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Reference:

Ossenblok Truyken, Engels Tim, Sivertsen Gunnar.- The representation of the social sciences and humanities in the Web of Science : a comparison of publication patterns and incentive structures in Flanders and Norway (2005-9)
Research evaluation - ISSN 0958-2029 - 21:4(2012), p. 280-290
Full text (Publisher's DOI): <https://doi.org/10.1093/RESEVAL/RVS019>
To cite this reference: <https://hdl.handle.net/10067/1014910151162165141>

The representation of the social sciences and humanities in the Web of Science. A comparison of publication patterns and incentive structures in Flanders and Norway (2005-2009)

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ABSTRACT

This paper studies publication patterns in the social sciences and humanities (SSH) in Flanders and Norway using two databases that both cover all SSH peer reviewed journal articles by university scholars for the period 2005 to 2009. The coverage of journal articles by the Web of Science (WoS) and the proportion of articles published in English is studied in detail applying the same methodologies to both databases. The study of WoS coverage and language use is chosen because the performance-based funding systems that are in place in both countries have given different emphasis to publishing in WoS covered journals. The results show very similar, almost identical evolutions in the use of English as a publication language. The proportion of articles covered by the WoS, however, is stable for Norway but has increased rapidly for Flanders. This finding shows that the parameters used in a performance-based funding system may influence the publishing patterns of researchers.

FUNDING

This work was supported by the Nordic Institute for Studies in Innovation, Research and Education and by the Centre for R&D Monitoring financed by the Flemish government.

INTRODUCTION

Achieving full coverage of the scholarly publications in the social sciences and humanities (SSH) in bibliographic data sources is notoriously difficult (Hicks, 1999; Archambault, Vignola-Gagne, Côte, Larivière, & Gingras, 2006; Nederhof, 2006). Although commercial databases such as the Web of Science (WoS) and Scopus have made considerable advances in increasing the coverage of the archival journals and articles in these fields, they still give limited representation of the SSH (Hicks & Wang, 2009) especially of output by researchers in non-English-speaking countries¹ (Larivière & Macaluso, 2011). In Flanders and Norway, however, shared databases for all the universities have been set up with complete coverage of the scholarly output in the SSH (Engels, Ossenkop, & Spruyt, 2012; Sivertsen, 2010). Using these databases, we compare WoS coverage and language use of journal articles in selected SSH disciplines and examine some possible explanations for the different trends we find.

In 2008 the Flemish government instructed the Centre for R&D Monitoring (ECCOM) to collect from the universities all references of SSH publications that have appeared since 2000, including those that are not indexed in the WoS. In doing so the government supplemented the on-going monitoring of WoS indexed publications and citations (Debackere & Glänzel, 2004; Debackere & Glänzel, 2008), and acknowledged that a specific instrument was needed in order to do justice to the SSH in a performance-based research funding system (PRFS). Hence the government provided the legal framework for the construction of the *Flemish Academic Bibliographic Database for Social Sciences and Humanities* (“Vlaams Academisch Bibliografisch Bestand voor de Sociale en Humane Wetenschappen” or “VABB-SHWⁱⁱ”) in the Flemish university financing decree and the BOF regulation on the financing of the *University Research Fund* (“Bijzonder Onderzoeksfonds” or “BOF”). The VABB-SHW gathers the bibliographic references of published SSH research outputs by scholars who are affiliated to Flemish universities. In accordance with the regulations stipulated in the BOF regulation, eligible outputs need to meet a number of basic criteria. They are as follows: to be publicly accessible, be unambiguously identifiable by ISBN or ISSN number, make a contribution to the development of new insights or to applications resulting from these insights, and have been subjected - prior to publication - to a demonstrable peer review process by scholars who are experts in the (sub)field to which the publication belongs. Peer review should be done by an editorial board, a permanent reading committee, external referees or else by a combination of all (for a full account see: Engels et al., 2012). Norway’s shared database of scholarly publications from the higher education sector, Cristinⁱⁱⁱ, has complete data since 2005 from all fields of research, not only in the SSH (Schneider, 2009; Sivertsen, 2010). The data are defined, delimited and structured in almost exactly the same way as in the VABB-SHW database, which was in fact inspired by Cristin. This allows for a direct comparison of scholarly publishing trends in SSH at Flemish and Norwegian universities. Although both databases cover books, book chapters and proceedings as well, in this article, only articles in journals are taken into account.

A common feature of the science policy system in Flanders and Norway is that performance indicators derived from the VABB-SHW and Cristin are applied in a performance-based research funding system (PRFS) that distributes institutional grants to the universities. In Norway, a publication indicator based on institutional data was implemented in the local PRFS in 2006, using publication counts for 2005 (Schneider, 2009). In Flanders a VABB-SHW derived indicator was added to the WoS publications and citations indicators in 2010, based on publication counts for 2000-2009 (Engels et al., 2012). Previous research and discussions regarding PRFSs, e.g. the RAE in the UK and the ERA in Australia, show that such funding systems, whether they involve evaluation of output or not, do influence publication behaviour directly or indirectly in terms of productivity and chosen publication channels (Gläser & Laudel, 2007; Hicks, 2012). Furthermore, the purpose of PRFSs is to steer research in desired directions and increase its quality (Whitley, 2007) and quantity (Hicks, 2012). However, the intended and unintended impact of a funding system depends on a variety of characteristics of the system and the field (Whitley, 2007; Schneider, 2009). An important difference between the funding systems in Flanders and Norway is that until 2010 the funding formula in Flanders has been based on WoS publications only, while the Norwegian funding formula has from the start in 2006 been based on complete data in Cristin. In addition, citation counts for WoS publications are included in

the Flemish funding system, but not in the Norwegian one. Consequently, in the period studied here, there has been an explicit incentive to publish in WoS journals in Flanders, but not in Norway, where all scholarly publications count. Hence, we expect that this difference in incentive structures between Norway and Flanders translates into different trends in WoS coverage of SSH publications. Specifically, we hypothesise that the increase in WoS coverage in absolute as well as in relative terms is more pronounced in Flanders than in Norway.

