Chapter 21

THE FOUR LITERATURES OF SOCIAL SCIENCE

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Abstract: This chapter reviews bibliometric studies of the social sciences and humanities. SSCI bibliometrics will work reasonably well in economics and psychology, whose literatures share many characteristics with science, and less well in sociology, characterised by a typical social science literature. The premise of the chapter is that quantitative evaluation of research output faces severe methodological difficulties in fields whose literature differs in nature from scientific literature. Bibliometric evaluations are based on international journal literature indexed in the SSCI, but social scientists also publish books, write for national journals and for the non-scholarly press. These literatures form distinct, yet partially overlapping worlds, each serving a different purpose. For example, national journals communicate with a local scholarly community, and the non-scholarly press represents research in interaction with contexts of application. Each literature is more trans-disciplinary than its scientific counterpart, which itself poses methodological challenges. The nature and role of each of the literatures will be explored here, and the chapter will argue that by ignoring the three other literatures of social science bibliometric evaluation produces a distorted picture of social science fields.

1. INTRODUCTION

Bibliometrics has proved a powerful tool for the evaluation of scientific research. The application of bibliometric method to research in disciplinary areas in which consensus is reached has become almost routine. Bibliometric work is facilitated in such areas because their literature exhibits certain characteristics: research is published predominantly in English language journals and references predominantly recent papers in a set of core journals

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recognised for their high quality and impact. Thus, a focused body of citations is generated which is fairly current and is accessible if a bounded set of journals is indexed. The *Science Citation Index* of course takes advantage of these characteristics to provide the indispensable basis for citation analysis of scientific output. If research outcomes are to be evaluated, patent citations to scientific literature are available (Narin, 1997), and these are almost as well indexed and well behaved as the journal literature. They are also becoming more useful as more and more public sector researchers patent (Hicks et al., 2001).

When challenged to evaluate scholarly work in the social sciences and humanities, we are rudely forced to work outside this comfort zone in a frankly messy set of literature. In the humanities book publishing predominates, and even today books and their references are not indexed in a database. In the social sciences indexed English language journal publication coexists with non-indexed book publishing, national literature, and non-scholarly literature. In the humanities referencing is archival (de Solla Price, 1970) and citations accumulate at a geological pace from the perspective of policy makers. In the social sciences referencing mixes archival and current patterns and the referencing pattern is quite scattered, lacking focus. A core literature is less clearly delineated.

This chapter will interpret the situation within the Mode 2 framework. Mode 2 is the simplification of the argument first put forth by Gibbons et al., namely that:

> "The old paradigm of scientific discovery ('Mode 1') characterised by the hegemony of disciplinary science, with its strong sense of an internal hierarchy between the disciplines and driven by the autonomy of scientists and their host institutions, the universities, was being superseded — although not replaced — by a new paradigm of knowledge production ('Mode 2') which was socially distributed, application–oriented, trans-disciplinary, and subject to multiple accountabilities"(Nowotny, Scott and Gibbons, 2003, p. 1).

Nowotny, Scott and Gibbons (2001) note the pervasiveness of processes of audit, assessment and evaluation in Mode 2. Bibliometrics has proved remarkably adept in implementing this agenda in the sciences. Thus bibliometrics is asked to extend itself into social science and humanities. Ironically, this tool of the Mode 2 'audit culture' works best on traditional Mode 1 science areas.

In confronting the social sciences in particular, I will argue that bibliometrics confronts evaluating aspects of Mode 2 research. The chapter examines the four literatures of social science: journal article, books, national, and non-scholarly literature. The discussion explores their

relationship to scientific and humanities scholarship and to trans-disciplinarity and contexts of application. The chapter will examine the methodological problems of the four literatures and will assess the success of efforts to resolve the problems and the consequences of ignoring them.

Note that 'social science' or 'humanities' will not be analysed here because generalisations at that level are of limited use. The bibliometric literature takes a more nuanced approach, examining issues at the field level, which has proved valuable. In almost every study the psychology and economics literatures are found to be most science–like, in contrast with the sociology literature. Also fields change over time. Zwaan and Nederhof (1990) point out that some parts of linguistics have converged towards cognitive science and publication patterns have come to resemble social sciences more than history. Thus core journals can be identified and the average reference has become more recent. Bibliometrics becomes quite tractable, even in this area traditionally viewed as a humanities field. We should beware of very old studies, as their results may not reflect the current situation.

2. JOURNAL ARTICLES

The first literature of social science comprises internationally oriented, largely English language, peer reviewed journal articles. The SSCI indexes these, enabling evaluations applying classic bibliometric technique whose authors acknowledge to varying degrees their exclusion of the three other literatures.

Glänzel (1996) worked from the full SSCI database to produce tables listing countries' publication and citation counts and shares, and citation per paper indices between 1990 and 1992. Glänzel recognised the substantive methodological problems arising from the nature of the social science literature, and proposed that his SSCI based indicators be interpreted cautiously. In his methodological work Glänzel has devoted considerable attention to the time distribution of citations. In this evaluation he was forced to acknowledge that although a decade long citation window would be needed to capture the slow accumulation of citations in social science, from the evaluation perspective, such methodological rigor would produce an obsolete result. Glänzel compromised with a shorter window and as a result, compared to SCI data, "mean citation rates are ... small, and the share of uncited literature is considerable" (Glänzel, 1996, p. 293).

