

# Nordic Impact: Article Productivity and Citation Patterns in Sixteen Nordic Sociology Departments

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## ABSTRACT

The sociology departments in the Nordic countries provide the institutional platform for *Nordic Sociology* and for the Nordic national sociological associations that form the Scandinavian Sociological Association. This paper focuses on journal articles produced by current (as of 1 January 2001) faculty of 16 of these Nordic Sociology departments in the period 1981–2000. First, we provide a brief overview of article productivity and citations to articles produced in this period by country and department. Second, we estimate a multilevel model of citation patterns by articles published, the academic position and productivity of each author, and the structure and productivity of each department as a whole. Third, we test the extent to which the effects of such factors differ between departments and individuals. In all departments, publications in high-impact journals increase the number of citations to any given article, to other work of the same author, and to the work of other faculty in the department. The effect of publishing in high-impact journals differs significantly between individual authors, and work in certain types of journals yields more citations than the journal impact factor would predict. We argue that departmental affiliations with outside faculty and departmental productivity can be seen as a form of social capital that benefits both individuals and departments as a whole. These findings strongly suggest that diversity is a defining characteristic of this sociological community, precluding monolithic definitions of Nordic sociology.

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## 1. Introduction

Nordic sociology is a complex concept with various cultural, geographical, political and academic connotations. From an individual perspective, Nordic sociology could for instance be alternatively defined in terms of the ethnicity, residence, research sites or theoretical orientation of its practitioners. From an organizational perspective, Nordic sociology could similarly be defined in terms of the departments of sociology in the Nordic countries, or the national sociological associations that form the Scandinavian Sociological Association. These alternative definitions are not necessarily mutually exclusive,

but they draw the boundaries of Nordic sociology somewhat differently and emphasize different qualities of this diverse sociological entity.

The archetypal Nordic sociologist might be seen to be drawn from a Nordic pool of culture and genes, educated and employed at a Nordic sociology department, and studying Nordic societies from a uniquely Nordic theoretical perspective. However, numerous sociologists in the Nordic countries are not Nordic by origin, and many sociologists of Nordic origin are educated or employed abroad. Furthermore, several sociologists at Nordic departments of sociology have chosen foreign countries as their

primary topic of investigation. Conversely, the study of Nordic countries is actively pursued at various foreign institutions by researchers who are not Nordic by origin. Finally, several important sociological contributions have been made by Nordic scholars who are neither sociologists by training nor by occupation.

As an academic field, Nordic sociology can be viewed as centered on certain theoretical or empirical core themes. For instance, Bertilsson and Therborn (2000) argue that the sociology of Nordic countries is based on a distinctive moral philosophy, developed in a dynamic relationship with the growth of the welfare state. Alternatively, Allardt (1989, 1995) argues that the pursuit of sociology in the Nordic countries can be defined by broad topical interests, including welfare research, stratification research, women's studies and cultural studies, where neighboring and kindred cases provide a strong basis for comparison. These definitions of the core of Nordic sociology raise important issues regarding the role of national and geographical communities and the nature of sociology as an international enterprise. These various definitional difficulties may in part account for the paucity of sociological studies of similarities and differences in the 'Nordic' pursuit of sociology.

As Wallerstein (1998) points out, the 'internationalization' of sociology has been a slow and uneven process. It has long 'been acknowledged that the growth of sociology has been shaped by national ideals, social and political values, and accepted patterns of social organization (Mazur 1963; Bourdieu & Passeron 1967; Szczepanski 1969; Thorlindsson 1982). The discipline has from the outset been divided along national lines (Levine 1995), and the development of 'national sociologies' was an integral part of nation building in many countries throughout the 20th century. Furthermore, the establishment of multinational sociological associations has been closely related to the restructuring of political and economic boundaries. Thus, the foundation of the Scandinavian Sociological Association in the early 1950s coincided with the establishment of the Nordic Council, aimed at promoting political, cultural and economic collaboration among the Nordic countries. Similarly, the European Sociological Association was founded with the twin aims of facilitating specifically European sociological research and giving sociology a voice in European affairs (ESA 2001).

In such endeavours, the spectre of 'American sociology' is occasionally summoned to galvanize European sociologists around supranational academic identities. Historically, however, the sociological communities on both sides of the Atlantic have developed similar methodological and theoretical fault lines, which have proven a significantly greater barrier to academic discourse than the continental divide. For instance, a review of *Le Suicide* appeared in the *American Journal of Sociology* within months of the book's publication (Tosti 1898), drawing an immediate response from Professor Durkheim (1898) in a following issue of the journal. In sharp contrast, the French Emile Durkheim and the German Max Weber never cited each another, and were apparently mutually unaware of each other's work. Four decades later, the golden age of functionalism, putatively the epitome of 'American sociology', was ushered in by Talcott Parsons' (1937) *Structure of Social Action*, subtitled *A Study in Social Theory with Special Reference to a Group of Recent European Writers*. In contemporary sociology, the affinity of Americans and Europeans sharing a common theoretical or empirical orientation in general far surpasses the level of integration of their respective geographical sociological communities.

The foundation of the Scandinavian Sociological Association in the 1950s provided the institutional basis for the fledgling field of Nordic sociology. At the time, there was only a handful of sociologists working within each country, and none of the countries had established their own national journals of sociology. The decision to launch *Acta Sociologica* in 1955 as an English-language sociology journal was motivated by a strategy of pooling the sociological resources of each country and launching Nordic sociology into the international arena (Agersnap & Widerberg 1995; Allardt 1995).

