SCIENCE AND POLITICS: SOME BIBLIOMETRICS ANALYSIS

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ABSTRACT

Several studies that have used bibliometric methods to look at various interactions between science and politics are described. In two studies the sources cited by Cuban and Egyptian scientists, over considerable periods of time, were examined to determine whether changing citation patterns (in terms of countries cited) could in any way be influenced by changes in the political alignment of the countries in which the scientists reside. A third study, underway, is looking at the sources cited by South African scientists to determine whether or not these sources have been influenced by an academic boycott of South Africa in some countries. A fourth study is examining the sources cited by East European scientists to test the hypothesis that scientists from those countries more closely aligned doctrinally to the Soviet Union will cite proportionally more Soviet and East European sources than scientists from those countries less closely aligned to the Soviet Union.

RESUME

Différentes études qui utilisent des méthodes bibliométriques sont présentées. Dans deux études, les sources citées par les chercheurs cubains sur une assez longue période de temps sont examinées afin de savoir si les modes de citation (pays cités) dépendent des relations politiques internationales de Cuba. Une troisième étude en cours examine les sources citées par les chercheurs d'Afrique du Sud afin de savoir si elles ont été influencées par un boycott académique. Une quatrième étude examine les sources citées par certains chercheurs d'Europe de l'Est pour tester l'hypothèse selon laquelle les chercheurs des pays plus alignés sur l'Union Sociétique en termes politiques mentionnent plus souvent les articles de chercheurs soviétiques ou d'autres pays de l'Est que les chercheurs de pays moins étroitement alignés sur l'Union Soviétique.

INTRODUCTION

Looking at the science/politics interaction from a different perspective, a study has been completed to determine whether scientists who contribute to the popular literature are more likely than others to influence political decision making and whether they are also heavily cited in the science literature.

Bibliometric techniques have been applied to perform national and international analyses of the science literature. Some studies have looked at how much of this literature is contributed by various countries at a certain period of time (e.g., Hulme, 1923; Narin and Carpenter,1975; Schubert et al., 1989) and some have produced data to show how much various countries are cited (e.g., Narin and Carpenter, 1975; Schubert et al., 1989). Besides the analyses of truly international scope, others have applied bibliometric methods to examine the science output of individual countries (e.g., Arunachalam et al., 1984; Velho, 1986) or groups of countries (e.g., Arunachalam and Markanday, 1981) or to compare countries (e.g., Lancaster et al., 1984). Despite this activity, little has been done to study the influence that one country might exert on another, although some investigations have touched upon the extent to which one country might cite the work of a neighboring country (e.g., Rabkin and Inhaber, 1979).

Over the last few years several studies performed at the Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, have applied bibliometric methods to look at various aspects of the interaction between science and politics. This paper describes the studies that have been completed so far and mentions those now in progress or planned for the future.

Political influences on the sources used by scientists

Two complementary studies were undertaken to determine if the information sources cited by publishing scientists appear to change when a change occurs in the political alignment of the country in which they live. If science were completely insulated from politics, one would expect a change in political alignment not to affect the use of information sources. On the other hand, such a change could have a profound effect, not because of ideological preferences among the scientists themselves but because of practical considerations, such as changing patterns in education, in language competencies, in institutional collaboration, and in publication availability.

The sample

The studies were based on journal articles published by scientists associated with institutions in Cuba and in Egypt. Both countries, at various times, have been aligned politically with the Western bloc (defined in this study as members of the North Atlantic Treaty Organization) and with the Eastern bloc (defined as the Warsaw Pact nations). In the case of Cuba, the move from West to East began when Castro assumed power in 1959. For Egypt, the situation is a little more complicated: before 1958 the country was aligned primarily with the West, from 1958 to 1975 primarily with the East, and it has been aligned primarily with the West again since 1975.

The problems involved in putting together a sample representative of the publications of the scientists of these countries during these various periods have been described in detail elsewhere (Lancaster et al, 1986, Sattar, 1985). Cuban papers published in Cuban science journals were selected by the random sampling of about 20 such journals accessible in the libraries of the University of Illinois. For Egyptian papers published in Egyptian journals, random sampling was applied to six journals available in Illinois. For articles published by Cuban and Egyptian scientists outside their own countries, however, the sample had to be "opportunistic" rather than random. For the period since 1967, various products of the Institute for Scientific Information (primarily the Science Citation Index, Who is Publishing in Science, and printouts from the Scisearch data base) were used to identify papers authored by scientists from Cuba and Egypt. For the earlier periods, however, the location of Cuban and Egyptian papers, published outside their own countries, was a very tedious process, involving the identification of names of scientists in biographical and directory publications and the checking of these names in a wide variety of bibliographic sources in printed form.