Ingwersen, in a series of papers, examines at the national level Scandinavian publication and impact in social science and medical areas. Ingwersen begins with on-line publication counts and later moves to the

ISI's National Science Indicators product (NSI) containing national level summary publication counts. All of the papers compare Nordic countries with the world and with each other in publication output and citation impact by field within social science or health areas. The countries tend to produce high impact work in the health sciences and each has individual strengths in social science areas. In some cases trends and strengths could be connected with policy, for example the connection between strong social welfare states and strength in health sciences. As for methodological awareness, Ingwersen 2000, an NSI based analysis of traditional social science fields, finds that Scandinavian output is increasing and in many cases a country's share of ISI literature is comparable to their share of scientific literature. Whilst admitting to the continuing Anglo–American bias of the database, Ingwersen concludes that increased publication output by small countries in the SSCI makes it increasingly relevant for analysis of non-US countries in five to seven of the nine fields examined. (Ingwersen, 1997, 2000, 2002; Ingwersen and Wormell, 1999)

Katz (1999) worked from the NSI to compare national levels of social science journal publication. The UK was the focus, and Katz found that the UK share of papers increased between 1981 and 1998. Larger and faster growing fields were identified for the UK and its constituent regions. In examining citations Katz argued that a linear normalisation, i.e. citations per paper, is inadequate because citation counts increase non-linearly with size of the publication pool. He introduced a corrected indicator more favourable for small countries. On methodological issues Katz incorporated much of Hicks 1999 to conclude: "bibliometric indicators may provide a reasonable measure of the size and impact of international and scholarly social science research in some fields like psychology and economics" (p. 4). The report focused on psychology and economics.

Godin (2002) works from the full database. He counted Canadian papers by province, by sector, and by field, and counts collaborations at the sector level. He identified health and psychology as areas of Canadian specialisation. Aligned with Ingwersen, Godin noted that Canada's share of papers in the social sciences stands at 5.8%, larger than its share of papers in the sciences and engineering — which is slightly over 4%. This was seen as evidence that the SSCI was useful for social science evaluation.

The most detailed and methodologically careful evaluations of social science and humanities research have been undertaken by the Leiden group, Nederhof in particular. The group's work has been guided by conversations with topic experts, methodological issues were always acknowledged, and the analysis has been deeper than is typical elsewhere.

In the late 1990s Nederhof and Van Wijk mapped social and behavioral science topics and disciplines using the SSCI. They generated maps by

clustering a matrix whose rows listed topics (title words) and whose columns listed disciplines (a consolidation of ISI's journal classification scheme). Two maps were analysed, a dynamic and a static map. The dynamic map was built using words whose frequency changed greatly. The static map was built from the 100 most frequently occurring non-trivial words. In one paper the authors examined Dutch areas of strength and weakness. They found that Dutch performance had some strong areas, but was slightly disappointing overall (Nederhof and Van Wijk, 1997). In another publication the authors dug deeper into the maps to profile Dutch institutes. This necessitated adding back into the analysis topics missed in the quite selective mapping process. The results were quite complex and suffered from thin citation – in some cases a well cited output had two citations (Nederhof and Van Wijk, 1999).

All these SSCI–based evaluations handled the SSCI data well. They produced useful insights into national patterns of publication in SSCI–indexed journals. The authors also acknowledged the methodological issues inherent in SSCI–based bibliometrics. Nevertheless, a problem lurks behind these evaluations: social scientists publish in more than just SSCI–indexed journal articles. Bourke, Butler, and Biglia examined two bibliographies of Australian university research output. They found that natural scientists published about 85% of the time in journal articles or published conference papers; whilst for social scientists and the humanities the figure was about 61%. Books, edited books, book chapters, monographs and reports, creative works and 'other' accounted for the rest (Bourke et al., 1996). Pestaña, Gómez, Fernández, Zulueta, and Méndez examined Annual Reports to construct a bibliography of the research output of the Spanish Scientific Research Council (CSIC). The CSIC's seven natural science divisions published 81% of their output in journals and the one humanities/social science division 54% (Pestaña et al., 1995). Winterhager has examined German sociology publishing in the German SOLIS database and found that 42% is published in journals (Winterhager, 1994). Thus journal–based bibliometric indicators will be based on a smaller fraction of research output in the social sciences than in the natural sciences.

Luwel et al. took this point very seriously in his project analysing the research activities of four major Flemish universities in law and linguistics. The study included no citation information nor did it draw evaluative comparisons amongst the universities. Rather the study represented an extended discussion with representatives from the law and linguistics faculties in the four universities with input from publication counts. Based on survey data, the authors analysed how scholars spent their time, turnover rate amongst scholars, complex self–reported sub-disciplinary structures, external funding, prizes, and publications classified into 30 categories. Surveys also gathered information on peer recognition of scholars and local

and international impact of journals. The authors' extensive cleanup and classification of research output combined with their rating of journals for international impact and quality provided a means of devising output indicators independently of the SSCI that overcome some of the methodological concerns haunting pure SSCI work (Luwel et al., 1999; Nederhof et al., 2001; Moed et al., 2002).