In addition to the variable WoS coverage we use the proportion of publications in English as a more general indicator of internationalisation. This is especially important as both Norway and Flanders belong to rather small language groups: Norwegian is spoken by about five million people, but is easily read in Denmark, Sweden and parts of Finland as well, and there are several common Nordic scholarly journals publishing in both Danish, Norwegian and/or Swedish. Dutch, the official language of Flanders, is read and written by about 23 million people, 17 million living in the Netherlands and six million living in Flanders. Hence both Norwegian and Flemish researchers have a potential audience of about 20 million that they can address in the local language, which is mostly their mother tongue^{iv}. Therefore, *ceteris paribus*, Norwegian and Flemish researchers in SSH could be expected to publish about equal proportions of their work in a local language and hence an equal proportion of their work in English. However, given the different incentives of the local PRFSs and taking into account that most journals indexed in WoS publish in English, we expect a stronger trend towards publishing in English in Flanders than in Norway.

In the following sections we first detail the methodology used for comparison of SSH publication patterns in Flanders and Norway. In this study, only disciplines that account for at least 200 (fractionally counted) articles in both Flanders and Norway in the period between 2005 and 2009 are taken into account. These 13 disciplines are Business & Finance, Comparative Literature, Economics, Education & Educational, Research, History, Law, Linguistics, Media & Communication, Philosophy & History of Ideas, Political Science, Psychology, Sociology, and Theology & Religion. We characterise and compare the disciplines in both countries in terms of WoS coverage and publishing in English. We then zoom in on the largest differences in terms of WoS coverage and analyse to what extent journals with strong local ties, some of which have recently been added to the WoS, explain apparent differences in publication patterns. Next, we detail the year by year evolution of WoS coverage and publishing in English for the whole of the SSH as well as for each of the aforementioned disciplines. The main finding of our analysis is that, although publishing in English is as widespread and increases at the same pace in Flanders and Norway, WoS coverage is stable in the latter but increased rapidly in the former. We discuss this result in the light of the incentives provided by the respective PRFSs, and outline the limitations of our study and some challenges for future research.

METHODOLOGY

In this paper data from Cristin and the VABB-SHW are compared. References in both databases are collected through a similar mechanism, i.e. via the universities and the university colleges^v which collect the references in their local institutional repositories, and serve a similar basic goal, i.e. the distribution of research funds over universities through a performance-based funding system. In both countries only peer reviewed publications are included in the bibliometric indicators for the funding system. A dynamic authority record of approved scholarly journals with peer review has been established in both countries. However, the selection process leading to the respective lists of peer reviewed journals occurs at different levels. In Norway, the responsibility for selecting peer reviewed publications lies primarily with the university departments. Any issues that arise are discussed at gradually more distant levels, i.e. the level of the faculty, the university or the national publishing board (Sivertsen, 2010). In Flanders, although the BOF regulation stipulates that only peer reviewed content should be submitted for the VABB, the universities have in practice submitted all full bibliographic references of eligible publication types. The government appointed *Authoritative Panel* (“Gezaghebbend Panel” or “GP”) decided which journals publish peer reviewed content on the basis of an overview of all journals in which researchers working in Flanders had published SSH work between 2000

and 2009. As a result only peer reviewed articles that either are not indexed in the WoS and consist of at least four pages, or are indexed in the WoS as articles, letters, notes, proceedings papers or reviews in the SCIE, SSCI and/or AHCI databases are taken into account (Engels et al., 2012). Although in both systems borderline cases can occur, the result is that in both databases the overwhelming majority of the articles do indeed contain peer reviewed content. In order to further maximize the comparability of the data in the Cristin and the VABB-SHW databases, identical disciplinary classifications and counting methods were implemented for both databases.

All 20.000 journals included in Cristin have been classified by disciplinary panels organized by the Norwegian Association of Higher Education Institutions (the rector's conference) into 80 mutually disjunctive subfields which are subordinated to 5 disciplinary categories: 11 engineering subfields, 29 health sciences subfields (including psychology and social work), 21 humanities subfields, 7 natural sciences subfields, and 12 social sciences subfields. Each of the SSH subfields as well as psychology and social work have been considered for inclusion in this study. To be able to compare the article data in Cristin with the data in the VABB-SHW, the journals in the VABB-SHW in which Flemish researchers published between 2005 and 2009 (N = 4398) have been classified into one of the 80 subfields in Cristin. This task was facilitated by the fact that over two thirds (71.8%) of the journals in the VABB-SHW, representing 61.2% of all journal articles, had already been assigned to one of the 80 disciplines in Cristin. Hence only 1240 (28.2%) journals needed to be classified. This was done in a cyclic process whereby the authors of this paper each classified the journals cumulatively while checking consistency of decisions.

With regard to the counting method, different standards have been adopted in Norway and Flanders. In Norway the performance-based funding system uses a fractional counting method that attributes equal share to each author and then accumulates shares per institution. The Flemish BOF-key, however, uses a whole counting method that attributes the whole publication to each university whose address is mentioned on the paper (Debackere & Glänzel, 2004; Debackere & Glänzel, 2008). To be able to compare the data, the Norwegian fractional counting method has been applied to the VABB-SHW data. Specifically, the number of fractional articles is counted as the sum of the fractions per university based on its share of authors on a paper, with a minimum fraction of 0.1 per paper for the SSH. The result of this method might differ slightly from the result of a fractional count at the country level because of authors affiliated to two or more institutions.

