

# Bibliometric Characteristics of Political Science Research in Germany

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## ABSTRACT

This study investigates the publication, citation, and reference characteristics of items in political science with special attention to journal articles. By analyzing the complete 2003-2007 publication list of two top-ranking departments of political science in Germany, this study explores the publication behavior of German political scientists and also analyzes their citation and reference characteristics. According to the results of the study, we will be able to provide important knowledge to the process of evaluating research performance in such a local language oriented subfield in the social sciences.

## Keywords

Publication pattern, citation behavior, reference pattern.

## BACKGROUND

Even though the application of bibliometric methods is more popular and meaningful in the natural sciences, the possibilities of applying bibliometric techniques in the social sciences should be explored (van Leeuwen, 2006). However, bibliometric methods for monitoring research performance in the social sciences should explicitly consider the heterogeneity of publication and citation behaviors in these disciplines (Nederhof, 2006). In contrast to the natural sciences, social scientists publish in different types of outlets, specifically they rather produce books and contributions to edited volumes and monographs than journal articles. Naturally, they may focus more on issues that are only of national, regional, or even local interest than natural scientists do (Hicks, 1999; Nederhof, 2006). Therefore, social scientists tend to publish more often in their respective local languages than in science's *lingua franca*, English. Publishing in German is actually not only present in the social sciences. Bibliometric studies have shown that scientists in the natural and life sciences in

Germany are also disadvantaged when German language publications are included (van Leeuwen et al, 2001).

Furthermore, not only publication but also citation behavior in the social sciences differs from that of the natural sciences. While the latter prefer to cite journal articles, citation patterns of social scientists are more diverse, with books and monographs being cited the most. Additionally, these publications reach their citation peaks much later (Bourke et al., 1996; Clemens et. al., 1995; Hick, 2004; Line, 1979, Nederhof et al, 2010).

As books play such an important role in publishing academic results in the social sciences, they should be taken into consideration in research assessments. It is important to bear in mind that 40% of citations that book received are missed if the indicators built from citations by SSCI-indexed journal are used (Hicks, 1999). The limited coverage of the Web of Science (WoS) databases will certainly lead to errors when applied to these subject fields. The bibliometric indicators which are applied in evaluation procedures in the social sciences need to be considered carefully. Thus, this study aims to analyze the publication, citation, and referencing behavior of the social sciences in a specific empirical subfield, political science, in order to uncover the characteristics and peculiarities of this field. It should be pointed out right from the start, that the publication output analysis of this study may be generalized in assessments of other social sciences, while the outcomes of the citation or reference based analyses are more specific to German political science and any extrapolations should be done with caution.

## DATA AND METHODS

This study concentrates on political science, for it is a relatively empirical field and among the top three fields with the largest increase in citations caused by the inclusion of non-source items (Butler & Visser, 2006). Political science, e.g. as opposed to linguistics, can easily be delineated by departments. Citation windows of at least three years (Glänzel, 1997; 2008) were applied in this study. The five year publication output (2003-2007) of two top-ranking German institutions, Department of Political Science at Mannheim University and Institute of Political Science at University of Muenster (CHE, 2010; Hix, 2004), were chosen as research samples. The 1,018 publications of

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33 professors in these two institutions were collected from researchers' official websites, institutional repositories, and German Social Science Literature Information System (SOLIS). After data collection, all publications were sent to the professors for verification. References and citations of these items were obtained in March 2012 from the WoS in-house database of the Competence Centre for Bibliometrics for the German Science System (Kompetenzzentrum Bibliometrie) based on the three citation indexes and two conference proceeding citation indexes produced by Thomson Reuters.

## PRELIMINARY RESULTS

### Publication characteristics

The basic statistics of political science publications in terms of document types and languages are shown in Table 1. Among these 1,018 published items, 57% were in German and 40% in English. In terms of document type, 39% of these publications are *book chapters* and 22% are *journal articles* (in peer reviewed and non peer reviewed journals).