Lewison in 2001 also addressed these concerns in his evaluation of UK output in a humanities field — the history of medicine — that focused on assessing book output. Lists of books in the history of medicine were compiled from book reviews and from references in papers listed in the SSCI. Author addresses were gathered from SSCI papers and one-quarter of the books could be assigned to countries in this way. Citations in the SSCI and book reviews (indexed in the SSCI and so easily accessible) were counted. The UK was found to be increasingly strong in the field, supporting the results of an international series of interviews. Methodologically the counts of reviews and citations did not correlate, in fact there was little overlap between books that were reviewed and cited. When asked, historians responded that reading a book is the best way of evaluating it, followed by reading a review and then by the number of citations. The number of reviews ranked considerably lower on the list.

Non-journal publishing is significant in the social sciences. Some have wrestled with this problem; others have acknowledged it. In addition to non-journal publishing a second factor compromises SSCI–based evaluations — the robust trans-disciplinarity of much social science. The bibliometric evidence for this trans-disciplinarity is found in widely scattered citation patterns. Beginning at the broadest level, Leydesdorff reports that 79% of references from papers indexed in the SCI are references to other papers indexed in the SCI. In contrast, 45% of references from papers indexed in the SSCI are within the database (Leydesdorff, 2003).

Small and Crane (1979) conducted a co-citation clustering of high–energy physics, psychology, economics, and sociology 1972–1974 using the full SCI and SSCI. Examining the characteristics of the resulting clusters, they found strong evidence of trans-disciplinarity in sociology compared with the other areas. For example, 97% (all but one) of the sociology clusters was considered interdisciplinary in that less than 2/3 of the citing papers were in sociology journals. In contrast, in psychology and economics a smaller proportion of the clusters were interdisciplinary using the same criterion (71% and 64% respectively). Examining co-citation links between clusters in the disciplines revealed that economics clusters were substantially more strongly linked to each other than were the sociology clusters. Examining links between clusters and other disciplines revealed that sociology clusters have more connections with other fields than do

economics clusters. Small and Crane's work revealed that in comparison with economics, sociology's citing patterns were less focused on literature in the same field. Sociology clusters were less strongly linked to each other and more strongly linked to clusters in other fields. Thus sociology was more trans-disciplinary than economics.

Similar evidence of trans-disciplinarity emerged from a study by Glänzel et al. (1999). These authors also analysed references in the SSCI, using them to attempt to classify papers based on the subject classification of journals they referenced. The technique aimed to classify papers in journals selectively covered by the SSCI, which are not assigned to fields. The authors counted references to journals which had been classified into business, economics, law, political science, psychology, sociology, or information and library science. The field referenced most often was used as the new classification of the paper if its share of references exceeded 50%. If there were no references to these fields, or no field gathered 50% of the references, the paper could not be classified. In all, 28% of the papers could be assigned to a social science field. That 70% of papers could not be classified speaks to their trans-disciplinary nature. Interestingly, the method was also applied to two disciplinary journals. 25% of the papers in the American Sociological Review (ASR) could not be classified as sociology, whilst 6% of papers in Developmental Psychology could not be assigned to psychology. Sociology again appears more trans-disciplinary than a comparison field, in this case psychology.

Broad, unfocused citing fragments the literature so that in the worst cases no core of literature in a field can be identified (Nederhof et al., 1989). A database such as the SSCI must have an internationally recognised core literature to work with to achieve comprehensive international coverage. Low SSCI coverage of a journal literature may signal no core literature. We might expect fragmentation to vary by field, and less trans-disciplinary fields to be the least fragmented, and so it is not surprising to find that SSCI coverage varies by field, with economics and psychology literature the best covered.

Two studies provide detailed field breakdowns of their coverage figures. Table 21.1 reports Nederhof et al.'s (1989) finding that coverage of Dutch output ranged from 62% of journal articles in experimental psychology to 2% in public administration. Table 21.2 reports Butler's findings (personal communication of unpublished data, 1998) that coverage of Australian anthropology, archaeology, philosophy, law, and economics was more than 40%. In contrast, only 25% of history was covered. In Butler's data there was an inverse correlation (minus 0.83) between share of journal articles indexed in the SSCI and share of total publications accounted for by books

or chapters in edited books. That is, the more books in a field, the smaller the share of its Australian journal literature covered by the SSCI.

Table 21.1. SSCI coverage by field – Nederhof (1989) Dutch Social Science

Field	*% of articles in SSCI*	*% publications in books*
Experimental Psychology	62	30
General Linguistics	21	40
Anthropology	15	38
Dutch Language	10	25
Social History	10	40
Public Administration	2	36

Butler's result extends the trans-disciplinary argument by linking a lack of core literature and the presence of many books. If trans-disciplinarity varies by field then fields with a higher share of books according to Pierce (1987) should have less core journal literature according to Nederhof et al. (1989). In Butler's data economics, and anthropology and archaeology exhibited the highest share of articles covered and a low share of books while history exhibited the opposite pattern.