The sample finally used in the study consisted of 1316 periodical articles authored or co-authored by Cuban scientists, published between 1950 and 1983, and 1182 articles authored or co-authored by Egyptian scientists between 1957 and 1983. The Cuban papers yielded 18,991 bibliographic references and the Egyptian papers yielded 15,222 references.

All of the bibliographic references--more than 30,000 for the two samples--were examined and categorized by place of publication. If place of publication was unclear from the reference itself, the item was categorized as "unidentifiable". Place of publication, not place of authorship, was the variable studied. Thus, an article in a U.S. journal was considered a U.S. influence despite the fact that not all such articles emanate from U.S. authors. It was the influence of the publication source that we were most concerned with. If an author cites a U.S. journal the publication influence can be considered American, wherever the author cited may come from.[1]

In the case of Cuba, we decided to define the period of Western influence (i.e., pre-Castro) as 1950-1964 and the period of Eastern influence as 1965-

[1] This decision is easily justified. Political influences or barriers occur at the level of the journal rather than at the level of the individual paper. For example, Denmark no longer sells its journals to South Africa. This makes it more difficult for South African scientists to acquire Danish publications, whatever the nationality of the contributors, but does not affect access to the work of Danish scientists published outside of Denmark.

1983.[2] That is, we used a lapse of five years after the Cuban revolution (1959) to allow for effects to be felt on the use of information sources as reflected in citation behavior. In the case of Egypt, however, the division between Eastern and Western alignment is much less clear. One could consider Eastern influence to begin in 1955, when the first arms agreement was signed between Egypt and the USSR, but Soviet commitment to Egypt increased in 1958 and direct Soviet involvement seems to have been at its peak in the period 1967- 1972. The move back to the West could be considered to begin in 1972, when Soviet military advisers and personnel were expelled from Egypt. On the other hand, the agreement signed by Egypt and Israel in 1975 might be considered to mark the real return of Egypt to the West, even though the Soviet-Egyptian Treaty of Friendship and Cooperation was not formally terminated until 1976. Taking all of these things into account, it was decided to define the period 1957-1960 as Western, 1961-1978 as Eastern, and 1979-1983 as Western again. In this case, there is an implicit lag of about three years between a major step to political re-alignment and the beginning of the period of influence as defined in this study.

The major results are presented in Table 1, which reveals notable differences between Cuba and Egypt. For Cuba, the move to Eastern influence brings a very substantial increase in citation to the Eastern bloc. This trend, however, is not at the expense of citation to the West, which remains little changed, but at the expense of citation to other countries (especially Cuban scientists citing Cuban sources and, to a lesser extent, sources from elsewhere in Latin America).

In Egypt, on the other hand, the period of Eastern influence is characterized by a substantial decline in citation to the West with only a moderate increase in citation to the East. The period 1979-1983, reflecting a return to Western influence, shows a surprising continuation of the earlier trend, with citations to the East continuing to rise and citations to the West to decline, suggesting that it may take more than three years for any significant effects to be felt. The situation in Egypt differs markedly from that of Cuba in one other respect: citation to the "other country" group increases with time for the former and decreases with the latter.

It is possible, of course, that the rate at which Cuban and Egyptian scientists cite Eastern sources does not differ significantly from the rate at which Eastern sources are cited by any non-Eastern author. We are not aware of any studies that have determined the rate at which Warsaw Pact nations as a group are cited. However, Nalimov and Mul'chenko (1969) reported that the rate of citation of Soviet authors in the journals of other countries was in the range of 3 to 4% and was never found to be more than 5.5%. This suggests that the Cuban and

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[2] To avoid any trace of subjectivity, very strict and unequivocal definitions of "East" and "West" were adopted. Eastern countries were defined as those belonging to the Warsaw Pact and Western countries as members of NATO. All other countries were considered politically uncommitted.

Egyptian rates of citation to the East may not differ significantly from the rates of citation of Eastern sources by any country outside the Warsaw Pact.