WoS coverage and language use were determined in Cristin and the VABB-SHW database as follows. In Cristin, journals are identified as WoS included or not, and, if included, the first year of indexation is available. WoS coverage of articles is inferred from these Thomson Reuters provided data. In the VABB-SHW, a slightly different method has been used: articles are considered WoS covered if a unique WoS-identifier, a UT-code, is available in the database. This identification at the article level is a necessary component of the VABB-SHW as the BOF regulation stipulates that WoS indexed publications, as well as their citations, are counted separately before non-WoS indexed articles are counted. For the calculation of the BOF-key, the data have been validated at record and aggregated levels by the research administrations of the Flemish universities, assuring maximum accurateness. Thus for both databases the most accurate measuring method has been chosen.

Similarly language use in terms of local language, English and other languages has been determined at the journal level in Cristin and at the record level in the VABB-SHW database. Here too the difference in measurement level is due to the specific context in which the VABB-SHW has been set up. In particular, several Belgian journals are, or have been, bilingual Dutch-French journals that publish articles in Dutch as well as French by researchers affiliated to Flemish universities, necessitating the identification of the language of articles at the record level. Hence the language of articles has been collected from the universities and has been completed where missing. In Cristin, the language classification is on the level of journals, taking into account the main language of articles in the journal. Journals mainly publishing in the Nordic languages with occasional articles in English have been classified as "Nordic". In Norwegian research, publishing in other languages than English or Norwegian most often means contributing to philological research in the study of other languages or literatures. These disciplines are among the

smaller ones not studied specifically here, but only included in the totals. They contribute to most of the articles in the category of “Other” languages.

To assure the robustness of the results, only SSH disciplines that account for at least 200 fractional articles in Flanders as well as in Norway in the period 2005 to 2009 are specified in this paper. However, the smaller SSH disciplines are included in the aggregated counts for SSH as a whole. The smaller disciplines for which no results are presented are Anthropology, Archaeology & Conservation, Architecture & Design, Art History, Asian and African Studies, Classical Studies, Dance, Development Studies, English Studies, Ethnology, Gender Studies, Geography, Germanic Studies, Interdisciplinary Humanities, Interdisciplinary Social Sciences, Library & Information Science, Musicology, Romance Studies, Scandinavian Studies, Slavonic Studies, Social Work, and Theatre & Drama. Together these disciplines represent 1397.7 and 3136.4 fractionalized articles in Flanders and Norway, respectively.

RESULTS

Table 1 gives an overview of the SSH articles in Cristin and the VABB-SHW database for the period 2005 to 2009. The total number of fractional articles, the number of fractional articles included in the WoS, and the number of fractional articles published in the local language (Dutch or Norwegian, Danish & Swedish, respectively) as well as the corresponding percentages, are presented for the whole of SSH as well as the 13 largest SSH disciplines in Flanders and Norway.

Table 1: Number of fractional articles, WoS coverage and local language publishing for Flanders (F) and Norway (N), 2005-2009.

Discipline		# of articles	WoS coverage		Local language	
			#	%	#	%
All SSH	F	8622.7	2818.5	32.7%	3145.1	36.5%
	N	10052.3	3237.4	32.2%	4396.5	43.7%
Business & Finance	F	503.5	246.8	49.0%	57.8	11.5%
	N	926.6	333.3	36.0%	253.4	27.3%
Comparative literature	F	215.5	80.8	37.5%	47.5	22.0%
	N	225.1	35.8	15.9%	159.7	71.0%
Economics	F	351.9	187.4	53.2%	42.3	12.0%
	N	473.3	339.7	71.8%	91.4	19.3%
Education & Educational Research	F	369.1	129.7	35.1%	57.2	15.5%
	N	1094.0	200.4	18.3%	577.3	52.8%
History	F	605.2	126.3	20.9%	339.3	56.1%
	N	463.7	187.6	40.5%	268.3	57.9%
Law	F	2054.3	48.6	2.4%	1561.5	76.0%
	N	806.6	34.2	4.2%	606.5	75.2%
Linguistics	F	336.8	102.5	30.4%	50.2	14.9%
	N	314.6	138.1	43.9%	25.3	8.1%
Media & Communication	F	232.2	47.2	20.3%	92.5	39.9%
	N	217.2	25.5	11.7%	70.8	32.6%
Philosophy & History of Ideas	F	445.0	135.8	30.5%	117.2	26.3%
	N	344.0	56.2	16.3%	208.0	60.5%
Political Science	F	403.3	102.6	25.4%	165.7	41.1%
	N	425.2	264.9	62.3%	125.9	29.6%
Psychology	F	1113.8	926.8	83.2%	107.8	9.7%
	N	787.4	523.7	66.5%	178.2	22.6%
Sociology	F	205.9	49.3	24.0%	95.3	46.3%
	N	277.5	102.3	36.9%	133.4	48.1%
Theology & Religion	F	388.5	64.7	16.6%	102.5	26.4%
	N	551.7	100.2	18.2%	347.8	63.0%

In terms of publication volume, most disciplines are of comparable size in Flanders and Norway. Exceptions are Business & Finance (503.5 versus 926.6 articles), Education & Educational Research (369.1 versus 1094.0 articles), and Law (2054.3 versus 806.6 articles). The first two differences are probably the result of the contribution of Norwegian university colleges, which typically offer several programmes in management as well as education, to Cristin. The volume of Flemish research in Law may profit from the fact that law articles are often published in Dutch as well as in French, resulting in double counting of some of the academic work in Law. The overall coverage in WoS amounts to almost one in three articles in both countries (32.7% and 32.3%, respectively), whereas the percentage of articles in a local language is lower in Flanders (36.5%) than in Norway (43.7%). However, there are substantial differences between disciplines.