Almost half a century later, the sociological landscape has been profoundly transformed. On the national level, each of the Nordic countries boasts of a thriving sociological community, capable of sustaining a vibrant local discourse, and in most cases publishing a journal in its own language. On the international level, several general sociological and specialized academic societies provide forums for Nordic sociologists to interact with colleagues from around the globe, and the associated proliferation of specialty journals has provided important outlets for disseminating Nordic research to the international com-

munity. In this rapidly changing intellectual landscape, it is important to assess the current status and the future prospects of the project of 'Nordic sociology'.

The pursuit of sociology is fundamentally a global enterprise, and as Allardt (1995) has pointed out, the impact of Nordic sociologists in international sociology is integral to the meaningful pursuit of Nordic sociology. We believe that 'Nordic sociology' should not be seen as a rigidly defined institution, but rather as a loose global network of scholars, concentrated around the Nordic countries. The sociology departments at the different Nordic universities do, however, form the backbone of this somewhat amorphous entity. Each department tends to have a distinct intellectual identity, contributing to both the national sociological communities and the Nordic community of sociologists. Engaging sociologists in non-Nordic countries in dialogue should be seen as vital to the fruitful development of Nordic sociology. International influences in Nordic sociology should therefore be viewed positively, insofar as they contribute to the Nordic sociological discourse. The extent to which Nordic sociologists yield a reciprocal impact on international sociology is an equally important issue, and national and departmental patterns of such impact are central to the future prospects of Nordic sociology.

### ***Publication patterns in contemporary sociology***

The dissemination of facts and ideas forms the basis of any academic endeavor, and the publication process is integral to such communication (Clemens et al. 1995; Persson et al. 1997). The format of publications has, however, traditionally differed across academic disciplines (Persson 1985). Scientists in the natural sciences have primarily published their research findings in peer-reviewed journals, while books and monographs have been much more prevalent in the humanities.

In sociology, by design straddling the divide between the natural sciences and the humanities, scholars have been somewhat divided between these two forms of publication (Clemens et al. 1995). Both formats have been important to the global pursuit of sociology from the inception of the discipline, each having its distinct set of advantages and disadvantages. The book format allows a broader scope of theoretical and empirical investigation, and can appeal to a broader audience. In contrast, the academic journal provides a

forum for a more focused exchange of ideas and research findings, and tends to serve a more specialized audience.

The academic publication process is in the midst of profound technological and organizational transformation that has affected the review process of books and journal articles in different ways. The vast opportunities for low-cost desktop and electronic publications have led to an exponential growth in the number of book titles and journals published. The formidable international publishing houses have increasingly taken over the publication and marketing of both academic books and academic journals from university presses and professional associations. While the international mass marketing of certain book titles may in some cases shift the review process from academic concerns to market research, desktop book publishing evades the review process altogether. In contrast, the recent proliferation of specialty journals and diminishing restrictions on frequency and volume of journals have increased rather than decreased the importance of the academic review process. With the market for journal subscriptions largely limited to university libraries and a professional audience, the academic reputation of journals has become a market premium, with a particular journal having a known rate of acceptance and a measurable impact in the academic community.

In recent years, studies have revealed a dramatic change in publication practices in all academic fields. In particular, in fields that traditionally have emphasized book publications, an increasing ratio of scholars is now publishing journal articles (Olsen 1998). Academic journals carry out the two most important aspects of the scientific endeavor: the distribution of knowledge and the assessment of the knowledge being distributed. The journal review process subjects manuscripts to the critical evaluation of other members of the academic community, and the academic journal thus assumes particular responsibility in guaranteeing the quality of methods and the contribution of results to the discipline. The rejection rate of manuscripts submitted to the most prestigious sociology journals is over 80 per cent, but each manuscript published in such journals can be expected to draw multiple citations (Persson 1985). In contrast, struggling journals may need to accept much of the material submitted, and the chance of citations in other work may be minimal.

### **Citations as a measure of scholarly impact**

The heated debate over the validity of counts of article publications and citations as measures of productivity and quality of scholarly work rages on among sociologists on both sides of the Atlantic (e.g. Cronin et al. 1997; Baldi 1998; Braun 1999; Anderssen 2000; Hargens 2000; Heine 2000; McGarthy 2000). For instance, Brante and Sunesson (1990) argue that citation indexes are useless, since they exclude books and only selectively cover academic journals. Furthermore, they claim that citations do not accurately reflect the importance of specific journal articles, since citation practices differ widely across substantive areas; the importance of work may only be realized after the death of its author; and substandard work may draw many negative citations.

Some of these objections apply to sociological reputations in general. Whatever posthumous fame the future may bring, currently neglected work not only remains uncited, but by definition has no impact in contemporary sociology. Similarly, infamy may be a sure route to academic fame, regardless of citation counts. However, work drawing a large number of negative citations is most likely to be controversial rather than simply substandard, since poor quality alone may not draw much attention in contemporary sociology. Finally, like other indicators of academic prestige, citation patterns may reflect the fact that academic careers are grounded in networks of scholars (Baldi 1998; Hargens 2000).

