the institutional affiliations of contributing authors. Institutional rankings for the total period and the two decade periods; 1981–1990 and 1991–2000 were determined by awarding credit to the authors' institutions based on authorship. In the composite of ten journals, the University Sheffield (England), the University of North Carolina (USA), the University of Leiden (Netherlands), the City University of London (England), the National Institute of Science, Technology and Development Studies (India), the University of Sussex (England), the University of Illinois (USA), the University of Michigan (USA), the Hungarian Academy of Sciences Library (Hungary), and Indiana University (USA) emerged as the ten most productive institutions for the period 1981–2000.

Introduction

Researchers in several disciplines have been interested in publication productivity as a means of assessing scholarly excellence of individual researchers within a field.^{1–5} Publication productivity as measured by the number of papers, has also been regarded as one of the main indicators of reputation of institutions in general^{6–9} and academic institutions in particular.^{10–11} To the present author's knowledge, there is no report in the literature about the publication productivity of the research institutions conducting research in the field of Scientometrics, Informetrics, and Bibliometrics (SIB).

The present study aims at identifying those institutions contributing the most to the development of the field of SIB and building the research base by finding answers to the following specific questions:

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1. What are the most productive institutions in the field of SIB as determined by institutional affiliations of authors writing in ten major journals over the last 20 years?
2. When the 20-year period is segmented into two 10-year periods, do the institutional rankings show stability?
3. What are the most productive institutions as determined by the institutional affiliation of authors in different sub-domains (topics) of SIB?

In this survey only the research articles published in the ten major journals have been considered (see Appendix A1 for the list of journal titles). Letters, short notes, reports, meeting abstracts, and reviews were not included.

Methodology

A title-word search through the *Social Sciences Citation Index* (SSCI) and the *Web of Science* databases of the Institute for Scientific Information (ISI) was made to gather data on articles published in ten journals in the field of SIB in 1981 to 2000. In the search a set of twenty predetermined title-words or phrases characterizing different sub-domains of SIB were used (see Appendix A2 for the list of words/phrases that characterize the five sub-domains). The sub-domains broadly include (1) citation studies, (2) research performance analyses, (3) information retrieval, (4) science, technology and innovation studies, and (5) library management as described in an earlier work on mapping SIB.¹²

A total of 50 institutions contributing 7 or more articles in the period 1981–2000 were included in the list of major institutions. For each article the institutional affiliations of contributing authors were noted. For the articles with n co-authors, each author's institution assumed to get a credit for n^{-1} articles without regard to order of authorship and in case of a single author with two institutional affiliations, the article is credited to the institution where the research was carried out.

The institutional counts of articles presented in this work should be viewed as lower limits. Because a few articles dealing with some aspects of SIB and not containing the pre-specified title-words were not captured in the search. On the other hand, there are many other local or international journals, where researchers in SIB might have published their work.

Results and discussion

Most productive institutions in the whole period (1981–2000)

The 50 most productive institutions and their numbers of articles (ranking) for the two-decade period 1981–2000 are listed in Table 1. The table indicates that the 50 institutions are located in 20 different countries. Of these institutions 22 were from the USA, 19 were from Europe including three institutions from the Eastern European countries, two from Hungary and one from Poland. Two of the remaining 9 institutions were from Canada, and two were from India. Japan, Israel, Mexico, Ghana, and Turkey are represented with a single institution. From Table 1, one can easily figure out that the mean numbers of articles/year from the institutions in the USA or Europe are almost equal over the period 1981–2000 (0.68 and 0.69 respectively). This interesting balance of institutional productivity suggests, among other things, the presence of competitive efforts of SIB communities in the two blocks.

The top 10 institutions for the period 1981–2000 were the University of Sheffield (England), the University of North Carolina (USA), the University of Leiden (Netherlands), the City University of London (England), the National Institute of Science Technology & Development Studies (India), the University of Sussex (England), the University of Illinois (USA), the University of Michigan (USA), the Hungarian Academy of Sciences Library (Hungary), and Indiana University (USA).

Most productive institutions in 1980s

The rankings and scores on research productivity of the top 30 institutions for the period 1981–1990 are listed in Table 2. The top 10 institutions in this table were the University of Sheffield (England), Drexel University (USA), Wroclaw Technical University (Poland), the University of Manchester (England), Georgia Institute of Technology (USA), the Institute for Scientific Information (USA), the City University of London (England), the University of Michigan (USA), the Hungarian Academy of Sciences Library (Hungary), and the Louisiana State University (USA).