Table 1: Place of publication of sources cited by Cuban and Egyptian scientists

	Western bloc (NATO)		Eastern bloc (Warsaw Pact)		All other countries		Total *
	No.	%	No.	%	No.	%	
CUBA 1950-1964 Western influence	3239	67.4	20	0.4	1548	32.2	4806
1965-1983 Eastern influence	8789	65.1	1533	11.3	3186	23.6	1358
EGYPT 1957-1960 Western influence	1254	84.0	63	4.2	175	11.7	1492
1961-1978 Eastern influence	7325	74.7	717	7.3	1765	18.0	9807
1979-1983 Western influence	2606	69.9	401	10.8	718	19.3	3725

* Citations judged "unidentifiable" by country are excluded.

It is only when Cuban authors collaborate with Eastern authors or publish in Eastern journals that they cite Eastern sources more than expected. Of 14,693 references in papers authored by Cubans alone, only 641 are to Eastern sources (4.4%) whereas, among 3,256 references from papers written jointly by Cuban and Eastern scientists, 889 (27.3%) are to Eastern sources. The influence is even stronger in the reverse direction--when a Cuban collaborates with a Western author, references to the East drop to little more than 1%, while references to the West increase to 80%. However, this is based on only 42 papers (709 references), the only ones we could locate involving collaboration between Cuban and Western scientists.

When a Cuban publishes in an Eastern journal, 20.1% (764/3,792) of the references are to the East. Only 4.9% (202/4,094) of the references are to the East when a Cuban publishes in a Western journal.

A similar pattern was found for Egyptian authors (e.g., when an Egyptian collaborates with an Eastern author 38% of the references are to Eastern sources) but the numbers involved are too small to be significant: only 5 papers were found in which an Egyptian collaborated with an Eastern author.

These two studies were unable to confirm that a change in the political alignment of a country leads to an overall change in the information sources cited by scientists of that country. Our results suggest that a scientist may cite some political bloc more than expected only when he publishes in one of its journals or collaborates with one of its scientists.

The influence of scientists on political decision making

The other side of the coin involves the influence of scientists on the political process and the extent to which this phenomenon can be examined bibliometrically. One study of this kind has been completed so far (Abdullah, 1989).

The purpose of the investigation was to seek answers to the following questions:
1. To what extent do scientists contribute to the popular literature?
2. Are scientists who contribute to the popular literature more likely to influence policy makers than those who do not?
3. Do scientists who contribute to the popular literature also influence their fellow scientists?

Two hypotheses guided the study:
A. Influential scientists are more likely to publish popular items than noninfluential scientists are.
B. Influential scientists receive more citations from their fellow scientists than noninfluential scientists do.

In this context "influential" refers to influence on policy makers. "Influential scientist" was defined as one who had testified before the U.S. Congress at hearings on acid rain issues. A noninfluential scientist is one engaged in acid rain research who has not so testified. The underlying assumption is that a scientist who is called upon by policy makers to give testimony is more likely to influence these policy makers than one not called upon. In the second hypothesis, influence on fellow scientists is measured by the number of citations a scientist receives.

Searches were performed on November 2, 1987 and September 19, 1988 in the Congressional Information Service (CIS) database to identify all hearings on acid rain before the U.S. Senate or House Joint Committees or Subcommittees through December 1987. The first reference to acid rain in Congressional hearings occurred in 1975. The texts of all relevant hearings were retrieved in order to identify scientists who had testified ("influential scientists"). Most scientists were identified as such by checking names against the International Directory of Acid Deposition Researchers (IDADR), 1983 and 1985/86 editions (1332 names in the first edition and 1618 in the second). A few individuals giving testimony at acid rain hearings but not in the directories were judged to be scientists on the basis of their institutional affiliation, the nature of their testimony, how they were referred to in the hearings, or through consulting biographical dictionaries. To qualify as an influential scientist, for the purposes of our study, an individual had to be a scientist and have testified at a hearing on acid rain. Non- scientists who testified were excluded even though their names appeared in the IDADR (this directory includes some economists and other professionals as well as scientists). According to this definition, 97 influential scientists were identified. Individuals giving acid rain testimony were not counted as scientists when we were unable to verify that they are.

The size of the science community involved in acid rain research was estimated to be 2177 individuals. Of these, 2137 were identified through the IDADR and forty more by other procedures.