Looking at WoS coverage, Law is by far the least covered discipline (2.4% and 4.2%, respectively), whereas well over 50% of Economics and Psychology articles are indexed. Large differences in WoS coverage appear for Comparative Literature (37.5% versus 15.9%), Education & Educational Research (35.1% versus 18.3%), Media & Communication (20.3% versus 11.7%) and Philosophy & History of Ideas (30.5% versus 16.3%), as well as for History (20.9% versus 40.5%) and Political Science (25.4% versus 62.3%). For the first four disciplines WoS coverage for Flanders is almost the double of that for Norway, whereas the inverse holds for the latter two disciplines. One reason for these divergences might be the inclusion in the WoS of journals in which scholars from either Flanders or Norway publish often. To analyse this possibility, the journal frequencies for each of the 13 disciplines were checked for the presence of journals that account for 5 or more per cent of fractionalized articles in the discipline in Flanders or Norway. Closer inspection of these frequently used outlets revealed that for each of the aforementioned six disciplines where WoS coverage for either country (almost) doubles that of the other country, this can partly be explained by the inclusion in the WoS of journals with strong local ties. Strong local ties was operationally defined as journals with 50 or more per cent of all WoS indexed articles carrying an address of either Belgium and/or the Netherlands, or Norway, Denmark and/or Sweden. Table 2 gives an overview of these journals and their respective contribution to the WoS coverage of their discipline.

Table 2: WoS-included journals with strong local ties, i.e. with 50% or more articles carrying an address of Belgium and/or the Netherlands; or Norway, Denmark and/or Sweden (2005-2009).

Journal title	Indexed in WoS since	Discipline	# (%) of locally produced WoS indexed articles	Impact on % WoS coverage for Flanders	Impact on % WoS coverage for Norway
Pedagogische Studieën	2009	Education & Educational Research	27 (93.1%)	+2.5%	none
Belgisch Tijdschrift voor Nieuwste Geschiedenis	2007	History	39 (86.7%)	+2.7%	none
Historisk Tidsskrift	1980	History	62 (98.4%)	none	+17.1%
Tijdschrift voor Communicatiewetenschap	2007	Media & Communication	56 (98.2%)	+4.8%	none
Tijdschrift voor Filosofie	1970	Philosophy & History of Ideas	71 (59.7%)	+7.0%	none
Internasjonal Politikk	1966	Political Science	48 (84.2%)	none	+13.6%
Ephemerides Theologicae Lovanienses	2007	Theology & Religion	31 (50.8%)	+3.3%	none

Table 2 shows that for History the WoS coverage of Norwegian research is similar to that of Flemish research if one takes into account the influence of articles that appeared in the journal *Historisk Tidsskrift*. Similarly the WoS coverage of Flemish research in Media & Communication and in Philosophy & History of Ideas approaches that of Norwegian research when considering that the articles that appeared in the journals *Tijdschrift voor Communicatiewetenschap* and *Tijdschrift voor Filosofie* explain a substantial part of the initially observed Flemish lead. However, for the disciplines of Comparative literature, Education & Educational Research and Political Science the difference in WoS coverage between Flanders and Norway remains well above 10% when journals with strong local ties are taken into account. Hence the question arises how the WoS coverage of SSH and its disciplines has evolved.

The observations made in Table 2 also point towards the possibility that Flemish and/or Dutch researchers have actively worked towards inclusion of the journals that are important to them in the WoS. Indeed, of all 3.850 journals that have been newly added to the WoS in the period 2005 to 2009, 192 are published in Belgium (22) or the Netherlands (170), but only 17 in Denmark (5), Norway (6) or Sweden (6). Here, one has to bear in mind that the Netherlands is home to several large international publishing houses, hence this finding does not automatically imply that university researchers working in Flanders have special interests in these journals. However, researchers at Flemish universities did publish in the period 2005 to 2009 in 21 (10.9%) of the newly added journals stemming from Belgium or the Netherlands, whereas Norwegian SSH researchers published in 4 (23.5%) of the newly added journals that are published in Norway, Denmark or Sweden. Overall, 45.5% of the 394.7 WoS covered Flemish SSH articles appeared in one of the newly added SSH journals that are published in the Low Countries (Belgium and the Netherlands). For Norway the corresponding percentage is 11.2% of the 469.1 WoS covered articles. However, the percentage of WoS publications by SSH researchers that appeared in one of the newly added journals are almost identical for Flanders and Norway: 14.0% of the 2818.5 fractional articles and 14.5% of the 3237.4 fractional articles, respectively. Hence, although SSH researchers benefit equally from the expansion of the WoS, the inclusion of journals with strong local ties contributed more to this result for Flemish SSH researchers than for Norwegian SSH researchers.

Table 3: Evolution of WoS coverage of SSH articles (numbers and percentages of fractional articles).