Table 21.2. SSCI coverage by field – Butler (1998), Australian social science

Field	*Number of articles*	*% articles in SSCI*	*% publications in books*
Anthropology & Archaeology	281	44	6
Economics	1,074	43	4
Philosophy & Law	418	43	8
Geography	390	39	5
Sociology	649	32	9
Political Science	690	27	8
Asian History	220	27	10
History	532	25	12
Total	4254	35	7

3. BOOKS

The second literature of social science is books. The association between books and trans-disciplinarity is supported by citation evidence. In 1971 Broadus surveyed the literature of citation studies in the social sciences and found 11 studies, 6 of which used books (technically monographs) as sources of citations. He found evidence that books referenced more widely than journal articles. That is, in comparison to a journal article, a higher percentage of references from a book will be to work outside its specialty

(Broadus, 1971, p. 238). Looking at citations gathered by books, Clemens' et al. studied sociology and reported that books received the majority of citations from outside the discipline of sociology. In the least cited quartile books received 54.5% of their citations from outside sociology compared with 16% of citations to journal articles. In the most cited quartile books received 79% of their citations from outside sociology and articles 55%.

The trans-disciplinarity of books suggests that the book and journal literatures differ, a point pursued further below. However, books are a small percentage of social science output, and so one might choose to ignore them. The reason one cannot is that books have a high impact in social science. Broadus' review found that references to monographs ranged from 31% to 56% of references from book and journal literature in a variety of fields. He compared this with a 1939 study showing chemists gave 5% of their references to monographs and physicists 8% (Broadus, 1971, p. 241). Small and Crane (1979) analysed references from journal articles indexed in the SCI and SSCI and found that the share of the cited items that were books was:

- 0.9% in high energy physics;
- 15% in psychology;
- 25% in economics;
- 39% in sociology.

Thus books are ignored in studies of science, but in social science, although a relatively small percentage of output, they account for a substantial proportion of citations in the SSCI — as much as 40%. Indicators built from SSCI indexed material — journal articles and citations to them — will miss the 40% of citations received by books. Books can be very highly cited:

- Hicks and Potter (1991) examined a bibliography of sociology of scientific knowledge and found that on average journal articles received 1.2 citations and books 5.7 citations.
- Clemens et al. (1995) compares the citation rate of elite publications: papers published in the two leading American sociology journals — American Sociological Review and American Journal of Sociology in 1987 and 1988 — and 80 books nominated for the American Sociological Association's Distinguished Scholarly Publication award. They find that "books are clearly cited more frequently than journal articles by a ration of 3:1" (p. 459). Citations to the 20 most cited articles ranged from 16 to 55 while citations to the 20 most cited books ranged from 34 to 512.

- Bourke et al. (1996) examined research output 1989 to 1993 for social sciences at the Australian National University and found that on average journal articles received 0.9 citations and books 5.2 citations.
- Thomas (1998) collected a bibliography of 300 items published by leading authors in organisational behaviour between 1956 and 1975. The 33 most cited items were books.
- Webster's (1998) lists of most cited Polish sociology documents are mostly books — 11 out of 15 cited in the SSCI and 18 out of 19 cited in the Polish Sociology Citation Index.

This evidence establishes that books are high impact, and thus under the rules of bibliometrics should not be ignored. The danger of ignoring books is further illustrated by exploring the differences between the worlds of book and journal publishing. Books are not just large journal articles. Evidence is found in the lack of correlation between cites to books and journal articles. Four studies illustrate these points:

- Nederhof et. al. (1989) lists the citations per book and journal article for 19 departments; the correlation between the two was 0.32.
- Hicks and Potter (1991) collected a bibliography of 17 authors' output in the field of sociology of scientific knowledge. The correlation coefficient of the citation per book and journal article figures was 0.35.
- Bourke et al. (1996) compared the rankings of departments using total and journal only citation counts They concluded: "In the social sciences and humanities, the use of journal citation rates as a surrogate for total publication citation rates is more likely to be misleading than in the sciences. It still does, however, provide useful information when used in conjunction with informed peer review" (Bourke et al., 1996, 54).
- More recently, Cronin et al. (1997) constructed a database comprising 30,000 references from 90 books randomly chosen from those reviewed in top sociology journals and published between 1985 and 1993. Cronin et al. compared lists of the 26 authors most cited in the monographs and in the top 24 sociology journals. They found that nine authors featured on both lists. The five authors ranked 22 to 26 on the book list did not appear among the top 532 authors most cited in the journals.

The low correlations in citation counts combined with the differing highly cited author sets suggests that the journal and book literature form different worlds. That these worlds may overlap but retain a distinct identity is supported by Line's work. Line constructed a set of 59,000 references, 11,041 from monographs and 47,925 from journals. Line found that, compared to journals, monographs referenced proportionally fewer journal articles and more monographs and other types of literature. This suggests

that the journal and book literatures are somewhat self–contained, although obviously interdependent and overlapping.

Table 21.3. References made by journals and monographs to other forms of material (source: Line, 1979, p. 274)

Forms of material cited	*Source material*	
	Journal articles	*Monographs*
Journal articles	47%	25%
Monographs	39%	51%
Other newspapers, unpublished etc.)	14%	24%
Total	100%	100%

The different types of scholarship they represent may explain why two worlds of literature coexist. Journal articles may reflect a more scientific, and books a more humanities type of approach to scholarship. Clemens et al.'s study of sociology helps us understand this. Clemens et al. compared book and journal publishing within the context of a long standing debate in sociology. Is the field professional, technical, cumulative, and convergent as one would gather from its journal literature or is it a diversified, intellectually open endeavour as found in the books? Examining the two types of publishing sheds light on the themes of scientific integrity versus intellectual vitality that underpin the debate.

