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A Case Study of German Language Core Journals for Characterizing Citation Patterns in the Social Sciences

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Abstract

Publication practices in the social sciences are characterized by the use of heterogeneous publication channels and a stronger national focus (Nederhof, 2006; Hicks & Wang, 2011). At the same time the use of bibliometric indicators in research evaluation promotes journal articles in international peer reviewed journals as the main style of publishing research results. The question emerges to which extent this changes publication practices in these disciplines. In our contribution we address this question and present results of a case study which investigates publication and referencing patterns of core German language journals in sociology and political science. Based on an explorative analysis of reference lists we describe patterns and changes of the parameters of the knowledge base of these journals. The analysis of the results in this study shows that with a total of 67% in the sociology and 76% in the political science the core German journals predominantly refer to non-journal publications. Besides, the share of non-source publications basically remains constant in the time period 2000-2009, and the share of references to source journals is the same in both disciplines. The difference between sociology and political science is: publications in the German language sociology journals have more references to monographs (46%) than publications in the German language political science journals (38%), but these political science journals reference to other non-source publications (38%) much more than sociology (21%).

Keywords: Citation Pattern; Referencing Pattern; Social Sciences

1. Background

In the measurement of research performance bibliometric indicators are increasingly used as proxies for the productivity of researchers and the relevance of their research in their academic community. Even though not always stated explicitly, these indicators depart from a specific model of how the production of research output is structured. Firstly, journal publications with an international scope are considered to be the most important channel for publishing results. Secondly, citing and cited journals in a field are expected to be in a symmetric relation (Garfield,

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1964). Therefore, most bibliometric analyses use data from databases such as the Web of Science and Scopus which collect research output based on these two assumptions.

However, research based on these databases has shown that these assumptions apply quite well for the "core" sciences such as physics or chemistry but are less valid for the social sciences and humanities (Nederhof, 2006). The level of symmetry between citing and cited journals is considerably lower in the social sciences. Furthermore, journal literature was found not to be dominant literature. Particularly books and national journals not indexed in the Web of Science are important parts of the knowledge base of these disciplines (Hicks, 2005).

With the increasing use of bibliometric indicators in research evaluation, there is a certain incentive for researchers to publish in journals which are indexes in bibliometric databases rather than other publication channels. There is evidence from other disciplines that this has an impact on the choice of both publication format and citation patterns (Fry et al., 2009). Therefore the hypothesis that publication patterns and referencing patterns in the social sciences converge towards the ones in the sciences seems plausible. In this contribution we want to test this hypothesis based on an analysis of referencing patterns in core German language journals in two social science subfields: sociology and political science.

2. Coverage, Publication and Referencing Patterns in the Social Sciences

Publication and citation behaviours differ among the different disciplines. Particularly the social sciences and the humanities show very specific patterns in processing and publishing research results. The publication characteristics in the social sciences compared to natural sciences mainly include: social scientists publish different types of literature, they rather produce books, contributions to edited volumes and monographs than journal articles, and they focus more intensely on issues that are of national, regional, and local interest (Hicks, 1999; Nederhof, 2006). Bourke, Bulter, and Biglia (1996) examined all 1989 to 1993 Australian National University research outputs and found that natural scientists published about 85% of works in journal articles or published conference papers, as opposed to the 61% for social scientists and humanists. Winterhager (1994) examined German sociology publications in SOLIS database and found that 42% is published in journals. Concerning to the coverage of WOS, a study on the basis of the full coverage database in the social sciences and

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humanities for the region of Flanders, Belgium from 2000 to 2009 shows that there are about 63% publications are not indexed in WOS (Engels, Ossenblok, & Spruyt, 2012). Among these publications, 75% are published as journal articles, 2% are books as author, 4% are edited books, and 18% are book chapters. Another comparative research shows that the percentage of WOS articles to all articles in the all SSH is 50% in Flanders while it is 29% in Norway (Ossenblok, Engels, & Sivertsen, 2012).