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Table 1. Institutional rankings and scores on research productivity in the area of SIB during 1981–2000

Rank	Institution/organization	Institutional total score ^a
1	University of Sheffield, Sheffield, England	33.0
2	University of North Carolina, Chapel Hill, USA	24.5
3	University of Leiden, Leiden, Netherlands	23.8
4	City University of London, London, England	23.5
5	Natl. Inst. Sci. Technol. & Dev. Stud. (NISTADS), New Delhi, India	22.0
6	University of Sussex, Brighton, England	21.3
7	University of Illinois, Urbana, USA	19.8
8	University of Michigan, Ann Arbor, USA	19.5
9 ^b	Hungarian Academy of Sciences Library, Budapest, Hungary	19.0
9 ^t	Indiana University, Bloomington, USA	19.0
10	Drexel University, Philadelphia, USA	17.3
11	Institute for Scientific Information (ISI), Philadelphia, USA	17.0
12	University of California Berkeley, Berkeley, USA	16.0
13	Hungarian Academy of Sciences, Chemical Research Center, Budapest, Hungary	15.6
14	MIT, Cambridge, USA	15.5
15	University of California Los Angeles, Los Angeles, USA	15.0
16	University of Wisconsin, Milwaukee, USA	14.5
17	Wroclaw Technical University, Wroclaw, Poland	14.0
18	University of Instelling Antwerp, Wilrijk, Belgium	13.8
29	Rutgers State University, New Brunswick, USA	13.5
20	Fraunhofer Institute of Syst. & Innovat. Res. Inst., Karlsruhe, Germany	13.3
21	University of Manchester, Manchester, England	13.2
22	Syracuse University, New York, USA	12.8
23	Center Natl. De La Recherche Scientifique (CNRS), France	11.9
24 ^t	Loughborough University Technology, Loughborough, England	11.5
24 ^t	University of Amsterdam, Amsterdam, Netherlands	11.5
25	Louisiana State University, Los Angeles, USA	11.3
26 ^t	Georgia Institute of Technology, Atlanta, USA	11.0
26 ^t	Royal School of Librarianship, Copenhagen, Denmark,	11.0
27 ^t	University of Pittsburgh, Pittsburgh, USA	10.5
27 ^t	University of Western Ontario, London, Canada	10.5
28	Suny Albany, New York, USA	10.3
29 ^t	Computer Horizons Research, New Jersey, USA	10.0
29 ^t	Hebrew University, Jerusalem, Israel	10.0
29 ^t	University of Ghana, Legon, Ghana	10.0
30 ^t	CSIC, Madrid, Spain	9.5
30 ^t	Council of Scientific & Industrial Research (CSIR), Kerala, India	9.5
31 ^t	Queens University of Belfast, Belfast, Ireland	9.0
31 ^t	University of Missouri, Columbia, USA	9.0
31 ^t	University of Tsukuba, Ibaraki, Japan	9.0
31 ^t	University of Maryland, College Pk, USA	9.0
32 ^t	Cornell University, Ithaca, USA	8.5
32 ^t	National Autonomous University of Mexico, Mexico City, Mexico	8.5
33	Virginia Polytech. Inst & State University, Virginia, USA	8.3
34 ^t	Middle East Technical University, Ankara, Turkey	8.0
34 ^t	University of Tampere, Tampere, Finland	8.0
34 ^t	University of Toronto, Toronto, Canada	8.0
35	KHBO, Oostende, Belgium	7.3
36	Umea University, Umea, Sweden	7.2
37	University of South Carolina, Columbia, USA	7.0

^a Sum of the number of articles calculated by n^{-1} authorship

^b t denotes tie

Table 2. Rankings and scores on research productivity of top 30 institutions in the area of SIB, 1981–1990