The selective coverage of citation indexes may represent a more serious problem. The most commonly used *Social Science Citation Index* (SSCI; ISI 2002a) does include citations to both books and non-indexed journals. However, such citations are only counted if they have appeared in an indexed journal. For instance, while, *Sociologisk Forskning* and *Tidskrift for Samfunnsforskning* are included in SSCI, the Finnish journal *Sosiologia* and the Icelandic journal *Íslensk Félagsrit* are not. This is in a sense a reflection of the challenges facing national sociology journals in smaller linguistic areas. Articles published in such journals will only enter global sociology when cited in an international forum.

### **The current study**

As discussed above, sociological importance is a multifaceted construct with many different indicators. Nevertheless, the contribution of sociologists to the discipline can in part be

gauged from the attention their work receives in international journals. Article citations are influenced by a variety of factors, including the area and impact of the journals, the reputation and productivity of authors, and structure and culture of academic communities.

Specialty journals have become increasingly important in sociology in the past few decades, and their impact in many cases exceeds that of the top-tier general sociology journals (ISI 1998). However, the number of citations to articles published in such outlets will depend in part upon the volume, structure and activity of the sociological communities that they serve. Furthermore, the prestige of both specialty journals and general sociology journals differs substantially. The processes contributing to the prestige of academic journals closely parallel the processes contributing to the reputations of scholars. Academic journals are embedded in complex networks of institutions and scholarly communities. The average number of citations to articles they publish is not the only indicator of their quality, but it gauges the impact that the journal has in the discipline. Articles published in a high-impact journal are more visible and have an increased potential for influencing the discipline.

The work of scholars with a reputation for originality and quality may draw more citations than the work of lesser known authors. Prolific scholars who publish their work in highly visible journals also earn a centrality in their field that in turn increases the number of citations to their work. Furthermore, scholarly reputations are grounded in social networks and interact with publication patterns and academic positions. Thus, a professorship in sociology may require both a strong publication record and a strong academic reputation. However, holding a senior position in the field will in turn contribute to increased prestige and productivity.

On the departmental level, senior faculty may enhance the stature of their programs in various ways (Sigfusdottir & Thorlindsson 2000). They contribute to the reputation of the department as a whole, and they may be instrumental in promoting the work of their colleagues. Similarly, outside faculty affiliated with the department provide additional ties to other departments and the discipline as a whole. In addition, larger departments and departments with a strong culture of publication and collaboration can generate exciting arenas of academic challenges and industriousness.

The current study contributes to the understanding of Nordic sociology in several ways. First, we seek to describe the efforts of Nordic sociologists to disseminate their work through the publication of articles in indexed journals. Second, we evaluate the impact of such articles, as measured by citations in other articles appearing in indexed journals. Third, we formally assess the relative influence of publication outlets, authors and departmental characteristics on the number of citations that each article has received. Finally, we explore the extent to which the importance of such factors varies between the Nordic sociology departments and the Nordic sociologists included in our study.

## 2. Methods and data

Our data included information on journal article publications and citations in 16 of the Nordic sociology departments.<sup>1</sup> Specifically, we studied (1) journal articles (2) indexed in SSCI or *Sociological Abstracts* (SA) (3) appearing in the period 1981–2000, (4) authored by university faculty (5) at Nordic sociology departments (6) that train graduate students. As a result, many Nordic sociologists were not included in the analysis, such as researchers and teachers who do not hold a faculty position, graduate students, faculty at undergraduate departments and those working in non-academic settings. Similarly, the analysis excluded books, book chapters, reports, lectures, non-indexed journal articles and indexed articles published prior to 1981, as well as work by faculty no longer associated with a department as of 1 January 2001.

### *Departments and faculty*

Information on faculty at 16 Nordic sociology departments was obtained from the university web pages of each sociology department. The various academic titles used for full-time faculty in these five countries were classified into four broad categories. The category of 'Professor' corresponds to 'Full Professor', 'Chair of Sociology' and other labels denoting the highest faculty position in each department. 'Other Faculty' refers to other full-time faculty with responsibilities for both teaching and research within each department. The formal definitions of these career stages vary substantially between countries, but correspond roughly to 'Assistant Professor' and 'Associate Professor' at various English-speaking universities. The cate-

gory of 'Affiliated Faculty' denotes formally affiliated full-time faculty with teaching and research responsibilities at other departments within the university, or at sociology departments at other universities. Finally, 'Professor Emeritus' refers to retired faculty with continuing ties to the department. The final list of faculty and their classification according to this scheme was sent to each department for verification and minor adjustments were made according to their responses. All departments verified the final list used in the following analysis.

### *Journals and articles*

The articles included in the current study were drawn from two distinct sources. The SSCI via Web of Science (ISI 2002) is a multidisciplinary online database, which indexes more than 1,725 journals spanning 50 disciplines, as well as covering individually selected, relevant items from over 3,300 of the world's scientific and technical journals. The SA online database (CSA 2000a, b) indexes sociological articles in over 1,500 journals worldwide. It includes all articles appearing in sociological journals, and selectively indexes articles deemed of sociological interest in other journals. While the SSCI was our sole source of citations, we counted citations to all articles appearing in either index. Material other than journal articles (e.g. books, book chapters, scientific reports, book reviews, notes, letters and editorial material) was excluded from the current analysis. The journals included in the current study were classified into 11 broad categories by their primary emphasis (see Appendix).