Clemens et al.'s evidence supported the notion that book and journal publishing form different worlds. Entry into article publishing, they argued, is competitive and so more egalitarian than entry into book publishing, which relies more heavily on patronage, recommendations and reputation. Thus they found that book authors were more likely to be trained and located at elite private universities than were journal article authors. Article authors were more junior than book authors. Articles were more likely to be based upon quantitative evidence and books on qualitative evidence (although books based on quantitative evidence were the most cited of all). They concluded:

> "... books and articles play different roles. Books are high–stakes endeavours that, when successful, are effective in enrolling allies from neighbouring fields. Articles, in contrast, discipline the troops, generating a common currency of evaluation, be it in comprehensive exams or tenure decisions. To the extent that we care about scholarly reputation, both our discipline's and our own, neither genre should be ignored"(Clemens et al., 1995, p. 484).

Clemens et al.'s analysis painted a picture of a heterogeneous field of scholarship with distinct journal and book traditions. Journals represent a

more scientific type of research and books a more humanities type of scholarship. Both are trans-disciplinary, books more so. Because books are very highly cited and often produced by different people than journal articles, SSCI–based analyses will differ from more inclusive studies. Bibliometricians ignoring books risk distorting our picture of social science.

4. NATIONAL LITERATURES

The third literature of social science is national. American and European geologists are interested in Iceland's volcanoes, and geneticists learn much from Iceland's genealogical records (Thorsteinsdottir, 1998), but Dutch journals in public administration remain unknown to foreign experts (Nederhof, 1989, p. 338). In contrast to science, social sciences are more embedded in their social context because society is their concern. Social science research agendas are influenced by national trends and by policy concerns of the national government. Theoretical concepts are subtle, and without the unifying language of mathematics are expressed in national languages, and can often be fully appreciated only in the original language. Countering this, Nederhof argues that:

> "Genuine scholarly research, regardless of the sub-discipline and the object of research, leads to results the relevance and implications of which go beyond a purely national viewpoint or interest. This may be less so for contributions of a more applied or practical nature. Therefore [at least some] outcomes of genuine scholarly research, even those primarily related to national aspects, deserve to be communicated — in an appropriate form — to scholars in other countries as well" (Nederhof, 1989, p. 513).

This section examines the existence and nature of national literatures. Here national and international literatures are juxtaposed. National journals are those which are not often indexed in the SSCI; which primarily, though not exclusively, publish articles in the native language (not English) of their country of publication, and whose authors and readers largely work in that country. International journals include most journals indexed in the SSCI (although parochial US and UK journals are often SSCI indexed); and are largely English language journals whose authors and readers work in many countries.

Bibliometric evidence suggests that both producers and consumers of social science are nationally oriented. Research shows that compared to natural scientists, social scientists both write for and read fewer foreign language or even foreign journals. Kyvik studying the writing habits of

Norwegian scientists and social scientists in the early 1980's, found that compared to the scientists fewer social scientists published in a foreign language and more published in Norwegian (Kyvik, 1988, p. 165). Taking authors' citation patterns as an indication of their reading habits, Yitzhaki (1998) found that authors over–cite material in their own language. American and British authors cited English language material 99% of the time, although English language sociology probably accounted for 70% of the world literature. German and French authors cited material in their own language more than 60% of the time although such material accounted for less than 10% of literature in the field. However, Nederhof et al. (1989) emphasised that visibility depends less on writing in the English language than it does on publishing in an international journal. That is, the impact of English language papers in Dutch journals is not higher than the impact of other papers in Dutch journals. In a sense then, each national literature is a world unto itself.

In addition, a national literature constitutes a world overlapping to a limited extent with the SSCI as was well illustrated by Webster/ Winclawska's analysis of a Polish sociological citation index (PSCI) (Webster, 1998; Winclawska, 1996). In the first analysis Winclawska began with a list of Polish sociologists and counted their citations in the international SSCI and the Polish index between 1980 and 1988. She found that of the top 10 most cited journals in the Polish index, only the three foreign ones are indexed in the SSCI.

In the second analysis the author, now Webster, counted citations to Polish sociologists between 1981 and 1995. She found:

- Lists of the top 20 most cited Polish sociologists in each index had 12 names in common. The most cited sociologist on the Polish list (with 253 citations) was ranked 41st in the SSCI (with 19 citations). The most cited sociologist on the SSCI list (with 254 citations) was ranked 20th on the PSCI list (with 41 citations).
- Lists of the top 20 most cited documents by Polish sociologists in each index contained none in common. All but one of the SSCI cited documents were in English; all the PSCI cited documents were in Polish.

The Webster/Winclawska's analyses illustrated the bibliometric consequences of the limited overlap between national and SSCI literatures. Bibliometric indicators based on foreign literature painted one picture of Polish sociology, and the Polish sociology index another.