Rank	Institution/organization	Institutional total score ^a
1	University of Sheffield, Sheffield, England	20.0
2t ^b	Drexel University, Philadelphia, USA	14.0
2t	Wroclaw Technical University, Wroclaw, Poland	14.0
3	University of Manchester, Manchester, England	11.2
4t	Georgia Institute of Technology, Atlanta, USA	11.0
4t	Institute for Scientific Information (ISI), Philadelphia, USA	11.0
5	City University of London, London, England	10.5
6	University of Michigan, Ann Arbor, USA	10.0
7t	Hungarian Academy of Sciences Library, Budapest, Hungary	9.0
7t	Louisiana State University, Los Angeles, USA	9.0
8t	University of Leiden, Leiden, Netherlands,	8.0
8t	MIT, Cambridge, USA	8.0
8t	University of Illinois, Urbana, USA	8.0
9t	University of California, Los Angeles, USA	7.5
9t	University of Western Ontario, London, Canada	7.5
10t	Academy of Sciences, Berlin, GDR	6.0
10t	British Library, London, England	6.0
10t	Columbia University, New York, USA	6.0
10t	Council of Scientific & Industrial Research (CSIR), Kerala, India	6.0
10t	University of Berkeley, Berkeley, USA	6.0
10t	University of North Carolina, Chapel Hill, USA	6.0
10t	University of Pittsburgh, Pittsburgh, USA	6.0
11	Natl. Inst. Sci. Technol. & Dev. Stud. (NISTADS), New Delhi, India	5.5
12t	Cornell University, Ithaca, USA	5.0
12t	Hebrew University, Jerusalem, Israel	5.0
12t	Queens University of Belfast, Belfast, Ireland	5.0
12t	Suny Albany, New York, USA	5.0
12t	Syracuse University, New York, USA	5.0
12t	University of Sussex, Brighton, England	5.0
13	Virginia Polytech. Inst & State University, Virginia, USA	4.8

^a See note a to Table 1

^b t denotes tie

Most productive institutions in 1990s

The rankings and scores of the top 30 institutions in the period 1991–2000 are listed in Table 3. The top 10 institutions in this table were the University of North Carolina (USA), the National Institute of Science, Technology & Development Studies (India), the University of Sussex (England), the University of Leiden (Netherlands), the City University of London (England), the Hungarian Academy of Sciences, Chemical Research Center (Hungary), the University of Sheffield (England), the University of Illinois (USA), Loughborough University of Technology (England), and the University of Instelling Antwerp (Belgium).

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Table 3. Rankings and scores on research productivity of top 30 institutions in the area of SIB, 1991–2000

Rank	Institution/organization	Institutional total score ^a
1	University of North Carolina, Chapel Hill, USA	18.5
2	Natl. Inst. Sci. Technol. & Dev. Stud. (NISTADS), New Delhi, India	16.5
3	University of Sussex, Brighton, England	16.3
4	University of Leiden, Leiden, Netherlands	15.5
5t ^b	City University of London, London, England	13.0
5t	Hungarian Academy of Sciences, Chem. Research Center, Budapest, Hungary	13.0
5t	University of Sheffield, Sheffield, England	13.0
6	University of Illinois, Urbana, USA	11.8
7	Loughborough University of Technology, Loughborough, England	10.5
8t	University of Instelling Antwerp, Wilrick, Belgium	10.5
8t	University of Wisconsin, Milwaukee, USA	10.5
9t	Hungarian Academy of Sciences Library, Budapest, Hungary	10.0
9t	Royal School of Librarianship, Copenhagen, Denmark	10.0
9t	Rutgers State University, New Brunswick, USA	10.0
9t	University of Berkeley, Berkeley, USA	10.0
10t	University of Amsterdam, Amsterdam, Netherlands	9.5
10t	University of Michigan, Ann Arbor, USA	9.5
11	Fraunhofer Inst. Syst. & Innovation Res. Inst., Karlsruhe, Germany	9.3
12	University of Ghana, Legon, Ghana	8.0
13	Center National De La Recherche Scientifique (CNRS), France	7.9
14	Syracuse University, New York, USA	7.8
15t	Massachusetts Institute of Technology (MIT), Cambridge, USA	7.5
15t	University of California, Los Angeles, USA	7.5
16	KHBO, Oostende, Belgium	7.3
17t	Umea University, Umea, Sweden	7.0
17t	University of Tampere, Tampere, Finland	7.0
18	CSIC, Madrid, Spain	6.5
19t	Middle East Technical University, Ankara, Turkey	6.0
19t	University of Maryland, College PK, USA	6.0
20	University of North Texas, Texas, USA	5.2