Furthermore, referencing behaviour in the social sciences also differs. While in the natural sciences journal articles are by far the most frequently cited literature, the majority of references in the social sciences points to books and monographs. In addition, it takes longer for social sciences publications to reach their citation peaks. (Bourke et al., 1996; Clemens, Powell, McIlwaine, & Okamoto, 1995; Hick, 2005; Line, 1979) Another characteristic is that even though books contribute for a small percentage to the total of social science output, they have a high impact (Hick, 2005). Researchers claim that the most cited items in the social sciences are books (Earle & Vickery, 1969), accounting for about 40% of citations (Hicks, 1999). In a study about sociology in the US, books were clearly cited more often than articles, with a ratio of 3:1 (Clemens et. al., 1995). Hicks and Potter (1991) found that on average journal articles received 1.2 citations and books got 5.7 citations in sociology. Bourke et al. (1996) examined research output published from 1989 to 1993 for social sciences at the Australian National University, and found that on average journal articles received 0.9 citations and books got 5.2 ones.

Glänzel and Schoepflin (1999) analysed the references in the 1993 SCI and SSCI, and found that 64% of the psychology and psychiatry references are serials, while this percentage amounted to 56% for business, 49% for economics, 40% for sociology, and 35% for history and philosophy of science and social sciences. Line (1979) analyzed 59,000 references and found that monographs referenced proportionally fewer journal articles and more monographs and other types of literature compared to journals. Another interesting aspect of reference lists in the social sciences is the share of domestic and international references. Yitzhaki (1998), Bookstein and Yitzhaki (1999) have conducted an analysis of language preferences in references lists. Their results show that own language preference in citations is particularly high in the social sciences.

To sum up previous research, we can observe that publication, referencing and citation patterns in the social sciences seem to differ significantly from the ones in the

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sciences, medicine and technology. However, very little systematic information is available about whether these differences are subject to changes. The use of bibliometric indicators in research evaluation – indicators which favour a specific type of publication behaviour – suggest that they might have been reducing. Additionally, it is unclear to which extent the choice of publication channels which are favoured by bibliometric indicators is also reflected in the knowledge base these journal articles refer to. This study addresses this gap by investigating whether the structure of the knowledge base of national social science publications has changed during the last 10 years.

3. Data and Methods

The most valid approach for answering our research question would be an analysis of the references of the full publication output of the German language social sciences in an extensive publication window. As this data is far from being available in a structured way, in part even far from being available at all we chose to focus on "core" German language journals in sociology and political science. We chose this object of analysis as we expect it to differ significantly from the publication practices that serve as the theoretical boilerplate of bibliometric analyses. We analyse journals which are nationally oriented, German language and predominantly citing non-source publications. In this study, we defined "core" journals by analysing the full outputs of two German political science departments (University of Mannheim and University of Münster) and publication lists collected for all German sociology departments in a research assessment exercise (*Forschungsrating Soziologie*, Neidhardt, 2006). As the aim of this research was to analyse reference lists we limited the list with core journals to journals that have continuously been indexed in the Web of Science since at least 1990.

We chose the Web of Science (Online, SCI, SSCI, A&HCI) instead of Scopus as data source, because the latter does not offer citations for publications that have been published before 1996. The core German language journals in sociology defined by this study include four journals, *Berliner Journal für Soziologie, Kölner Zeitschrift für Soziologie und Sozialpsychologie, Soziale Welt- Zeitschrift für Sozialwissenschaftliche Forschung und Praxis, and Zeitschrift für Soziologie*. The core German language journals in political science include three journals, *Internationale Politik, Osteuropa, and Politische Vierteljahresschrift*. Details of these core journals are provided in Table 1.

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Table 1. Core German Language Journals in Sociology and Political Science

Full journal name	Abbreviation name	Indexing span (WoS)	Items 2000-2009
Berliner Journal für Soziologie	BERL J SOZIOL	1994- present	332
Kölner Zeitschrift für Soziologie und Sozialpsychologie	KOLNER Z SOZIOL SOZIALPSYCHOL	1967- present	1,034
Soziale Welt- Zeitschrift für Sozialwissenschaftliche Forschung und Praxis	SOZIALE WELT	1994- present	244
Zeitschrift für Soziologie	Z SOZIOL	1979- present	300
Internationale Politik	INT POLITIK	1995- present	2,611
Osteuropa	OSTEUROPA	1979- present	2,576
Politische Vierteljahresschrift	POLIT VIERTELJAHR	1987- present	1,336

In order to analyse the structure of the reference list we used as system of three categories of references to journals: references to German language sociology/political science journals which are indexed in the Web of Science ("German source journals"), references to other source journals, references to German non-source Sociology/Political Science journals, and other references. For every reference in our dataset we decided which of these categories it belongs to. Technically we achieved this in three steps:

In the first step we created a list of German sociology and political science journals. For every journal we gathered different spelling variations of the journal title and the information whether the journal is also indexed by Thomson Reuters. As a source we used the references in Web of Science. We extended this list with all other journals indexed in Web of Science.