For the purpose of our study the science literature on acid rain was defined as those items listed or referred to in three publications of the (U.S.) National Acid Precipitation Assessment Program (NAPAP). The works referred to in the seven NAPAP volumes were selected by specialists in the area of acid rain research as being high quality items. In all, the seven volumes refer to 4891 items, mostly in English, in the form of books, articles, reports and conference proceedings.

The identification of the "popular" items on acid rain was more difficult. Basically, we wanted articles appearing in newspapers and popular magazines. The former present no problems but the latter do. There is no good definition of "popular magazine", much less a list of items fitting the definition. Intuitively, we felt that a popular magazine is one that can be purchased at a news stand in the United States, but no list of such items exists. Consequently, we decided that popular magazine items on acid rain would be defined as those retrievable on the term "acid rain" (or "acid deposition" or "acid precipitation") in two databases: the Magazine Index and the Readers' Guide to Periodical Literature. This is justified by the fact that both of these sources are generally considered to cover periodicals that commonly appear in public libraries in the United States and thus can reasonably be considered "popular". Nevertheless, these sources do include some journals that many would not consider truly "popular" (e.g., Science).

Searches were performed in these two indexes for the period 1972-1987. The search began with 1972 because it was in this year that the term "acid rain" began to appear regularly in English language publications.[3] Online searches were performed in the databases, but supplementary searches were conducted in the printed versions to account for the fact that articles published in 1971 and 1972 do not appear in the online version of the Magazine Index and the online version of the Readers' Guide dates back only to January 1983. Searches in these databases, performed in March 1988, retrieved 677 popular magazine items on acid rain. A second search was performed on April 29, 1988 in the National Newspaper Index database. This retrieved 747 acid rain items from the five major sources covered.

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3 The term appeared sporadically earlier and can be traced back at least to 1872.

In summary, the size of the science community involved in acid rain research was estimated to be about 2177 individuals. Of these, 97 had given acid rain testimony and were considered "influential scientists". The size of the "quality" acid rain literature (scholarly) was estimated to be about 4891 items. Some 677 popular magazine articles and 747 newspaper items were also identified.

Of the 677 items in popular magazines only 59 (8.7%) are written by scientists. The majority are written by nonscientists (427 or 63.1%), while the rest (191 or 28.2%) are anonymous and presumably contributed by reporters or science writers. Only one of 747 newspaper items was written by a scientist. The total number of popular items written by scientists, then, is 60 and 102 scientists contribute to these items.

Of the 102 scientists who have contributed to the popular literature on acid rain, 19 have testified at acid rain hearings. Our first hypothesis, that influential scientists are more likely to publish popular items than noninfluential scientists are, was looked at in two ways. The conservative way of looking at the issue is in terms of the relative contribution of the two groups (influential and noninfluential scientists) to the 60 popular items. Authors of the 60 items were given fractional credit based on extent of joint authorship (e.g., a scientist who co- authors with one other individual gets .5 credit, one who co- authors with two others receives .33 credit, and so on). The 19 influential scientists earned an average (mean) of 1.092 credits in authorship of the 60 items while the 83 noninfluential scientists earned an average of 0.445 credits. A t-test for independent samples was applied to test the null hypothesis of no difference between the means of the two groups. The result indicates the difference to be highly significant at a probability level of .0001. Therefore, the alternative hypothesis, that influential scientists are more likely to publish popular items than noninfluential scientists are, is supported by these data.

Of course, this is an ultraconservative way of looking at the issue: it takes into account the entire population of popular items on acid rain but not the entire population of scientists involved in acid rain research. In actual fact, of the 2177 scientists involved in acid rain research, only 102 (4.7%) contributed to the popular literature and 2075 (95.3%) did not; only 97 testified before Congressional hearings in the period 1975-1987 (4.5%); 2080 (95.5%) did not; only 19 (0.87% of the 2177) both testified and contributed to popular items; 83 (3.81%) contributed popular items but did not testify.

We can see, then, that while 19 of the 97 influential scientists contributed to the popular literature (19.6%) only 83 of the 2080 noninfluential scientists (about 4%) made such a contribution. In other words, the probability that an influential scientist will contribute to the popular literature is almost five times the probability that a noninfluential scientist will.