Maintaining a database is far more demanding than compiling a list, and so database coverage can be compared against more comprehensive worldwide journal lists. Schoepflin (1990) compared the UNESCO 1986 World List of Social Science Periodicals with the list of journals indexed in

the SSCI. Table 21.4 below is taken from Schoepflin's article. It compares the number of journals produced in the US, UK, Germany, and France that appear on the UNESCO list and in the SSCI. At that time UNESCO's list at 3,515 journals was 2½ times as long as SSCI's at 1,417. Interestingly, SSCI indexed more American journals than UNESCO, confirming the comprehensiveness of US coverage in the SSCI. The UK is also over–represented in the SSCI at 18%. German and French literature is not as well covered in the SSCI, nor is the rest of the world. Schoepflin's work confirms that except for the US and probably the UK, the SSCI and national literatures represent partially overlapping yet different worlds.

Table 21.4. Comparison of SSCI and UNESCO journal lists

	Number of Journals			*Percentage share*		
Country	SSCI		UNESCO	SSCI		UNESCO
USA	852	>	611	60	>	17
UK	256	<	334	18	>	10
Germany	48	<	184	3	<	5
France	25	<	269	2	<	8
Rest of world	236	<	2,117	17	<	60
Total	1,417	<	3,515	100	=	100

The proportion of a nation's output accounted for in indicators will depend not only on the number of a nation's journals indexed in the SSCI; it will also depend on how often researchers publish in English language international journals. Determining the share of national output indexed in the SSCI is laborious, nevertheless a variety of studies have examined this. Table 21.5 summarises the relevant parts of these studies, presenting the percentage of social science journal output indexed in the SSCI for a variety of countries.

There is quite a range in the figures. UK economics seems well covered with 73% of its articles indexed (Nederhof and Van Raan, 1993). This accords with Shoepflin's analysis, which showed UK journals are relatively well covered. About one-third of Australian and Dutch social science journal output is covered (Butler, 1998; Tijssen et al., 1996; Royle and Over, 1994), and a small percentage of Spanish output (Pestaña et al., 1992; Villagrá Rubio, 1992). Apparently the Spanish publish much more in Spanish than the Dutch do in Dutch.

Except for the US and UK, national social science literatures are largely excluded from the SSCI. SSCI indicators will represent internationally oriented research. Webster summarises this point well, concluding that the SSCI indicates the presence and the impact of Polish sociology on the international arena, focusing on areas of research done in Poland which are

of interest to the international community and the 'best' Polish sociologists and Polish sociological works; but the SSCI "does not allow for an in-depth analysis of the local dimensions of the discipline" (Webster, 1998, p. 31).

Table 21.5. SSCI article coverage

Study	*Country (number of country's journals indexed in SSCI)*	*Number of journal articles*	*% of journal articles in SSCI*	*% of all publications in SSCI*
Nederhof 93	UK (278) – economics only	193	73	27
Burnhill	UK (278)	468	46	22
Butler	Australia (20)	4,254	35	
Tijssen	Netherlands (83 - 3 Dutch)	all Dutch[1]	30	
Royle & Over	Australia (20)	1,901	27[2]	
Pestaña	Spain (3)	1,242	4	2
Villagra Rubio	Spain (3)	3,757	1[3]	1
Winterhager	Germany (52)	49,446		25

[1] Elsevier English language journals are attributed to the Netherlands.
[2] Comparable figure for science: 74% of 6304 articles indexed in SCI.
[3] Strictly speaking this is percentage in 'international journals', i.e. those indexed in any of 11 international databases including Social Scisearch.

However, the prospects for social science indicators may be improving as social scientists become more internationally oriented. There is some bibliometric evidence on this point from the studies reviewed here:

– Pestaña et al. (1995) mention that the Spanish CSIC research output is growing more international, though they do not say if this trend is strong in the social sciences sections;
– Van der Meulen and Leydesdorff found that the proportion of Dutch philosopher's output published in foreign, scholarly journals increased from 3% to 17% between 1979–80 and 1984–85 (Van der Meulen and Leydesdorff, 1991, p. 309).

There are clearly forces working towards the homogenisation of social sciences — economic globalisation; the internet; European research funding that requires international collaboration; the transitions of East and Central European nations that freed communication and travel, and national level evaluations that emphasise publishing in high impact journals (such as the UK Research Assessment Exercise).

In fact, in Nederhof and Van Wijk's (1997) word–based topic clustering in the late 1980's (described earlier) the authors found that in the international literature indexed in the SSCI:

With the exception of a minority of topics related to political science, to social issues, and to a lesser extent physical health and geographical location, the large majority of the topics seem to reflect a transnational substantive interest. In addition, the [US and European countries] studied here share many social and political issues. Of course, this may not be true for other countries, and in particular non-Western countries. The present data suggest that the research front on many topics in the social and behavioural sciences is international in the late 1980s. Of course, this does not preclude that publications on national issues or national aspects of issues appear in journals or books that address primarily a national audience (p. 271).

Perhaps the most intriguing evidence on increasing internationalisation of social science, and hence of the SSCI, is provided by comparing the Winclawska and Webster studies. Her first study covered pre-transition Polish sociology, 1980 to 1988, her second covered pre and post transition sociology. Pre-transition, the SSCI missed 90% of Polish sociologists; post transition, it missed only 30% — a figure much closer to the Polish Sociology Citation Index (PSCI).