^a See note a to Table 1

^b t denotes tie

Comparison of Table 2 and Table 3 shows that the rankings of the institutions have changed considerably during the two decades. Highlights of some of these changes are as follows:

(1) Only 2 institutions; the University of Sheffield (England), and the City University of London (England) are in the top 10 in both periods. (2) 5 of the top 10 institutions were from Europe for 1981–1990. This number increased to 7 during 1991–2000, which reflects increased research activities in the European institutions during 1990s, (3) 6 of the top 10 institutions of the period 1981–1990 were not even in the top 30 of the period 1991–2000. These were Drexel University (USA), Wroclaw Technical University (Poland), the University of Manchester (England), Georgia Institute of Technology (USA), the Institute for Scientific Information (USA), and the

Louisiana State University (USA). (4) 6 institutions among the top 10 for the period 1991–2000 were not even in the top 15 for the period 1981–1990. These were the University of North Carolina (USA), the National Institute of Science, Technology and Development Studies (India), the University of Sussex (England), the Hungarian Academy of Sciences (Hungary), Loughborough University of Technology (England), and the University of Instelling Antwerp (Belgium). (5) India was the only developing country with 2 institutions in the top 30 in the period 1981–1990. These were the Council of Scientific and Industrial Research (CSIR), Kerala, and the National Institute of Science, Technology and Development Studies (NISTADS), New Delhi. In addition to the latter institutions two other institutions from developing countries, namely the University of Ghana (Ghana), and the Middle East Technical University (Turkey) found place in the top 30 in 1991–2000.

Most productive institutions in sub-domains of SIB

Institutions' productivity in the five sub-domains of SIB for the period 1981–2000 are given in Table 4. This table indicates that only two institutions; the University of North Carolina (USA), and the University of Michigan (Ann Arbor) (USA) were among the 10 most productive institutions in all the sub-domains. The University of Sheffield (England), the University of California Los Angeles (USA), and the University of Illinois (USA) were among the 10 most productive institutions in four of the five sub-domains. These were followed by the City University of London (England), and Indiana University (USA) ranking among the 10 most productive institutions in three of the five sub-domains.

Table 4 also indicates considerable difference in institutional scores in different sub-domains of SIB. This is expected as institutions often specialize in a few or even in a single sub-domain and publish overwhelmingly in one or two journals. The University of Sheffield (England) emerged as the leading center with 30.0 articles in the sub-domain of information retrieval and related issues, the City University of London (England) emerged as the leading university with 10.8 articles in Library/library management and related topics, the University of Leiden (Netherlands) dominated the sub-domains of citation studies, and research performance analysis with 14.8, and 7.2 articles, respectively. The MIT of the USA turned out to be the leading institution with 14.3 articles in the sub-domain of science, technology and innovation studies, and all of its articles were published in 2 journals; *Research Policy*, or *Social Studies of Science*.

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Table 4. Top 10 ranked institutions in productivity by main sub-domains of SIB, 1981–2000

Rank	Sub-domain/institution	Institutional total score [*]
(1) Information retrieval		
1	University of Sheffield, Sheffield, England	30.0
2	University of North Carolina, Chapel Hill, USA	16.5
3	City University of London, London, England	10.0
4	University of Michigan, Ann Arbor, USA	7.5
5	University of California Los Angeles, Los Angeles, USA	6.8
6	University of Illinois, Urbana, USA	6.7
7	University of Instelling Antwerp, Wilrijk, Belgium	6.5
8	Drexel University, Philadelphia, USA	6.3
9	University of California Berkeley, Berkeley, USA	6.0
10	Wroclaw Technical University, Wroclaw, Poland	4.0
(2) Library management		
1	City University of London, London, England	10.8
2	University of Illinois, Urbana, USA	9.5
3	Rutgers State University, New Brunswick, USA	8.0
4	University of California Los Angeles, Los Angeles, USA	7.5
5	Indiana University, Bloomington, USA	7.0
6	University of Sheffield, Sheffield, England	6.3
7	University of California Berkeley, Berkeley, USA	5.0
8 ^t	University of Michigan, Ann Arbor, USA	3.5
8 ^t	University of North Carolina, Chapel Hill, USA	3.5
9	University of Wisconsin, Milwaukee, USA	3.0
(3) Citation studies		
1	Leiden University, Leiden, Netherlands	14.8
2	Hungarian Academy of Sciences Library, Budapest, Hungary	10.0
3	Drexel University, Philadelphia, USA	8.5
4	University of Instelling Antwerp, Wilrijk, Belgium	8.0
5	Indiana University, Bloomington, USA	7.5
6	University of North Carolina, Chapel Hill, USA	6.0
7	University of Illinois, Urbana, USA	5.5
8	University of Michigan, Ann Arbor, USA	4.2
9	Institute for Scientific Information (ISI), Philadelphia, USA	3.5
10	University of Sheffield, Sheffield, England	2.0