To test the second hypothesis, the following procedures were used. From the 4891 science items on acid rain, identified in the seven NAPAP volumes referred to earlier, all books, reports, conference papers and items of any kind published before 1974 and after 1983 were excluded. This left 1607 journal articles published in the period 1974-1983. To obtain citation counts only first-author status was considered. In all, 39 influential scientists were identified as first authors of 100 papers and 608 noninfluential scientists as authors of 1507 papers. The 100 papers by influential scientists were all used to obtain citations. Of the 608 noninfluential scientists contributing papers, 235 were selected at random. These scientists contributed 388 acid rain papers (first author status).

Using the Science Citation Index database, citations were obtained for all 100 papers by the influential scientists and all 388 papers by the sample of noninfluential scientists. Since publication dates of these varied, it was necessary to standardize citation periods so that each had an equal period in which it could be cited. A period of five years was chosen. Thus, for a paper published in 1974, citations received in the period 1974-1978 were used, for one published in 1983 the period 1983-1987 was used, and so on.

The difference in citation rate for the two groups, influential scientists and noninfluential scientists, was determined on the basis of fractional citation and without fractionation. In the case of fractional citation, a scientist appearing as first author earns units of citation credit dependent on the number of co-authors (for a paper cited once, written by three authors, the first author earns .33 credit, and so on).

The 100 papers by the influential scientists earned an average of 24.18 citations per paper in the first five years after publication, while the 388 papers by noninfluential scientists earned an average of 15.745 citations per paper. When fractionation is used, the 100 papers of the influential scientists earned 12.036 citation credits while the 388 by the noninfluential scientists earned 8.606 credits. When fractional citation is considered, t-tests indicate that the difference between the two groups is statistically significant at the probability level of .05 and even at the level of .01. When full citation is considered, the difference is highly significant at the probability of .01 and even at the level of .001. Whether full citation or fractional citation is considered, then, the hypothesis that influential scientists receive more citations than noninfluential scientists is supported by the data.

Further analyses of the citation data were performed to take into account the variable of contributions to the popular literature. Of the 488 papers for which citation data were available, 74 had first authors who had also contributed to the popular literature and 414 had first authors who had not. The 74 papers earned an average of 26.892 citations and the 414 earned an average of 15.790. In terms of fractional credits, the first author of the 74 papers earned 13.498 citation credits on the average and the first author of the 414 earned an average of 8.560. When t-tests are applied to these two groups, the difference is highly significant at the probability of .01 whether full or fractional citation is considered, indicating that scientists who contribute to the popular literature are also likely to be more cited in the science literature.

For the final analysis, the papers for which citation data were available were divided into four groups:

1. Those in which the first author was an influential scientist who had contributed to the popular literature (51 items).
2. Those in which the first author was an influential scientist who had not contributed to the popular literature (49 items).
3. Those in which the first author was a noninfluential scientist who had contributed to the popular literature (23 items).
4. Those in which the first author was a noninfluential scientist who had not contributed to the popular literature (365 items).

A one-way analysis of variance (ANOVA) was applied to test for differences among these groups when full or fractional citations were considered. Results indicate a highly significant difference among the groups. When fractions are considered, the F value is 5.27 (df = 3/484, $p < .01$). When full citations are used, the F value is 11.99 (df = 3/484 at $p < .001$).

To test which pairwise differences are statistically significant, Tukey's Studentized (HSD) tests were applied to the results obtained from the ANOVA. The Tukey tests indicate that, when fractional citations are considered, the only pair to differ significantly is that of the influential scientists who have published popular items and the noninfluential scientists who have not (statistically significant at $p < .05$). However, when full citations are taken into account, the difference is significant at $p < .05$ for two pairs: the influential scientists publishing popular items versus the noninfluential scientists not publishing popular items and the noninfluential scientists publishing popular items versus the noninfluential scientists not publishing popular items. It seems, then, that those scientists who contribute to the popular literature, far from being ignored by their fellow scientists, are more likely to be cited than scientists who do not contribute to the popular literature.

In summary, for the field of acid rain research, and within the particular contraints of the study, the data indicate that scientists who contribute to the popular literature are more likely than others to be called on to give Congressional testimony (and vice versa) and that the work of these same scientists is well recognized by their peers as judged by rates of citation. Indeed, scientists who contribute to the popular literature are more highly cited than those who do not whether or not they are called upon for expert testimony. Since those who give testimony are more highly cited than those who do not, some evidence also exists that scientists called before Congressional hearings are among those most influential in the science community.