The quantitative evidence suggests that the overlap between the worlds of national literatures and the SSCI has increased. At the same time the continued existence and differentiation of national literatures is not in question. Note the heavy caveats on Nederhof and Van Wijk's statement above; in addition Webster's work added nuance to the argument. Webster's work suggested that the ascendancy of an international social science may place small–country social scientists in the position of applying other's frameworks to their societies, recognised internationally mostly when their societies present picturesque episodes that become fashionable topics in big countries. National communities may develop method and theory, but big–country social scientists remain impervious.

This conclusion was suggested by comparing the topics of the works most highly cited in the PSCI and SSCI. Polish sociologists highly cited (in articles published in the four Polish journals indexed in the PSCI) handbooks in general sociology by Polish authors, works on the social structure of Polish society, and works on interesting theoretical or methodological issues. Works highly cited in the SSCI included: 6 dealing with theoretical issues, each at least 20 years old; and the rest dealing with social unrest in Poland in the early 1980s and the fall of Communism in Eastern Europe. Webster concluded that: "the international sociological community does not notice Polish attempts to tackle universal issues in sociology; it is primarily interested in 'fashionable' topics and fads associated with the 'velvet revolution' and systemic transformation." (Webster, 1998, pp. 23–24).

Small country social scientists can be internationally recognised, but perhaps have fewer possible strategies for doing so than US or UK social

scientists. Many may choose to pursue topics which will not interest those in other countries. National literatures will provide a more complete picture of many social science fields in small countries because they will include theoretical and methodological development. Increasing internationalisation may thus work to change the nature of social science in small countries. Ingwersen argued that analysis is possible when the number of a country's papers in a social science field that are indexed in the SSCI becomes reasonable, i.e. as the country's share of world output in the social science field approaches its share in scientific fields. However, as with books, what is missed is not the same as what is counted. One world is delineated; another exists.

5. NON-SCHOLARLY LITERATURE

The fourth literature of social science comprises non-scholarly works. Non-scholarly journals are those "usually directed at non-specialists such as high school teachers or, in short, the general public . . ." They are devoted to enlightenment or knowledge transfer to the non-scholarly public (Nederhof and Zwaan, 1991, p. 335). In the US the economist Paul Krugman exerts influence through his New York Times column. Burnhill and Tubby-Hille found that in the UK "projects in education [were] reaching practitioners through such periodicals as the Times Education Supplement, with researchers in sociology, social administration, and socio-legal studies publishing in such periodicals as New Society and Nursing Times". (Burnhill and Tubby-Hille, 1994, p. 142) Where national literatures can develop knowledge in the context of application, publishing in non-scholarly journals moves knowledge into application. The literature therefore performs a function similar to patenting for scientists. But patent systems are indexed, can contain citation structures amenable to bibliometric analysis, and have gained respect as a valued output worthy of evaluation (Narin, 1994). In contrast, non-scholarly literature, being also national literature, is less well indexed, does not earn citations and has not yet earned respect as a valued output of scholarly work interacting with application.

Burnhill and Tubby-Hille (1994) have investigated this issue in some depth. Their publications database was constructed from end–of–award reports of grant holders to the granting agency, supplemented by a survey. They checked whether listed journals were peer–reviewed using two directories of periodicals which identify peer–reviewed serials – EBSCO and Ulrich's. Burnhill and Tubby-Hille then examined SSCI coverage of 'peer–reviewed' journals. The SSCI indexed 82% of articles in journals regarded as peer–reviewed by the directories or at least two authors. However, the

SSCI coverage dropped to 67% if articles in self–reported 'scholarly' journals were included.

Burnhill and Tubby-Hille did not report SSCI coverage by field. However, they did report scholarliness of articles by field (Table 21.6). In this table, 'peer–reviewed' means articles in journals judged to be peer reviewed by the directories or by two or more authors. 'Authors consider scholarly', means an author reported the article to have been peer reviewed on the survey. 'Other' is remaining journal articles. Psychologists, statisticians and geographers do not publish much in non-scholarly literature. Other fields do. Economics here diverges from its more general pattern of scientific type publishing with a healthy percentage of articles in non-scholarly venues. Linguistics, education and sociology lead in share of non-scholarly publications.

Nederhof et al. (1991) have also looked quite closely at this issue. They surveyed Dutch and foreign scholars asking them about the scholarliness of a number of journals in which Dutch social scientists published. They found that journals considered scholarly in university annual reports were not always considered so by experts. The share of non-scholarly journals ranged from 11% in experimental psychology to 25% in public administration.

Table 21.6. Scholarliness of journal articles by field: Burnhill and Tubby-Hille, UK social science

Field	*% of journal articles (468 total across all fields)*			*% of total publications*
	Peer–reviewed	*Authors consider scholarly*	*Other*	*Books*
Psychology	87	7	5	11
Statistics/computational methods	75	13	13	8
Geography & planning	73	19	8	7
Political science & internat. relations	64	8	28	29
Economics	64	6	30	10
Social anthropology	63	0	37	22
Management & business studies	60	12	29	10
Education	48	11	40	14
Sociology/ social administration	48	11	41	17
Economic & social history	44	20	37	24
Linguistics	23	15	62	20
All social science	62	13	26	15

If departmental output were recounted, including only articles in journals judged scholarly, in the best case one experimental psychology department would have lost only 1% of its output, and in the worst case one public administration department would have lost 61% of its output.