Discipline		2005		2006		2007		2008		2009		growth in #	Δ % 05-09
		#	%	#	%	#	%	#	%	#	%		
All SSH	F	434.8	26.1%	492.1	28.3%	591.0	32.5%	679.1	36.2%	621.6	40.8%	1.430	14.7
	N	587.3	32.6%	556.3	33.5%	674.5	34.2%	670.5	30.5%	743.5	31.2%	1.266	-1.4
Business & Finance	F	39.8	39.0%	43.9	44.1%	61.6	58.0%	53.6	54.3%	47.9	49.3%	1.203	10.3
	N	52.8	37.6%	66.4	49.2%	76.7	42.1%	54.7	26.0%	82.7	32.0%	1.566	-5.6
Comparative literature	F	9.0	20.7%	20.5	44.6%	16.0	33.0%	22.8	49.8%	12.5	39.5%	1.389	18.8
	N	9.0	20.2%	4.0	14.2%	14.0	30.8%	6.8	10.3%	2.0	4.9%	0.222	-15.3
Economics	F	34.6	45.9%	31.3	52.1%	46.7	54.5%	46.0	56.0%	28.8	58.3%	0.831	12.4
	N	68.9	72.9%	66.2	69.5%	76.7	71.8%	70.7	74.0%	57.2	70.4%	0.831	-2.5
Education & Educational Research	F	9.2	14.9%	19.5	28.5%	25.7	31.2%	30.3	43.3%	45.0	52.1%	4.887	37.2
	N	29.4	17.1%	34.2	20.0%	39.9	18.0%	44.3	17.8%	52.6	19.0%	1.790	2.0
History	F	27.1	21.4%	13.7	12.1%	27.0	19.7%	28.5	23.7%	29.0	27.2%	1.070	5.8
	N	36.3	42.6%	30.8	38.9%	32.5	41.1%	39.5	39.4%	48.5	41.8%	1.335	-0.8
Law	F	6.3	1.4%	10.8	2.3%	9.3	2.2%	10.6	2.5%	11.7	3.8%	1.839	2.3
	N	7.0	5.1%	4.5	2.8%	5.8	3.4%	8.0	5.1%	9.0	5.1%	1.288	0.0
Linguistics	F	20.4	33.0%	16.8	19.6%	13.8	20.0%	24.5	39.0%	27.0	49.5%	1.325	16.6
	N	18.5	47.4%	21.2	59.7%	24.5	41.4%	39.6	46.8%	31.3	35.4%	1.692	-12.0
Media & Communication	F	4.0	10.2%	6.0	14.3%	12.8	26.7%	13.1	26.4%	11.3	20.6%	2.813	10.4
	N	1.0	3.5%	1.0	4.3%	5.2	11.3%	4.3	7.4%	14.0	22.8%	14.000	19.3
Philosophy & History of Ideas	F	21.0	19.6%	23.5	26.9%	30.0	37.0%	34.7	36.6%	26.7	35.9%	1.270	16.4
	N	8.8	15.8%	7.5	11.6%	7.3	12.7%	16.3	20.9%	16.2	18.4%	1.830	2.6
Political Science	F	12.5	19.2%	21.4	24.9%	23.9	27.7%	20.6	22.3%	24.2	32.8%	1.939	13.6
	N	54.1	67.2%	39.0	59.7%	53.0	64.2%	67.3	69.4%	51.5	51.5%	0.952	-15.7
Psychology	F	155.9	79.1%	168.2	81.1%	179.2	81.5%	220.1	85.8%	204.1	87.0%	1.309	8.0
	N	104.9	68.9%	85.3	64.8%	94.7	70.6%	106.8	59.9%	129.9	68.8%	1.238	-0.1
Sociology	F	2.3	6.6%	8.0	19.2%	11.1	22.0%	19.9	38.1%	9.0	32.8%	3.857	26.2
	N	17.8	34.5%	16.7	34.9%	23.3	39.5%	17.8	30.5%	26.8	44.0%	1.507	9.5
Theology & Religion	F	8.5	10.5%	13.0	19.3%	14.0	16.5%	19.5	19.6%	9.7	17.4%	1.137	6.9
	N	21.0	19.6%	23.3	17.7%	14.0	14.7%	18.0	16.7%	23.5	22.1%	1.119	2.5

Table 3 shows that the number of SSH articles included in WoS from both Flanders (+43.0%) and Norway (+26.6%) has consistently and significantly increased between 2005 and 2009. However, the proportion of SSH publications indexed in the WoS increased significantly in Flanders (from 26.1% in 2005 to 40.8% in 2009), whereas the proportion of WoS coverage of Norwegian articles remained stable (32.6% in 2005 and 31.2% in 2009). So although WoS-coverage for Flanders was lower than for Norway in 2005 and 2006, it was clearly higher in 2008 and 2009. At the discipline level, a similar observation can be made. For some disciplines the increase in WoS coverage for Flanders is very remarkable, as well as in number of articles as in proportion. For example, the proportional share of coverage of WoS articles in Education & Educational Research increased from 14.9% in 2005 to 52.1% in 2009, and the coverage of WoS articles in Sociology increased from 6.6% in 2005 to 32.8% in 2009. In Norway, however, the proportion of WoS coverage even seems to be decreasing for some disciplines, e.g. Political Science (-15.7%), Comparative literature (-15.3%) and Linguistics (-12.0%).

The question arises as to how these different trends can be explained. One possibility might be that Norwegian researchers, having identified their own lists of peer reviewed journals in 2005, are in fact turning away from internationalisation and are satisfied with and rewarded for publishing in more local outlets. In other words, a similar evolution could occur in due time in Flanders. However, publishing in WoS journals is only an approximation of internationalisation. Publishing in English can be considered a more general indicator of internationalisation. Data on the evolution of the language of publications may reinforce the observations regarding WoS coverage. Therefore, table 4 provides the percentages of articles published in English for the period 2005 to 2009.

Table 4: Evolution of publishing in English (number and percentages of fractional articles).