We searched the SSCI and the SA by the names of each faculty member on the list and verified their accuracy by the departmental affiliation given by each database. All articles found in either database were included in the list of *indexed article publications*. All citations found in the SSCI to articles that were indexed in either the SSCI or the SA were counted as *citations to indexed articles*. No distinction was made between single authors, first authors and other authors.

### *Impact factors*

We employed three distinct impact factors for journals, authors and departments. The *journal impact factor* was obtained from the *Journal Citation Reports* (ISI 1998). For each journal indexed in the SSCI the impact factor is defined as the average number of citations in a given

Table 1. *Faculty at 16 sociology departments in five Nordic countries, 1 January 2001.*

	Total faculty	Professor	Other faculty	Affiliated faculty	Professor Emeritus
Nordic countries					
Denmark	44	10	33	0	1
Finland	35	16	12	1	6
Iceland	10	3	4	3	0
Norway	53	23	22	6	2
Sweden	129	34	79	8	8
Nordic sociology departments					
Åbo Academy	5	2	3	0	0
Copenhagen Business School	29	8	20	0	1
Göteborg University	25	4	17	1	3
Lund University	42	11	30	0	1
Umeå University	26	7	17	1	1
University of Tromsø	9	3	6	0	0
University of Bergen	17	5	9	1	2
University of Copenhagen	15	2	13	0	0
University of Helsinki	13	6	5	0	2
University of Iceland	10	3	4	3	0
University of Jyväskylä	5	3	1	0	1
University of Oslo	27	15	7	5	0
University of Stockholm	17	4	6	6	1
University of Tampere	6	3	2	0	1
University of Turku	6	2	1	1	2
Uppsala University	19	8	9	0	2
Total	271	86	150	18	17

year to articles appearing in the two previous years (ISI 2002b). This measure provides an indication of the average probability of citations to articles appearing in a given journal. By including this measure in multivariate analysis, we could control for the 'citation propensity' of the journal in examining the importance of various other factors on citation patterns. The *individual impact factor* is defined as the sum of the journal impact factors associated with each article published by a given faculty member. This measure allowed us to examine the impact of publishing in highly cited journals on patterns of citations to other articles by the same author. Finally, the *departmental impact factor* is defined as the sum of the individual impact factors of all faculty members. This measure allowed us to examine the impact of belonging to a department characterized by a faculty publishing more in highly cited journals on patterns of citations to the work of individual faculty members.

### 3. Descriptive results

As can be seen from Table 1, 271 faculty were included in the initial analysis. A total of 86 of

these was categorized as 'Professor', 150 as 'Other Faculty', 18 as 'Affiliated Faculty' and 17 as 'Professor Emeritus'. According to this classification, Lund University has by far the largest Nordic Sociology department, with a total of 43 faculty members. Sociology departments with 25–29 faculty include the Copenhagen Business School, the University of Oslo, Göteborg University and Umeå University. Departments with 13–19 faculty include the University of Copenhagen, the University of Helsinki, the University of Bergen, the University of Stockholm and Uppsala University. The departments at the remaining six universities have a faculty of ten or fewer.

The study found a total of 1,205 articles published in 1981–2000 in a total of 329 journals (see Appendix). Table 2 shows the distribution of article publications across types of journals. Half of these articles appeared in 17 journals, while the other half was distributed across 312 journals, each accounting for less than 1 per cent of the total. About one-quarter of the articles under consideration appeared in six Nordic sociology journals, and half of the publications appeared in various specialty journals.

Table 2. Distribution of 1,205 articles (indexed in SSCI or SA) published in 1981–2000 by faculty at 16 sociology departments in five Nordic countries across journal types.

	<i>Acta Sociologica</i>	National sociology journals	Top-tier international sociology	Other general sociology	Specialty journals
Denmark	10%	29%	0%	2%	60%
Finland	7%	37%	1%	6%	49%
Iceland	11%	0%	7%	11%	70%
Norway	10%	26%	8%	8%	48%
Sweden	11%	25%	4%	13%	47%
Nordic countries	9%	24%	5%	10%	50%

SSCI: Social Science Citation Index; SA: Sociological Abstracts.

About 5 per cent of the articles were published in top-tier international sociology journals; of these 2.4 per cent appeared in five major European general sociology journals (*European Sociological Review*, *British Journal of Sociology*, *Sociology*, *Archives Europeennes de Sociologie* and *Zeitschrift für Soziologie*), and likewise 2.4 per cent appeared in the three major general sociology journals in the USA

(*American Journal of Sociology*, *American Sociological Review* and *Social Forces*). About 12 per cent of the total publications appeared in four specialty journals (*Alkoholpolitikka*, [British Journal of] *Addiction*, *Social Science and Medicine*, and *Nordisk Alkohol Tidskrift*), and 9 per cent of the articles were published in *Acta Sociologica*. A total of 10 per cent of the articles appeared in 45 general sociology journals.

Table 3. Total and mean number of publications (indexed in SSCI or SA) and citations (indexed in SSCI) in 1981–2000 by faculty at 16 sociology departments in five Nordic countries.