Based on these materials we programmed an algorithm which compared each source title in the references of the publications in our dataset to the titlesin the list of spelling variations. Whenever a reference matched the list it was classified according to the category the jounal belongs to. The algorithm works iteratively: we supervised the process by intellectually verifying its results and continuously extended the list with spelling variations. The remaining references which could not be matched to the list containing source journals and German language non-source journals in the social and political science were coded as journal and non-journal references according to the methodology described in Moed (2006, p. 121). This method takes the availability of different types of meta data in references as a proxy for the type of publication that is referenced: references which

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include author name and title but no indication of pagination and volume number are classified as references to monographs, references with full meta data are classified as references to publications in non-source journals and collected editions. Finally, all remaining references were coded as references to non-source publications.

4. Preliminary Results

According to Table 2 we can see that references to non-source items account for almost 84% of all references in the four core German language journals in sociology in the time period from 2000 to 2009. Around two thirds of the references are to non-journal publications. Among the references positively identified as journal references we can find that references to source journals dominate. References to German journals sum up to 9% of all references. References to either non-source journals or collected editions account for about 17% of the references.

The composition of reference lists in political science differs slightly. References to monographs and non-source publications account for almost 84% of all references – a high share of those being citations to articles in collected editions. While references to national journals do not play a very important role in sociology journals (at least with regard to their quantity), with only 5% of all references they are virtually absent in the political science journals. At the same time, 12% of references address international source journals and only 3% German source journals.

The two journal sets from different subfields in the social sciences show different referencing patterns in terms of citations to source journals and non-source journals.

Table 2. The Overall Count and Share of Different Categories of References in Core German Language Sociology and Political Science Journals (2000-2009)

	Journalset	Pol. Sci	Journalset	Sociology
References to monographs	38%	19,284	46%	26,448
References to non-source-publications	38%	19,622	21%	12,362
References to other non-source journals/ collected editions	8%	3,866	17%	9,683
References to other source journals	12%	6,090	7%	4,135
References to German source journals	3%	1,495	6%	3,228
References to German non-source journals	2%	865	3%	1,826
Total	100%	51,222	100%	57,682

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Political science journals have a higher share of references to non-German source journals (12%) than sociology journals (7%). In contrast, sociology journals have a much higher share of references to non-source journals (17%) than political science journals (8%). It could be estimated that German language sociologist reference more local oriented journals, while German language political scientist may reference to more international journals articles.

In terms of the development of the share of categories in the two sets of journals we could see different patterns emerge. In Figure 1, publications in the German language sociology journalset show basically constant referencing patterns in the 10-year time window with regard to references to non-source and national publications. Their share only decreases slightly over time. In contrast, the share of references to source journals increases from 19% in 2000 to 26% in 2009, with a peak in the year 2004.

The analysis of the German language political science journalset as outlined in Figure 2 shows that the share of references to monographs and non-Source-Publications in core political science journals is decreasing from 82% to 71% in the time period 2000 to 2009. The share of references to source journals in political science is much lower than in sociology, but it grows stably over time from 10% in 2000 to 19% in 2009. Besides, the number of all references turns up heavily in the year 2009. This rise is due to a special issue consisting of review articles in the core journal *Politische Vierteljahresschrift* in 2009.