Studies in progress or planned

Two further studies are ongoing and others in the series are planned. One ongoing investigation is looking at the academic boycott of South Africa. While this is far from universal, certain elements do exist; e.g., absolute ban on export of publications from some countries, some libraries refusing to honor interlibrary loan requests from South Africa, and scholars from South Africa being denied participation at certain international meetings. Specifically, we are trying to determine whether or not this boycott has had any effect on the information sources used by South African scientists. A pilot study (Haricombe, 1989) has looked at the sources cited in the South African Journal of Chemistry in the period 1977-1988. In this period the journal published 456 articles (441 by South Africans) and these generated 6391 bibliographic references. When sources cited in 1977-1979 are compared with those cited in 1986-1988, no significant differences are observed. No evidence exists, in this journal at least, that South African scientists are drawing less on the publications of any other country or that they are relying more heavily on internal sources of information. Either the academic boycott, such as it has been so far, has had no effect on the information sources used or not enough time has elapsed to allow an effect to be observed.

The largest study now underway involves an analysis of the sources cited by East European scientists. Samples of the publications of scientists from all six East European countries have been drawn for the year 1986. The samples include contributions of the scientists to domestic journals as well as to international journals. As in the Cuban, Egyptian and South African studies, the country of publication of the sources cited is now being analyzed. The hypothesis being tested is that scientists from those countries who have been ideologically "closest" to the Soviet Union (Bulgaria, East Germany, Romania) will cite proportionally more Soviet and East European sources, and fewer Western sources, and vice versa for the countries (Poland, Hungary, Czechoslovakia) that have adhered less closely to the Soviet ideology.[4]

One further study is in the planning stage but has not yet begun. It will involve an analysis of the information sources cited by Chinese scientists before and after the Cultural Revolution.

Relevance to the developing countries

The studies performed have not always supported our initial hypotheses, and some of the results have surprised us, but we believe we have shown that bibliometric methods can be applied to investigate various facets of the interaction between science and politics and, in particular, the influence that the political environment of a country might have on the information sources used by scientists of that country.

Our objective in all these studies has been to look at phenomena not previously investigated bibliometrically. They represent bibliometric research of a "pure" variety and do not necessarily produce results of obvious practical utility.

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4 It will be interesting to see to what extent these citation patterns reflect the sequence with which the Eastern European countries have declared their political independence in the recent changes taking place in that part of the world.

Nevertheless, studies of this kind do have potential relevance and interest to the developing countries.

Studies of where scientists choose to publish, over a period of time, reflect certain forms of progress in a country. For example, if scientists published significantly more in their domestic journals at the time X+1 than they did at time X, this might reflect a strengthening of the national journals or national progress in higher education (more scientists taking advanced degrees at home rather than abroad). On the other hand, a country might prefer to see its scientists publishing more internationally, especially in the most prestigious journals, since this would tend to indicate that they were producing work of a higher quality.

The effect on science of changes in the political alignment of a country may be reflected in changing patterns of collaborative authorship and changes in the sources cited (country and language of publication) as well as changes in the languages and sources in which scientists publish.

Bibliometric methods can also be used to look at differences between national and international influences in science. For example, are the scientists most called upon by politicians for advice or evidence in a country those who are most cited in the national journals?; in the international journals?; do they publish more domestically or internationally?; do they publish in more prestigious journals than the scientists who have less political influence?

Finally, bibliometric studies can be used to investigate the effects of political barriers on the exchange of information. For example, to what extent do academic and cultural boycotts impair scholarly endeavors in a country? Do they change the sources used (cited) by scientists? Do they alter their publishing patterns? Do political enmities really impede the free exchange of important and relevant information among nations? Questions of this kind can be looked at bibliometrically. One obvious example relates to Arab/Israeli relations. Israel is an acknowledged leader in irrigation research, a technology of great relevance and interest to the Arab countries. Is Israeli research, as reflected in Israeli journals and research reports, accessible in these countries?; is it used?; is it cited?

Bibliometric methods have been used to examine a wide range of phenomena over the years but little use has been made of them to investigate interactions between scholarship and the political establishment. Studies of this type deserve more attention.

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