	Publications		Citations	
	Total	Per faculty	Total	Per faculty
Country				
Denmark	112	2.5	129	2.9
Finland	193	5.5	527	15.1
Iceland	42	4.2	247	24.7
Norway	277	5.2	1,814	34.2
Sweden	551	4.3	2,212	17.1
Department				
Åbo Academy	26	5.2	64	12.8
Copenhagen Business School	41	1.4	69	2.4
Göteborg University	87	3.5	192	7.7
Lund University	99	2.4	257	6.1
Umeå University	89	3.4	321	12.3
University of Tromsø	16	1.8	76	8.4
University of Bergen	44	2.6	110	6.5
University of Copenhagen	71	4.7	60	4.0
University of Helsinki	108	8.3	413	31.8
University of Iceland	42	4.2	247	24.7
University of Jyväskylä	23	4.6	5	1.0
University of Oslo	217	8.0	1,628	60.3
University of Stockholm	162	9.5	1,030	60.6
University of Tampere	25	4.2	16	2.7
University of Turku	11	1.8	29	4.8
Uppsala University	114	7.6	412	21.7
Total	1,205	4.5	4,929	18.2

SSCI: Social Science Citation Index; SA: Sociological Abstracts.

Table 4. Descriptive statistics for multilevel analysis of citations to publications (indexed in SSCI) in 1981–2000 by faculty at 16 sociology departments in five Nordic countries.

	Range	Mean	SE	SD
Department level (level 3)				
Department size	5–42	16.94	2.65	10.59
Departmental productivity				
Departmental impact				
Proportion professors	13.3–60.0	34.6	3.3	13.4
Proportion affiliates	0–35.3	7.1	2.9	12.0
Individual level (level 2)				
Publication record				
Individual productivity	1–37	6.41	0.55	7.58
Individual impact	0–49.8	3.04	0.44	6.03
Position <sup>a</sup>				
Professor	0–1	0.43	–	–
Affiliate	0–1	0.07	–	–
Emeritus	0–1	0.06	–	–
Article level (level 1)				
Article characteristics				
Impact factor of journal	0.00–8.80	0.62	0.02	0.73
Age of article	0–20	8.95	0.18	5.57
Journal category <sup>b</sup>				
Education	0–1	0.03	–	–
Health	0–1	0.11	–	–
Economy and stratification	0–1	0.05	–	–
Life course	0–1	0.06	–	–
Applied sociology	0–1	0.02	–	–
Political sociology	0–1	0.03	–	–
Dependent variable				
Number of citations	0–40	4.50	0.25	7.54

*n* at level 3: 16 departments

*n* at level 2: 188 faculty

*n* at level 1: 917 articles

<sup>a</sup> Other Faculty are contrast.

<sup>b</sup> General Sociology Journals are contrast.

SSCI: Social Science Citation Index.

Table 2 also shows the proportion of articles in five journal categories within each country. It should be noted that these figures reflect the relative importance of each category *within* each of the five Nordic countries under study. The results indicate that although there are some national differences in publication practices in indexed journals, there is an overall Nordic pattern of half or more of all publications appearing in specialty journals, followed by one-quarter or more in national journals, about one-tenth in *Acta Sociologica* and about one-tenth in other general sociology journals. The absence of a viable indexed sociology journal in Iceland is the main exception to this pattern. Specialty journals are somewhat more important indexed outlets for faculty in Denmark and Iceland, while Finnish faculty publish relatively

more frequently in their national general sociology journal *Sociologia*.

Table 3 shows the total number of publications and citations, as well as the mean per faculty in each country and at each department. On the national level, these results indicate that patterns of publications and citations in indexed journals are similar in most countries. However, the analysis of sociology departments suggests that there is considerable variation in the culture of article publication between departments in all countries. This suggests that insofar as a common Nordic culture of article publications exists, it involves certain departments of sociology having more in common with departments in other Nordic countries than with other sociology departments in their own country.

The total number of publications and



citations reflects the size of each country and each department, with almost half of all publications and citations attributable to Swedish faculty. The five largest departments (Copenhagen Business School, University of Oslo, Göteborg University, Lund University and Umeå University) similarly account for close to half of all publications and citations.

The mean number of publications and citations per faculty gives an indication of article productivity and impact, net of department size.<sup>2</sup> Departments with an average of seven to ten indexed articles per faculty include the universities of Helsinki, Oslo, Stockholm and Uppsala. Departments with an average of four to five indexed journal publications per faculty include Åbo Academy, and the universities of Copenhagen, Iceland, Jyväskylä and Tampere.

In terms of citations, the departments in Oslo and Stockholm are in a league of their own, each with an average of about 60 citations per faculty in the 20 year period. Indexed journal articles by faculty at the universities of Helsinki, Iceland and Uppsala were on average cited 22–23 times in this period, and articles by faculty at Åbo Academy and Umeå University were on average cited 12–13 times. Thus, faculty at the sociology departments in Stockholm, Helsinki, Oslo and Uppsala appear to emphasize article publication to a greater degree than faculty at other departments, while the rate of citations to such work is highest in Stockholm and Oslo, followed by the universities of Helsinki, Iceland and Uppsala.

These findings should not be interpreted as measures of the quality of the faculty or the sociology programs at different Nordic universities. Alternative forms of academic productivity, such as books, book chapters or scientific reports, were not considered. Furthermore, the analysis did not take into account other roles of university faculty, such as teaching, engagement in public discourse, or service within and beyond the university community. The findings do, however, demonstrate that the different Nordic sociology departments differ substantially in the average number of indexed articles produced by each faculty and the citations that these articles receive in the larger academic community. In the following analysis we examine these differences more closely, focusing on objective characteristics of each article, the author, and the department to which the author belongs.