Looking at the numbers of references to the different categories of journals on Figure 3, we would have a clear view that the majority of references point at publications in the category "other source journals". The number almost

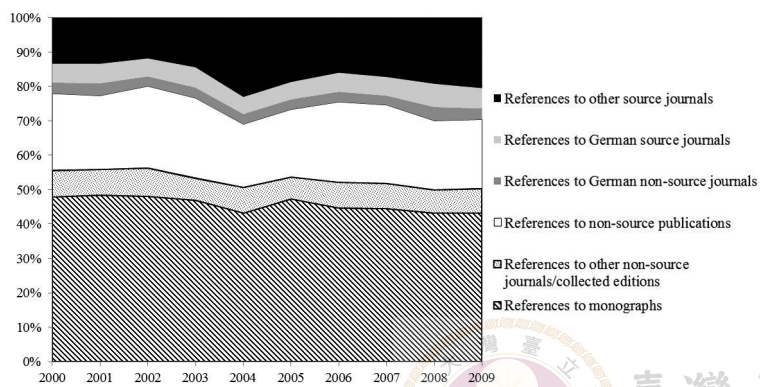


Figure 1. Share of Different Categories of References in Core German Language Sociology Journals by Years

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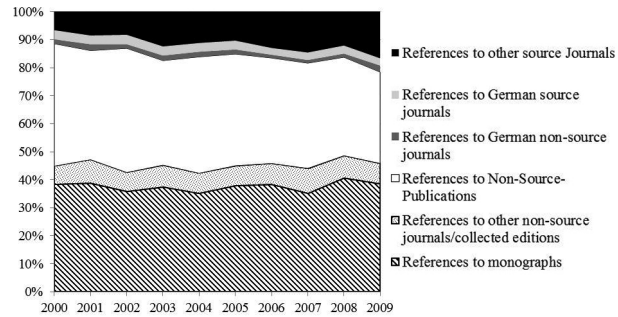


Figure 2. Share of Different Categories of References in Core German Language Political Science Journals by Years

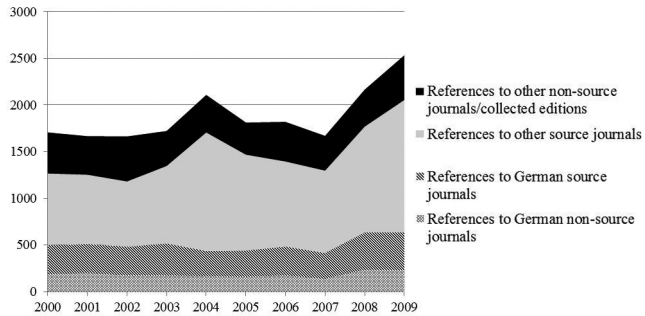


Figure 3. Composition of Reference Lists in Core German Language Sociology Journals over Time: Absolute Numbers of References to Journal Articles and Collected Editions (Cumulative)

doubles in the 10 year time window. Figure 3 also shows that non-source journals in both the German and non-German domain account for a smaller share of references than source journals. Generally speaking, in the period from 2000-2002, the majority of journal references in core sociology journals points to non-source journal articles. After 2003 and in particular after 2007 the number of references to source journals starts to increase. The Figure also points out that the overall number of references to journal articles is increasing. We can observe that this increase is to a large extent due to an increase of references to publications in international source journals.

As similar to the results in sociology, Figure 4 shows a general growth in the overall number of references to journal articles. Other

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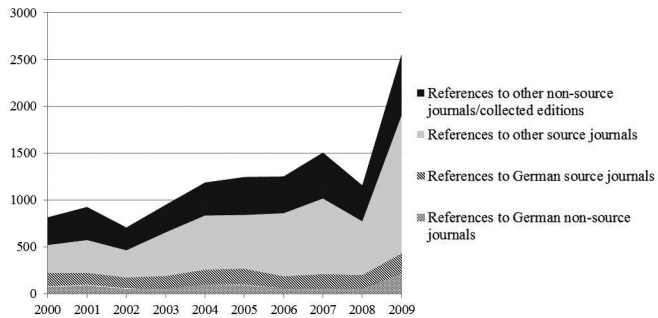


Figure 4. Composition of Reference Lists in Core German Language Political Science Journals over Time: Absolute Numbers of References to Journal Articles and Collected Editions (Cumulative)

source journals have the highest number of the references of core German language political science journals and their amount increases continuously over the years. The number of references to non-German journals decreases in 2002 and then reaches a peak in 2007.