Discipline		2005		2006		2007		2008		2009		growth	Δ %
		#	%	#	%	#	%	#	%	#	%	in #	05-09
All SSH	F	875.6	52.5%	931.1	53.6%	993.8	54.7%	1093.0	58.3%	959.3	62.9%	1.096	10.4
	N	861.1	44.8%	892.1	50.8%	1132.3	53.9%	1219.1	52.5%	1402.7	55.7%	1.629	11.0
Business & Finance	F	87.6	85.9%	81.6	82.1%	96.7	91.0%	87.5	88.6%	89.0	91.6%	1.016	5.7
	N	99.1	70.5%	107.5	79.7%	137.5	75.6%	140.4	66.7%	188.6	72.9%	1.903	2.4
Comparative literature	F	21.5	49.4%	31.0	67.4%	30.5	62.9%	25.8	56.4%	23.6	74.7%	1.098	25.3
	N	12.5	16.9%	7.0	21.2%	20.0	37.4%	12.8	14.8%	13.0	22.2%	1.040	5.4
Economics	F	66.0	87.6%	47.8	79.5%	76.6	90.1%	73.3	89.3%	44.3	89.9%	0.671	2.3
	N	73.5	77.9%	74.8	78.6%	87.3	81.7%	78.5	82.2%	67.7	83.3%	0.921	5.4
Education & Educational Research	F	50.4	81.3%	58.3	85.5%	65.1	79.0%	62.8	89.7%	65.6	75.8%	1.302	-5.5
	N	64.9	37.1%	78.8	45.1%	112.0	48.2%	121.6	47.6%	138.5	46.9%	2.135	9.8
History	F	37.6	29.7%	37.3	33.2%	34.3	25.0%	41.0	34.1%	43.0	39.6%	1.144	9.9
	N	34.3	36.7%	28.0	31.0%	30.0	31.6%	44.5	37.0%	59.5	42.2%	1.733	5.5
Law	F	92.7	21.2%	85.2	18.6%	80.6	18.7%	84.0	20.1%	72.9	23.5%	0.786	2.3
	N	18.0	12.4%	32.2	19.4%	34.4	18.4%	52.1	29.7%	63.3	34.7%	3.520	22.2
Linguistics	F	45.1	73.0%	58.4	67.9%	36.9	52.6%	46.8	74.5%	45.4	81.1%	1.007	8.1
	N	38.0	89.7%	30.2	80.8%	56.2	81.5%	81.6	81.9%	82.4	76.5%	2.167	-13.3
Media & Communication	F	19.6	50.2%	24.9	59.4%	25.7	53.5%	31.6	63.7%	27.3	51.0%	1.393	0.8
	N	8.0	27.8%	15.0	65.2%	33.4	71.4%	43.7	74.4%	48.4	75.6%	6.044	47.8
Philosophy & History of Ideas	F	67.3	62.7%	54.2	61.9%	47.5	58.5%	67.2	70.9%	54.4	73.4%	0.808	10.6
	N	17.8	28.4%	24.5	33.3%	21.3	35.1%	32.7	39.3%	39.7	42.9%	2.224	14.5
Political Science	F	25.5	39.1%	46.0	53.7%	49.9	57.8%	50.7	54.9%	46.7	63.2%	1.831	24.1
	N	51.9	62.1%	47.4	70.9%	53.5	62.6%	74.8	76.1%	70.7	67.7%	1.362	5.7
Psychology	F	172.2	87.4%	181.6	87.5%	200.1	91.0%	225.8	88.3%	219.2	93.9%	1.273	6.5
	N	110.3	72.3%	100.4	75.5%	112.8	83.4%	133.1	73.8%	152.5	79.5%	1.382	7.2
Sociology	F	11.9	34.0%	16.0	38.4%	19.1	38.0%	27.9	53.3%	11.1	42.2%	0.933	8.2
	N	19.8	34.5%	21.6	45.1%	34.4	56.7%	28.3	45.9%	40.1	65.3%	2.028	30.8
Theology & Religion	F	38.0	46.9%	35.5	52.6%	48.0	56.5%	56.5	56.8%	29.0	52.3%	0.763	5.3
	N	36.0	23.4%	46.7	32.4%	32.3	32.4%	43.0	29.4%	45.9	39.9%	1.275	16.6

Table 4 shows that SSH publishing in English is almost as widespread in Norway as in Flanders and on the rise in both countries. During the five years studied, the percentage of publications in English increased about 10%. In both countries well over 50% of the articles is now published in English, reflecting increasing internationalisation. At the discipline level too, the use of English is clearly increasing. An expansive growth in the proportion of fractional articles written in English is displayed in Flanders within the disciplines Comparative literature (+25.3%) and Political Science (+24.1%) and in Norway within the disciplines Media & Communication (+47.8%), Sociology (+30.8%) and Law (+22.2%).

From the VABB-SHW data alone one might conclude that WoS coverage and publishing in English go hand in hand and are measures of the same process of internationalisation. However, from the Cristin data it appears that increased internationalisation in terms of publishing in English is also possible without a significant increase in WoS coverage. In sum, publishing in English and WoS coverage cannot be considered two sides of the same coin. Figure 1 illustrates this finding.

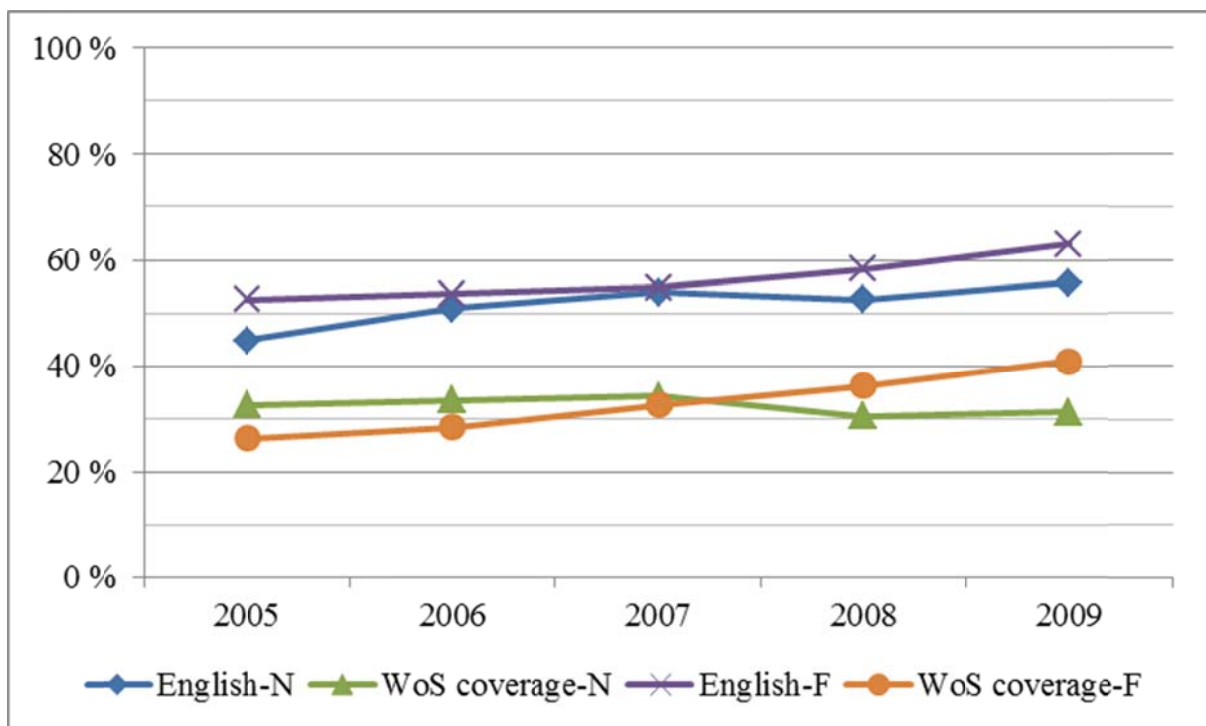


Figure 1: Trends in use of English and WoS coverage for Flanders (F) and Norway (N).