### **Accounting for differences in citations**

Article citations are influenced by a variety of

factors, including the area and impact of the journals, the reputation and productivity of authors, and the structure and culture of academic communities. In the following analysis, we employ multilevel (hierarchical linear) modeling to address these issues (Bryk & Raudenbush 1992). The descriptive statistics for the data used in this analysis are shown in Table 4. This analysis is limited to 188 faculty members who had published 917 articles in journals indexed in the SSCI in the 20 year period under study. We corrected for skewness in the dependent variable by truncating the high end of the distribution at 40 or more citations.<sup>3</sup> This affected the ten most cited articles (0.7 per cent of the total number of articles) with 45–107 indexed citations.

The findings described above indicate that the sociological communities in each of the five countries under study have experienced the global ascendance of specialty journals over general sociology journals. However, these findings do not show the extent to which publications in different types of journals yield different citation patterns. In other words, citations to the work of Nordic sociologists may vary between types of journals because the impact of the journals varies, or because the visibility of Nordic sociologists varies by area. For each article (level 1), we included the *impact factor* and the *category* of the journal in which it appeared. As the number of citations can only increase with time, we also controlled the *number of years* from publication.

The total number of articles published by an author can clearly be expected to increase the total number of citations to his or her work. However, scholarly productivity and reputation may also impact the number of citations to each article produced. Once the characteristics of a given article have been taken into account, the academic position, productivity and visibility (individual impact factor) of its author (level 2) may thus contribute to a greater number of citations.

Earning a professorship in sociology is in part the result of high productivity and impact of scholarly work, but such a senior position may in turn contribute to greater visibility. The formal affiliation of retired faculty or faculty at other departments may also reflect the productivity and impact of these individuals, and may similarly contribute to their greater visibility in the field. In this analysis, we included indicators of the academic positions of *Professor*, *Affiliate Professor* and *Professor Emeritus*, with *Other*

Table 5. Results of multilevel analysis of citations to publications (indexed in SSCI) in 1981–2000 by faculty at 16 sociology departments in five Nordic countries.

	Bivariate	Model 1 Department	Model 2 Individual	Model 3 Department, individual and article	Variance
Intercept	3.44***	3.20***	2.91***	3.53***	ns
Department level (level 3)					
Department size	0.00ns	–		–	–
Departmental productivity	0.02***	–		–	–
Departmental impact	0.03***	0.02*		0.13*	ns
Proportion professors	3.68ns	–		–	–
Proportion affiliates	10.55***	6.51*		5.52*	ns
Level 3 explained variance		90.7%		96.1%	
Individual level (level 2)					
Publication record					
Individual productivity	0.13**		–	–	–
Individual impact	0.29***		0.27***	0.13*	8.19***
Position <sup>a</sup>					
Professor	0.84ns		–	–	–
Affiliate	3.75**		2.09***	–	–
Emeritus	0.18ns		–	–	–
Level 2 explained variance			23.3%	64.7%	
Article level (level 1)					
Article characteristics					
Impact factor of journal	3.90***			4.33***	
Age of article	0.18***			0.28***	
Journal category <sup>b</sup>					
Education	3.47*			–	
Health	3.08***			–	
Economy and stratification	1.39ns			–	
Life course	4.10***			3.08***	
Applied sociology	6.12***			3.85**	
Political sociology	–0.10ns			–	
Acta Sociologica	0.79ns			–	
Level 1 explained variance				27.3%	

<sup>a</sup> Entered as a block, Other Faculty are contrast.

<sup>b</sup> Entered as a block, General Sociology Journals are contrast.

SSCI: Social Science Citation Index.

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ , ns: not significant.

*Faculty* serving as the omitted reference category. The article *productivity* of each faculty member was measured as the total number of articles published in indexed journals in the period under consideration. The *impact* of each faculty member was operationalized as the sum of the impact factors of the journals in which each of his or her articles appeared.

Finally, the number of citations to any given article may be influenced by the department of its author (level 3). Larger departments with more established and more productive scholars may directly and indirectly increase the visibility of all faculty members. Scholars may be more likely to cite the work of their colleagues when relevant, and belonging to a large or

productive department may thus increase the probability of citations. Furthermore, more established scholars may be instrumental in promoting the work of their colleagues to others, both through their work and through their informal networks. These factors were measured by *department size*, *proportion professors* and *proportion affiliates*, *departmental productivity* defined as the total number of articles produced in the department, and *departmental impact* defined as the sum impact factor of these articles.

### Multilevel modeling of citation frequency

Table 5 shows the multilevel effects of articles, faculty and departments on the number of

citations that each article has received. On the departmental level (level 3), neither the number of faculty nor the proportion of professors has an effect on the probability of citations. However, belonging to a department with a greater proportion of affiliated faculty significantly increases citations to the work of all faculty members. This pattern holds true when both individual and article characteristics have been taken into account. In other words, establishing formal ties with faculty outside the department does not seem to increase spuriously the visibility of the department by 'adopting' the work of productive scholars, but in fact appears to enhance the visibility of the work conducted by other faculty. This department-level effect does not vary significantly across departments, suggesting that all departments benefit equally from their affiliated faculty.