Nederhof et al. recalculated the share of articles covered by the SSCI in two ways based on their survey results. They calculated the share of articles in scholarly journals that were indexed in the SSCI, and they calculated the share of 'core' journal articles indexed in the SSCI where core journals were those:

1. known to more than 20% of their respondents;
2. possessing a high scholarly quality (mean of at least 7.5 on a 10 point scale);
3. and found useful to the research of at least 2 0% of the respondents.

Table 21.7 displays their results. The table shows that when just the scholarly core of a field is considered, SSCI coverage can be quite comprehensive. However, some fields remain mostly local in orientation. In public administration, a core literature could not even be identified.

Schoepflin (1990) reported similar results derived from a survey of German professors asked to rate journals according to their visibility and their perceived value. Of the highly rated journals the SSCI covered: 94% of psychology journals, 26% of sociology journals, and 8% of education journals.

Table 21.7. Share of articles indexed in SSCI by journal type — Dutch Social Science (% and number of articles)

Field	*University Annual Reports*	*Scholarly journals*	*Core journals*
Experimental psychology	58 (260)	69 (257)	100
General linguistics	21 (38)	22 (38)	85
Dutch language	10 (27)	11 (27)	20
Public Administration	3 (12)	5 (12)	no core

We can take two perspectives on this issue. In the first we ask: how good is the SSCI as a tool for evaluating Mode 1 social science? Clearly the value of the SSCI for evaluation increases when non-scholarly literature is removed from consideration. However, if we were to accept the mode II emphasis on knowledge in interaction with application, we would have to accept the importance of enlightenment literature. In recent years the culture of science has shifted to embrace the value of application and patenting. However, for social scientists this will be more difficult, in part because social science has always interacted with application and an internal tension has developed involving bolstering claims to scientific, and hence scholarly, status by distancing from application. Also, unlike the patent literature, the enlightenment literature has no review and citation mechanisms and so offers no differentiators by quality and extent of use, severely restricting the scope for assessment and evaluation.

6. CONCLUSION

In social science there are four distinct literatures: international journal articles, books, national and non-scholarly publications. International journal articles are SSCI indexed and are the currency of evaluation around the world. This is not wrong; using journal articles to communicate research results to an international audience is an important part of scholarly work. However, there is more to scholarly work in social science and the humanities. Books also can have a very high impact. National literature represents knowledge developed in a local context. Non-scholarly literature represents knowledge reaching out to application. To add to the problems each literature is more trans-disciplinary than comparable scientific literature. SSCI bibliometric evaluation must make the best of the low citation rates associated with trans-disciplinary citation scatter and citation accumulation times which are too long for policy makers' purposes. The authors and topics associated with the four literatures overlap, but not completely, so the results of SSCI bibliometrics will not be the same as the results of an ideal evaluation which included all four literatures.

All is not lost however, fields differ in their characteristics with the economics and psychology literatures quite similar to scientific literatures, sociology being a paradigmatic social science literature and history representing humanities. SSCI–based bibliometrics will work best when applied to science–like literatures such as economics and psychology.

Although scholarship around the world is moving into SSCI indexed journals, making standard bibliometrics more reasonable, the three other literatures still exist. If scholars seek to bolster their evaluations by abandoning the three other literatures in favour of SSCI journals, the resulting social science will differ from the social science of four literatures each serving specific ends.

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APPENDIX

Data sources and method for Table 21.5

Study	*Data source*
Bourke et al. 96	IAS95 — Database of research output 1989 to 1993 for the Research School of Social Sciences (RSSS) and Research School of Pacific (and Asian) Studies (RSPAS), Institute of Advanced Studies (IAS), at the Australian National University (ANU).
Burnhill	All publications related to research grants of the UK Economic and Social Research Council (ESRC) in 1984–85.
Butler	IAS95 database though with some non-ANU university papers included, figures from personal communication
Hicks & Potter 91	Bibliography of sociology of scientific knowledge collected by snowball method.
Nederhof, 89	Bibliographies of Dutch university output in eight fields constructed by correcting lists obtained from university annual reports. All figures averaged across the eight fields.
Nederhof et al., 93	Grant related bibliographies of six British economics research groups
Pestaña	Bibliography constructed from Annual Reports of the Spanish Scientific Research Council (CSIC) 1990–92
Royle & Over	Bibliography of articles published in journals or serials constructed from the 1990 and 1991 Annual Reports of La Trobe University, Monash University, and the University of Melbourne
Tijssen	Research papers of Dutch universities, personal communication
Villagra Rubio 92	Database of Spanish university journal and book output in economics, sociology, political science, linguistics and literary sciences derived from the ECOSOC database which contains all articles in Spanish journals and the ISBN database, the official bibliography of Spanish books. These were supplemented with searches in 11 international databases including Social Scisearch.
Winterhager	Das Sozialwissenschaftliche Literaturinformationssystem (SOLIS)