The proportions given in Figure 1 are for the whole of SSH publishing in Flanders and Norway. These overall trends disguise differences between disciplines and how they evolve in terms of WoS coverage and publishing in English. When looking closer at the disciplines of Economics and Philosophy & History of Ideas, for example, slightly different trends can be observed. Although Flanders and Norway have produced a similar number of papers in both disciplines, Table 1 also indicates that for Flanders the proportion of WoS coverage for Philosophy & History of Ideas (30.5%) doubles that of Norway (16.3%). Furthermore in Flanders the proportion of local language use (26.3%) is less than half of the proportion of Norway (60.5%). All in all, though Table 3 and 4 demonstrate that Philosophy & History of Ideas follows the overall trend of SSH. In Flanders both the use of English as publication language (+10.6%) and the proportion of articles in WoS (+16.4%) are on the rise, whereas in Norway the use of English increases (+14.5%) and the proportion of WoS articles (+2.6%) remains practically the same. In Economics, however, both the proportion of WoS-coverage (N:71.8% and F:53.2%) and local language use (N: 19.3% and F:12.0%) are higher in Norway than in Flanders. As articles written in English cover 80.7% and 87.3% of all articles in respectively Norway and Flanders, there is only a small increase noticeable for both countries (N:+5.4%, F:+2.3%). In line with the general observation made in Figure 1, the

proportion of WoS coverage rose clearly in Flanders (+12.4%) whereas it remained stable in Norway (-2.5%). In sum, similar evolutions are observed at the discipline level even for disciplines such as Economics and Philosophy & History of Ideas that differ considerably in terms of average WoS coverage and use of English when comparing Flanders and Norway.

DISCUSSION

In this paper we study journal publication patterns of the SSH in Flanders and Norway using the VABB-SHW and Cristin databases. We find that between 2005 and 2009, publishing in English has been on the rise in both countries. Currently over 50% of SSH articles in both countries are published in English, illustrating the continuing internationalisation of research efforts. The coverage of the articles by the Web of Science, however, has evolved differently in both countries. Whereas in Norway, the proportion of articles covered by the WoS remained stable at about one in three articles, it has increased for Flanders from one in four to four in ten articles. If one assumes that WoS coverage as well as publishing in English are measures of internationalisation, this is a surprising finding. However, the emphasis that has been placed through the local performance-based funding system on publishing in WoS covered journals has vastly differed in Flanders and Norway. From the start in 2003 until 2010, the Flemish BOF regulation only took WoS indexed publications (and citations) into account (Debackere & Glänzel, 2004; Debackere & Glänzel, 2008), thus pushing all scholars, including those in the social sciences and humanities, towards the WoS. Locally, this has sparked debate (Loobuyck, Vanheeswijck, Van Herck, Grieten, & Vercauteren, 2008; Schuermans, Meeus, & De Maesschalck, 2010). However, due to lack of data it has been impossible to make accurate statements about developments, leaving the door open for blatant exaggerations such as the imminent disappearance of publications in Dutch. Still, the government took notice and decided in 2008 that all peer reviewed SSH publications should be included, as of 2011, in the BOF-key. In Norway, the government decided from the start of the performance-based funding system in 2005 that for all disciplines, including SSH, all peer reviewed publications, whether included in the WoS or not, should be taken into account (Sivertsen, 2010). Hence Norwegian researchers have not faced additional pressure from their institutions and their departments to publish in WoS covered journals.

The different evolution of WoS coverage of SSH research in Flanders and in Norway is a result that could be expected. Researchers, as all people and professionals, are known to react to incentives (Heywood, Wei, & Ye, 2011). Performance-based funding systems at the university level, however, do not necessarily result in personal incentives that are strong enough to influence behaviour. Nevertheless, this is precisely what we observe, both for Flanders as for Norway. In Flanders, SSH researchers have gradually focussed more on publishing in outlets that are covered by the WoS. In Norway, SSH researchers have focussed on publishing in journals that have been identified as top journals on the so-called level 2, which “includes only the leading and most selective international journals, series and book publishers, and they may not account for more than about 20 per cent of the world’s publications in each field of research” (Sivertsen 2010). In subfields that are well represented in WoS, such as economics, no non-WoS journals and only a small proportion of the WoS journals will be allowed on level 2, while in subfields with few journals indexed in WoS, such as Media & Communication, there may even be non-WoS journals on level 2. Between 2005 and 2009, the publication activity in Norway on level 1 (the normal level) has increased by 39 per cent, while publication activity on level 2 (the top journals) has increased by 55 per cent (Sivertsen 2010). Norway seems to have avoided the risk that increased productivity mainly occurs in the less significant publication channels, as has been reported in Australia (Butler, 2003). It has been shown that the two level hierarchy of journals in the Norwegian model would give the same distribution of funds as a ranking of journals based on field normalized journal impact. The difference is that the Norwegian model is not restricted to WoS journals (Ahlgren, Colliander, & Persson, 2012).