The total number of publications produced in each department (*departmental productivity*) significantly predicts citations on the bivariate level, but this effect disappears once the sum of the impact factors of these articles (*departmental impact*) has been taken into account. In contrast, departmental impact significantly increases the number of citations to all articles, net of the position, productivity and impact of the author, as well as net of the impact factor and category of the journal in which the article appeared. Belonging to a department where other faculty members publish more in high-impact journals thus increases the probability of citations to any given article by all faculty members, irrespective of their own position, productivity or visibility, or the journal in which the article was published. Again, this effect does not vary significantly between departments, suggesting that departmental impact operates in similar ways in all the departments under study.

On the individual level (level 2), the number of citations to articles written by *Professors* or *Emeritus Faculty* does not differ from *Other Faculty*. As might be expected, *Affiliate Faculty* tend to be more widely cited than other faculty members. However, the sum *author impact* and publication characteristics fully accounted for this difference. It is thus important to note that while articles produced in departments with more affiliates are more widely cited, the affiliates themselves are not more widely cited net of other factors in the model. Table 5 also shows that on the bivariate level, the *productivity* and *impact* of each faculty contribute to the number of citations to each of

their articles. In the multivariate model, however, only the individual impact has an independent effect on the probability of citation. This does, however, vary significantly between faculty members, indicating that the effect is not simply a function of publishing more in high-impact journals. This variability could be attributed to a variety of factors outside the scope of the current study, including the originality, timeliness or quality of the work, or the formal or informal networks in which the author is embedded.

Finally, Table 5 shows the effects of article characteristics (level 1) on the citations that each article receives. As expected, the age of the article increases the probability of citations, and articles published in high-impact journals are more widely cited. Before the impact factor of the journals is taken into account, articles published in most specialty journals are found to have a greater probability of being cited than articles published in general sociology journals. However, in the cases of both *education* and *health* (see Appendix), this can be fully attributed to the higher impact factors of the journals in which the articles are published. In the case of articles published within the categories of *life course* and *applied sociology*, the Nordic contributors are significantly more likely to be cited than the impact factor of the journal or other article-level characteristics would suggest. The number of citations to articles published in *Acta Sociologica* does not differ significantly from what the journal's impact factor would predict.

Overall, the model accounts rather well for differences in citation patterns. The model accounts for 96 per cent of the variation in citations between departments, leaving little room for other omitted departmental characteristics. It accounts for about 65 per cent of the variation in citations between faculty in the five countries, and about 27 per cent of the variation in citations to each article.

#### 4. Discussion

The publication of indexed journal articles by faculty at Nordic sociology departments was found to be equally divided between general sociology journals and specialty journals. About one-quarter of all the articles indexed were published in general sociology journals in one of the Nordic countries, one-tenth appeared in *Acta Sociologica* and 15 per cent in dozens of other general sociology journals. The remaining

50 per cent of the indexed articles were published in hundreds of specialty journals. These results indicate that the national-language sociology journals constitute the single most important journal outlets for most Nordic sociological communities, while the Nordic journal *Acta Sociologica* continues to be the single most important English-language Nordic channel into the international sociological community. Perhaps the most striking aspect of these findings, however, is the fact that while half of the 1,205 articles were published in 17 journals, the remaining half was distributed across 312 journals, each constituting less than 1 per cent of the total (see Appendix). This diversity may indeed be a defining characteristic of Nordic sociology, and serves as a sobering reminder of the fallacy of imposing a monolithic definition upon the Nordic sociological community.

Our multilevel analysis of citations to indexed journal articles produced by the faculty of 16 departments of sociology revealed several important patterns. The SSCI impact factor, calculated on the basis of all citations to articles published in a particular journal in the past two years, strongly predicted the probability of citations to the Nordic sociology articles under study. These findings support the use of the journal impact factor as a predictor of the number of citations to the work of Nordic sociology faculty. Furthermore, the impact of *Acta Sociologica* did not differ significantly from other general sociology journals, supporting Allardt's (1995) observation that 'Acta Sociologica has a good position in a respectable middle category of journals'. The impact factor did, however, appear to underestimate the number of citations in the areas of *life course* studies and *applied sociology*, perhaps indicating a relatively strong Nordic impact in areas that have important implications for public policy, as suggested by Bertilsson and Therborn (2000).

Importantly, we found that the sum of journal impact factors can be used as a measure of the impact of both individual scholars and entire sociology departments. Articles by authors who publish more in high-impact journals receive more citations, regardless of the impact of the journal in which they appear. In effect, authors who publish more in high-impact journals receive more citations to all of their work, not just to those articles that appear in these journals. It thus appears that scholars may earn a certain level of centrality in their

field by publishing in top-tier journals, which enhances the visibility of their work published in lower ranked journals. It should, however, be noted that the effect of individual impact on citations differs significantly between authors. In other words, the effects of publishing in high-impact indexed journals are stronger for some scholars than for others. The origin of this variation is beyond the scope of this paper, but may include such academic considerations as the perceived originality or competence of the author, or such social considerations as the formal or informal networks in which the author is embedded. However, it is clear that these differences are not due to the effects of the formal academic position of individual authors. Citations to articles by Professors and Professors Emeritus do not differ significantly from citations to articles by Other Faculty. Work published by Affiliated Faculty does receive more citations than the work of regular faculty at each department, but this can fully be attributed to these publications appearing in higher impact journals.