Document Types	No.	%	German (%)	English (%)	Other L. (%)
Book Chapter	397	39.0	280 (70.5)	102 (25.7)	15(3.8)
Journal Article (PR)	161	15.8	69(42.9)	90(55.9)	2(1.2)
Conference Paper	150	14.7	29 (19.3)	120 (80.0)	1(0.7)
Book (Editor)	77	7.6	51(66.2)	22(28.6)	4(5.2)
Journal Article (non PR)	60	5.9	48(80.8)	6(10.0)	6(10.0)
Book (Author)	46	4.5	34(73.9)	10(21.7)	2(4.3)
Working Paper	30	2.9	17(56.7)	13(43.3)	0
Presentation	16	1.6	11(68.8)	5(31.3)	0
Report	16	1.6	5(31.3)	8(50.0)	3(18.7)
Lecture/ Speech	14	1.4	10(71.4)	4(28.6)	0
Discussion Paper	10	1.0	6(60.0)	4(40.0)	0
Magazine/ Newspaper Article	10	1.0	10(100)	0	0
Others	31	3.0	10(32.3)	20(64.5)	1(3.2)
Total	1,018	100	580 (57.0)	404 (39.7)	34(3.3)

Note: Types with less than 10 items are combined into 'Others'.

**Table 1. Composition of publication lists of two German political science departments**

		Peer Reviewed Article	Non-PR Article	Total
ISI	In German	14	0	14
	In English	56	0	56
	Subtotal	70	0	70
non-ISI	In German	55	48	103
	In English	34	6	40
	In Others	2	6	8
	Subtotal	91	60	151
Total		161	60	221

**Table 2. Composition of all journal articles**

At around a 3:1 ratio these German political scientists publish book chapters in German vs. in English. The dominating position of German is also prevalent in other publication type categories, such as edited book, book, and non peer reviewed Journal Article. However, English is used more often than German in peer reviewed journal articles and conference papers. These types obviously serve more international communication purposes and are therefore written in English.

22% of all publications are journal articles including peer reviewed and non peer reviewed articles. As shown in Table 2, most of these 221 papers are published in peer reviewed journals (73%). Among the 161 peer reviewed journal articles, 70 are indexed by WoS (44%) and 56 of them (80%) are published in English. Thus, the overall coverage German political science in WoS is about 7%. The other 91 peer reviewed papers are published rather in German (60%) than in English (37%). It reveals that German political scientists publish papers in English in ISI international journals, but prefer to publish in German in local journals. Of course, the reason might be the fact that submissions to international journals are often required to be in English, while the local journals are mostly in German. According to Table 3 and Table 4, they prefer publishing non-source articles in German journals and mostly choose European journals when publishing in journals covered by ISI.

Journal Name	Papers
Politische Vierteljahresschrift	9
European Journal of Political Research	7
European Union Politics	7
British Journal of Political Science	6
Journal of European Public Policy	6

**Table 3. Top 5 sources of ISI indexed journal articles**

Journal Name	Papers
Forschungsjournal Neue Soziale Bewegungen	11
Zeitschrift für Parlamentsfragen	9
German Politics	7
Aus Politik und Zeitgeschichte	7
Femina Politica	4

**Table 4. Top 5 sources of non-ISI journal articles**

#### Citation characteristics

Table 5 shows the citation data of journal articles of these two German political science institutions. The 70 ISI articles got 498 citations in total (7.11 citations on average), whereas the 151 non-ISI articles received 189 citations (1.25 citations on average). Among these 70 articles, ISI journal articles in English reach 8.32 citations on average, while the average citation rate of ISI journal articles in German is 2.29. It becomes obvious that ISI articles have more citations than non-ISI ones and that papers in English obtain substantially more citations than in German.

	No. of Paper	No. of Citations			CPP	Ave. no. of years being cited after published
		By papers in German	By papers in English	By papers in other L.		
ISI papers in German	14	32	16	16	2.29	3.50
non-ISI papers in German	103	26	By papers in German	12	0.25	3.47
			By papers in English	13		
			By papers in other L.	1		
ISI papers in English	56	466	By papers in German	32	8.32	3.15
			By papers in English	427		
			By papers in other L.	7		
non-ISI papers in English	40	163	By papers in German	11	4.08	3.56
			By papers in English	148		
			By papers in other L.	4		
Total ISI	70	498			7.11	3.17
Total non-ISI	151	189			1.25	3.55

**Table 5. Citation statistics of journal articles**

ISI papers		Non-ISI papers	
Subject Category	Papers	Subject Category	Papers
Political Science	358	Political Science	87
Public Administration	72	International Relations	21
International Relations	48	Public Administration	18
Economics	33	Sociology	18
Sociology	17	Economics	16

**Table 6. Top 5 categories citing journal articles**

The enormous gap between the languages shows that language is an important factor of being cited, for it affects the extent of reception in the international academic community. About half of the journal articles in German are cited by other articles in German, while ISI journal articles in English are mostly cited by articles in English. In average, it takes 3.2 years for an ISI journal article to be cited. German ISI journal articles have a slightly longer time to get cited than English ISI journal articles. This suggests that citation windows longer than three years are needed in order to analyze the citation behavior of ISI journal articles published by German political scientists.