^a t denotes tie

*Notice that when the institutional total scores of articles in this table are summed over the sub-domains, these sums exceed the corresponding grand totals for some of the institutions given in Table 1 due to the overlapping sub-domains.

Table 4 (cont.)

Rank	Sub-domain/institution	Institutional total score*
(4) Research performance analysis		
1	Leiden University, Leiden, Netherlands	7.2
2	University of Sussex, Brighton, England	7.0
3	NISTADS, New Delhi, India	5.5
4	City University of London, London, England	4.3
5t	University of California Berkeley, Berkeley, USA	3.0
5t	University of North Carolina, Chapel Hill, USA	3.0
6	University of Michigan, Ann Arbor USA	2.0
7	University of Illinois, Urbana, USA	1.3
8t	Hungarian Academy of Sciences Library, Budapest, Hungary	1.0
8t	University of Wisconsin, Milwaukee, USA	1.0
(5) Science, technology and innovation studies		
1	MIT, Cambridge, USA	14.3
2	University of Sussex, Brighton, England	11.4
3	University of Michigan, Ann Arbor, USA	5.0
4	University of California Berkeley, Berkeley, USA	4.3
5	University of California Los Angeles, Los Angeles, USA	2.5
6	University of North Carolina, Chapel Hill, USA	2.0
7t	NISTADS, New Delhi, India	1.5
7t	City University of London, London, England	1.5
7t	Indiana University, Bloomington, USA	1.5
8	University of Sheffield, Sheffield, England	1.0

t denotes tie

Conclusion

Summing up the present survey of publication productivity in the field of SIB it can be said that (1) serious and sustained research in the area have been conducted at most of the institutions over the last two decades (Table 1). (2) The first-ranked University of Sheffield with 33.0 articles emerged as the premier institution conducting SIB research as here defined. The bulk of this University's and the second-ranked University of North Carolina's productivity with 24.5 articles were in a single sub-domain; information retrieval and related areas. The third-ranked University of Leiden, in contrast, produced the equivalent of 23.8 articles over the years 1981–2000, but was well represented (i.e. ranked first) in two of the five sub-domains. (3) Obviously, journal selection is critical to institutional rankings in productivity in different sub-domains. A good example here is the case of MIT. MIT was the first in the sub-domain of science, technology and innovation studies, but not even in the top 10 of any other sub-domains. Its preeminent

position would drop were either of the journals; *Research Policy* or *Social Studies of Science* excluded from the analysis. (4) There has been a good deal of change in the institutional productivity ratings from 1980s to 1990s. The number of European institutions in the top 10 increased from 5 in 1980s to 7 in 1990s. (5) The findings can provide young researchers of SIB, potential graduate students, and institutional administrators with at least one index of research activity.

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Appendix A1

Journal titles

1. *Information Processing & Management*
 2. *The International Information and Library Review*
 3. *Journal of the American Society for Information Science and Technology*
 4. *Journal of Documentation*
 5. *Journal of Information Science*
 6. *Research Policy*
 7. *Science, Technology & Human Values*
 8. *Scientometrics*
 9. *Serials Librarian*
 10. *Social Studies of Science*
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Appendix A2

The title-words/phrases describing the five sub-domains of SIB

Sub-domain	Descriptor words/phrases
(1) Citation studies	Citation/citation analysis/journal/impact factor
(2) Research performance analysis	Research performance/scientific production/ collaboration/bibliometric analysis
(3) Information retrieval (IR)	IR/text/internet/searching
(4) Science, Technology & innovation studies	Firm/industry/innovation/government
(5) Library management	Library/librarian/information science/cost

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