5. Conclusion

Our analysis shows that with a total of 67% in the sociology and 76% in the political science the core German journals predominantly refer to non-journal publications. These numbers are in line with the ones reported by Broadus (1971). In his analysis he found that the shares of references to books and monographs vary between 31% (education) to 62% (sociology) in the social sciences. Our results hence demonstrate that the overall share of references to non-journal publications in sociology has not changed very much since that time. However, when combining this finding with the results in Figure 3 and Figure 4, we can see the absolute number of references to non-journal publications remaining at the same level while their share decreases. This points towards the interesting fact that most of the relative increase of the share of references to source journals goes along with an increase of the absolute number of references. References to source journals can hence be considered "additional" references, especially in the year 2004 and the years after 2007.

With regard to the overall relevance of source journals we can point out that the share of references to source journals is the same in both disciplines. However, there are differences of the scope of the referenced journals: while in the sociology journalset references to German source journals having the same share

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as references to other source journals, in the political science journalset the international domain seems to be more important. When having a look at the dynamics in the share of both categories, it shows there is a continuous increase in references to other source journals.

The other finding is that the share of non-source publications basically remains constant in the time period 2000-2009. With regard to the hypothesis that knowledge published in source journals is becoming more relevant in terms of references, we can see that this is the case in both disciplines, with a slightly stronger moment in political science. There is hence some evidence that they are becoming more important to German language sociologists and political scientists. However, without comparisons to other fields of research it is hard to tell whether the dynamics we reported are significant ones. At the same time, the use of other sources of scholarly knowledge does not decrease: In total, additional knowledge, predominantly more knowledge published in international journals indexed in the Web of Science, is processed in core German language sociology and political science journals. To which extent this increase is triggered by a growing relevance of knowledge published in international peer reviewed journals or by other factors remains to be investigated in further research. To sum up our case study we conclude that a detailed analysis of reference lists can serve as a starting point for providing comparative indicators which represent the specificity of the contribution of the social sciences to knowledge production.

Furthermore, the results point out an interesting difference between sociology and political science. We have shown that publications in the German language sociology journals have more references to monographs (46%) than publications in the German language political science journals (38%), but these political science journals reference to other non-source publications (38%) much more than sociology (21%). However, a more detailed look into these non-source publications referenced by German language political science journals shows that references to news articles account for a considerable part of it. In the top 30 sources of references to non-source publications, there are 15 newspapers.

6. Discussion

An extension of this preliminary case study would be a comparative analysis of different countries and fields of research. The calculation and availability of reference values for the share of different types of references on the level of countries, regions and disciplines would be a promising starting point for further investigations into national and field specific

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dynamics in referencing behaviour and more fine grained statements on converging publication and citation patterns in the social sciences and the sciences.

An interesting and so far hardly investigated issue that has come up in this exploratory case study is the relevance of citations to newspaper and non-scholarly material in political science. We can see that at least one third of the top non-source references in the German language political science journals are newspapers in this study. As they point to discussions focusing at a non-academic public their analysis would be particularly valuable with regard to the development of indicators that try to quantify the societal relevance of research. Further research will show to which extent our observation is specific for the German language political science and to which extent the share of references to newspapers can be used as a comparative indicator for the specifics of the knowledge base of a discipline.

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A Case Study of German Language Core Journals for Characterizing Citation Patterns in the Social Sciences

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摘　要

社會科學領域出版品的發表常以多元異質的出版管道為特徵，主題亦偏重於國內性議題為主（Nederhof, 2006; Hicks & Wang, 2011）。然而，作為學術評鑑常使用的書目計量指標，卻多以國際同儕審查期刊論文作為主要的研究結果。因此，現行的學術評鑑制度確實引起社會科學領域的學者對其出版特性之影響有所討論。本研究在陳述該問題點之餘，更欲以個案研究的方式明確呈現出社會學與政治學領域德語核心期刊之引用與被引模式。研究結果顯示，在社會學德語核心期刊中有67%的文章引用期刊以外的出版物，政治學德語核心期刊則有76%引用期刊以外的出版物。在2000-2009年間，發表未被Web of Science資料庫收錄之文獻比例則大體維持不變，而兩領域引用WOS期刊的比例也大致相同。唯社會學德語核心期刊引用專書比例（46%）較政治學德語核心期刊（38%）高；而政治學德語核心期刊引用非WOS收錄之文獻比例（38%）則較社會學德語核心期刊（21%）高。

關鍵字：被引模式、引用模式、社會科學

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