So it appears that researchers do indeed respond to the incentives included in national performance-based funding systems, presumably because their institutions translate these incentives to the level of departments and even individuals (Gläser & Laudel, 2007). Nevertheless, in a survey among Flemish senior researchers conducted in 2010, only about 30% of SSH postdocs, lecturers and professors admitted that their publication behaviour has been influenced by funding systems such as the BOF-key (Leyman, Vandeveldel, Van Rossem, &

Groenvynck, 2011). Research on the impact of ex-post research evaluation systems has shown a mixed record, with some authors arguing that influence is overstated (Osuna, Cruz-Castro, & Sanz-Menéndez, 2011), whereas others have presented comparative evidence on the influence of different systems (Auranen & Nieminen, 2010). Usually, however, where evaluation systems have a real impact, they do indeed influence behaviour in one way or another. And although evaluations at the group level are often presented as the theoretical ideal (Hicks, 2012), the strength of the performance-based research funding systems in Flanders and Norway appears to be that they have a direct influence on the research income of the universities involved. These universities translate the incentives of the system towards departments and individuals, thus influencing publication patterns.

The mechanisms that have resulted in a rapid increase of the proportion of WoS covered SSH articles in Flanders are twofold. On the journal level, researchers seem to have put effort into bringing journal publishing standards of the journals that are dear to them in line with requirements for inclusion in the WoS. This has successfully resulted in the inclusion of 21 journals that are published in Belgium or the Netherlands in which Flemish SSH researchers have published between 2005 and 2009. As shown in table 2, this includes four journals that account for more than 5% of the Flemish articles in their discipline and that have among their contributors more than 50% who are affiliated to institutions in Belgium and/or the Netherlands. The remaining increase in WoS coverage can be accounted for by the article level, presumably because authors have preferred to submit their articles to WoS covered journals. In Norway no such effort has taken place, or at least it has not resulted in an increase of WoS coverage. Of course, our analysis implies no normative judgement of the evolutions in either Flanders or Norway. Nevertheless the importance placed on WoS coverage does not appear to be relevant to all disciplines if one considers that in the aforementioned Flemish survey of senior researchers only 20.8% of humanities scholars, but 81.6% of social scientists, agreed that the number of WoS publications is an important criterion of research prestige in their field (Leyman et al., 2011).

In sum, the results of this study imply that SSH researchers in Flanders and Norway have responded differently to different performance-based research funding systems that have been implemented in their countries. However, as the possible influences on publication behaviour have been debated to be manifold and intricate, indicating a direct link between the funding system and the publication behaviour requires further research. This is apparent from the limitations of this study. First, as the implementation of the respective PRFSs is fairly recent only a five year period could be studied. As more longitudinal data become available through the yearly updates of the databases, it will become possible to analyse the impact of changes to the systems. Indeed, the impact of a major change in the Flemish BOF-regulation, i.e. the introduction of the VABB-SHW in 2008, which made this study possible, remains as yet unknown. As for Norway, a closer analysis of the evolution with regard to level 2 publishing might reveal interesting patterns. Second, only journal articles have been studied in the present research. Book publications are important to SSH research, particularly in the humanities, and they are included in the databases in both countries. Including them in future research may deepen our understanding of SSH publication patterns and might shed new light on the findings presented here. Third, we have limited ourselves to comparisons of fractional counts at the author level, which is the counting method implemented in Norway. The Flemish system, however, applies whole counts per university, regardless of the number of co-authors involved. Thus both systems lay different emphasis on co-authorship. This may have resulted in different evolutions in terms of national and international co-authorship patterns, especially in the SSH where the number of authors is traditionally limited. Therefore a comparison of the SSH output on the basis of the Flemish whole counting method is needed in order to further clarify our findings. Last but not least, the comparative study of the impact of PRFSs would benefit both from more breadth and more depth, i.e. the involvement of more countries and the use of a plurality of research methods (cf. Gläser & Laudel, 2007; Lewis & Ross, 2011).

CONCLUSION

The use of English is clearly on the rise in peer reviewed journal publishing in the social sciences and humanities in Flanders and Norway. In the period 2005-2009 more than half of the articles are published in English. Although important differences between disciplines can be observed, almost all disciplines are increasing their percentage of output in English as part of an on-going process of internationalisation. The coverage of articles in

the Web of Science, however, appears to evolve independently of the increasing use of English. While no increase in proportion of WoS coverage is observed for Norwegian SSH research, a strong increase is observed for Flemish SSH research. Two mechanisms have been investigated and (partially) do explain the latter finding: SSH researchers in Flanders more often publish their articles in WoS-included journals and the publishers of the WoS have expanded their indexation with journals with strong local ties in Flanders. A plausible explanation for the observed different evolutions in Flanders and Norway is the fact that until 2010 only publications (and citations) indexed in the WoS contributed to the Flemish performance-based funding system. In contrast, Norway opted from the start of its performance-based funding system in 2005 to include WoS covered and non-WoS covered scholarly publications, hence providing no particular incentives for publishing in WoS covered journals. These different incentive structures have resulted in somewhat different evolutions of SSH publication patterns in the two countries.

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ⁱ The term ‘country’ is used for both Norway and Flanders, albeit the latter is no national state, but a region of one.

ⁱⁱ <http://www.ecoom.be/vabb>

ⁱⁱⁱ <http://www.cristin.no/english/>

^{iv} In scholarly communication, it is less relevant to include the Afrikaans, a variant of Dutch spoken in South Africa, since English is the language of local written scholarly communication. Furthermore, most scholars in Flanders do not publish in French unless articles are translated for publication in bilingual journals. French is the second official language in Belgium spoken by well over 4 million people in the southern region of the country. Overall, 3.8% of the fractionally counted publications in the VABB-SHW are in French. Another 1.9% of the VABB-SHW publications are written in another language than English, Dutch or French. In Cristin two language groups have been identified: local (including Norwegian, Danish and Swedish) and English (including also a small proportion of other languages).

^v In Norway all university colleges contribute to Cristin and hence their publications are included in this analysis. In Flanders only 6 out of 19 university colleges submitted data for the VABB-SHW thus far. The very limited volume of peer reviewed output of Flemish university colleges is not taken into account in this analysis.