The 498 citations of 70 ISI journal articles are assigned to 45 different WoS journal-based subject category items, and the 197 citations of non-ISI journal articles are within 40 categories. Table 6 shows the top five categories among these items. The top five categories of ISI vs. non-ISI journal articles are basically the same. Three of them are political science related fields, showing that the disseminating circle of these political science journal articles is narrow. Besides, the visibility of political science articles in other fields for non-ISI papers is higher than ISI papers. For example, the ratio of papers under sociology and economics categories to top three political science related categories for non-ISI papers (27%) is much higher than ISI papers (10%).

The top five journals that contain citations to the ISI indexed journal articles shown in Table 7 are almost the same as the top five journals that publish the ISI journal articles (in Table 3). Table 8 shows that European oriented journals are the ones that mostly cite non-ISI journal articles.

Journal Name	Papers
Journal of European Public Policy	61
European Union Politics	54
Politische Vierteljahresschrift	44
European Journal of Political Research	30
Electoral Studies	21

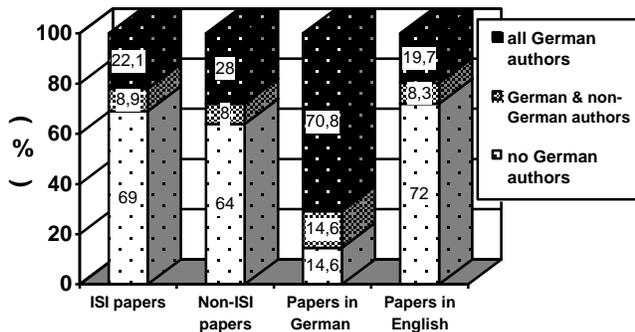
**Table 7. Top 5 sources citing ISI indexed journal articles**

Journal Name	Papers
JCMS-Journal of Common Market Studies	21
Politische Vierteljahresschrift	14
Journal of European Public Policy	12
West European Politics	10
Kölner Zeitschrift für Soziologie und Sozialpsychologie	8

**Table 8. Top 5 sources citing non-ISI indexed journal articles**

Concerning the countries affiliated with the citations of these 221 journal articles, Figure 1 shows that ISI papers and non-ISI papers have similar ratio of citations from all German and all non-German authors (Chi-squared test non-significant). About one third of their citations are from articles with at least one address in Germany. Even though the citation per paper of non-ISI papers (1.25) is much lower than for ISI papers (7.11), non-ISI papers do not have less influence than ISI papers in terms of their international vs. national impact ratio. The situation is totally different with regard to languages. The difference between the two groups is extremely significant (Chi-squared test,  $p < 0.0001$ ). Journal articles published in German are cited by articles only from Germany in the about 70% of cases, and cited by articles from other countries in the ratio around 15%. Articles in English have a bigger international influence, with 72% citations from other countries except for Germany. It shows papers in German have a more locally oriented impact than papers in English.

Furthermore, except for papers written in German which are not easily read by authors from other countries, political science articles show a large share (70-80%) of the citations from articles with at least one non-German author address. They are not cited by German authors dominantly. Otherwise, no matter in English or German they are, German articles would be mainly cited by German authors, without the significant difference between languages as shown above. It may give us a challenge to the notion of political science as a locally oriented field in the social sciences, since these German political science articles attract most citations from other countries besides Germany.



**Figure 1: Share of citations of journal articles**

	Source References	Non-source References	Total	2010JCR Political Science Category
Number of References	1,378	1,215	2,593	-
Ratio (Ref. per paper)	19.69	17.36	37.04	38.5
Citing Half-Life	10.07	10.09	10.08	8.5
Peak Year	2000	2002	2000	-

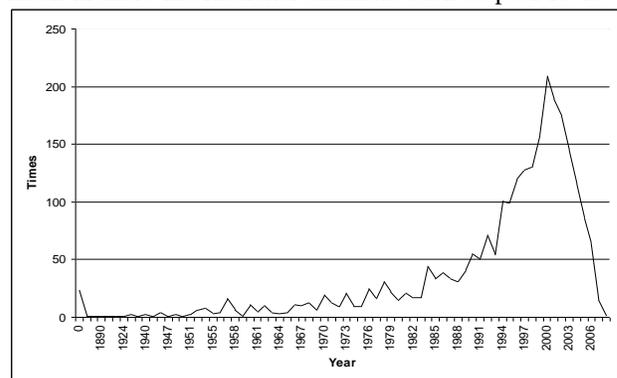
**Table 9. Reference statistics of ISI indexed journal articles**

### Reference characteristics

The references of the 70 ISI indexed articles were analyzed and the results are reported in Table 9. There are 2,593 references cited by these articles, including 1,378 ISI indexed items and 1,215 non-ISI indexed items. The internal WoS coverage is therefore 53%, and the average number of references of these 70 articles is 37.04, which is close to the aggregated average of references in the political science category in the 2010 social sciences edition of Journal Citation Report (JCR). The Citing Half-Life is 10.08 years, and the most cited year of reference is 2000 for the papers in the sample (2003-2007). The number of references by years is shown in Figure 2. Materials from the publication date back to 1993 are highly cited. Among the 1,378 ISI indexed references, political scientists cited two journals the most (and only two reach the 100 times threshold), *American Journal of Political Science* and *American Political Science Review*. Compared to the publication behavior German political scientists prefer to publish their research outputs in European journals, they cite American journals more than European ones in turn.

### DISCUSSION AND FURTHER RESEARCH

From the perspective of document types and languages, German political scientists use German in their local communication circles to publish in books and regional oriented journals, but prefer English as a communicating mean in more international channels such as peer reviewed



**Figure 2: References of ISI indexed journal articles by year**

journals and international conference papers. 51% of all publications are *books* and *book chapters*, while all *journal articles* combined arrive only at 22%. These results imply that *books* and *book chapters* should be included in either quantitative or qualitative evaluations of political scientists.

Furthermore, it is obvious that papers in English are perceived by a broader audience, resulting in substantially more citations. It also attracts more citations from other countries, while papers in German were cited mostly by German authors. Besides, German political scientists have a tendency to publish peer reviewed journal papers in English, and these papers do receive significantly more citations. Even if language was not a problem while using ISI based indicators for evaluating ISI indexed journal articles of German political scientists, we would still need to pay attention to the fact that only one third of journal articles are ISI indexed journals (70 out of 221). Most of the journal articles, namely 53% of the 221 items, are published in German. English is not dominating in all journal articles of the two German political science institutions.

We could therefore argue that the local language is an important issue which needs to be addressed concerning the completeness of coverage of political scientists' publications. Without including publications in German, both *books* and *journal articles*, the datasets will be far from complete.

Another interesting fact shown in this study is that although German political scientists publish papers in German or European journals frequently and receive most of their citations from these journals, this does not mean that they neglect American journals or are not aware of international issues. In fact, they cite American journal articles very often. Through the citation and reference links, an in-depth analysis of the flows of knowledge may provide a clearer picture of the scientific communication in the field.

## CONCLUSION

This study examines the publication behavior of German political scientists, and provides an insight into their citation and reference behavior. The results may serve as background information for peer review committees conducting research evaluation in the social sciences, especially in political science. About half of the publications are published in books, and around one fifth of them are in journals. Besides the question whether conference papers should be regarded as academic publications or not, items in all kind of books and journals are very important and need to be completely collected for performance evaluation on different aggregation levels. In addition to the document type discussion above, the language issue is also a determinative factor to research evaluation in political science. Without items in German, a bibliometric analysis would then be based upon only a part of the works of political scientists. However, we cannot just focus on items in German and ignore the importance of English in peer reviewed journal articles. For a

comprehensive view, items in both English and German are needed. According to the results languages other than German or English do not play a decisive role for this sample. Articles in German are less cited than those in English, due to the limitations mentioned above.

In addition, articles in English are mostly cited by articles in English rather than in German. This study shows as well that the publishing language will make a significant difference in citation impact and international impact, whereas being indexed by WoS or not doesn't differ so much. Although the difference between papers in German and in English in terms of citation is quite large, articles in German still have their important influence on the German academic field. This study also points out that the disseminating circle of political science journal articles is narrow in terms of subject categories of their citations. However, political science is far from a locally oriented field concerning the large share of the citations from non-German countries.

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