Finally, articles published in departments where the faculty publish more in high-impact journals receive more citations, regardless of both the impact of the journal in which they appear and the publication patterns of their authors. This may in part be due to patterns of self-citations and citations to the work of colleagues, although the numbers of publications per se have a much smaller effect on both the individual and the departmental level, and are not significant in the multivariate model. On the departmental level, the proportion of Affiliated Faculty does, however, increase the probability of citations to the work of all faculty members. In other words, net of characteristics of articles or authors, work is more likely to be cited when it is produced in departments with a greater proportion of Affiliated Faculty. This effect persists when controlling for the total number of publications in the department, but is not found for the proportion of Professors in each department. It is possible that Affiliated Faculty are more likely to cite the faculty of the department with which they are affiliated than are regular faculty members, although it is not clear why this would be the case. A more plausible explanation appears to be that affiliations with faculty outside the department help to integrate the department into the wider sociological community, benefiting all faculty members.

These findings suggest that the publication

patterns of individuals and entire department constitute a form of social capital that raises the profile of all faculty members. The career trajectories of individual faculty may therefore be intimately tied up with the trajectory of the department as a whole, suggesting a form of group mobility that transcends individual mobility.<sup>4</sup> In this formulation, the collective efforts of faculty may lead certain departments to become known as 'powerhouses' in the discipline, thereby increasing the prestige and visibility of all faculty members beyond what their individual efforts could have achieved. Alternatively, more productive faculty are likely to have larger personal networks in the global discipline, and numerous productive faculty may therefore create a synergy of overlapping and interlocking global networks, resulting in higher citation counts for both network members and their colleagues. Further analysis of the sources of citations would help to clarify this issue.

This research shows that although there are some differences in article productivity and citations in indexed journals among the Nordic countries, these differences can mostly be traced to differences among departments and individuals. In all the departments under study, many of the publications and citations in indexed journals can be attributed to a specific group of scholars, while some faculty in all departments had no such publications or citations. This does not imply that these latter faculties are necessarily idle or unproductive. Most importantly, the entire field of book publishing falls beyond the scope of the current study, excluding seminal work that has had a profound impact on Nordic and international sociology. Furthermore, the role of university faculty is continuously evolving and expanding (Gibbons et al. 1994; Barnes et al. 1996; Ziman 2000). Apart from the vital role of training future generations, faculty obligations increasingly include accumulating and allocating research funds, chairing scientific committees, organizing conferences, managing research groups and institutions, providing consultation to businesses and government agencies, and participating in public discourse. Future studies should expand the focus to the entire sociological vocation and the dynamics of division of labor within Nordic sociology departments.

In this study we have attempted to move beyond ideological, political and philosophical debates over the 'true nature' of Nordic sociology to start outlining the position of

Nordic sociology in the increasingly global sociological community. Insofar as the international sociology journals are concerned, Nordic sociologists are increasingly prolific, and their work is well represented in citations in these journals. *Acta Sociologica* appears to have served the Nordic sociological community well in promoting the work of Nordic sociologists and establishing a Nordic profile in the international community. There are considerable differences between sociology departments within each of the Nordic countries, but these within-country differences are reproduced with remarkable consistency across the Nordic countries. Similarly, although the total volume of indexed articles published differs among these five countries, the national communities as a whole publish similar proportions of their work in different types of national and international outlets. Finally, the multilevel analysis showed that the predictors of citation patterns do not differ significantly between the 16 department under consideration. Although these results cannot directly address the relative 'success' or 'failure' of the project of Nordic sociology, they do strongly suggest that the sociological communities in these countries share a common, diversified journal article tradition.

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### Notes

<sup>1</sup> The choice of sociology departments to study is obviously a contentious issue. Our definition excludes several of the smaller Nordic sociology departments, as well as sociology faculty in Greenland and the Faroe Islands, and multidisciplinary programs in other Nordic countries. Similarly, imposing a single scheme of faculty classification on different national realities can never be beyond reproach, but our final list of faculty and their classification was verified by each of the 16 departments.

<sup>2</sup> It should be reiterated that these figures exclude outlets other than indexed journals, and thus do not reflect the total productivity or impact of the faculty at each department.

Furthermore, each of the departments under study includes highly productive and widely cited faculty members. However, a large number of faculty that do not publish in indexed journals contributes to a low average, while exceptionally productive faculty members publishing in such outlets raise the average number substantially.

<sup>3</sup> In an alternative analysis, we used log-transformations of skewed variables. This did not substantially change either the overall patterns of the findings or the fit of the models estimated. In the following analysis we thus only report the more directly interpretable results based on untransformed data.

<sup>4</sup> This important point was raised by an anonymous reviewer of an earlier version of the paper.

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## Appendix

Table A1. *Classification of journals (indexed in SSCI or SA) by primary emphasis and number of articles published in 1981–2000 in each category by faculty at 16 sociology departments in five Nordic countries.*

	Journals	Articles		Journals	Articles
<i>General sociology</i>	59	570	<i>Education</i>	19	40
Major international journals	8	163	General and special education	10	16
Nordic national journals	6	298	Science studies	9	24
Other general sociology	45	109	Sport studies	2	3
<i>General studies</i>	23	31	<i>Health studies</i>	47	128
Philosophy	6	10	Community and public health	15	45
General interest	17	21	Epidemiology	5	10
<i>Methodology</i>	9	18	Social studies in medicine	8	40
Statistics and methods	4	10	Psychology and psychiatry	13	25
Demography	5	8	Disabilities studies	4	5
			Sport studies	2	3
<i>Economic studies</i>	29	61	<i>Deviance</i>	18	101
Economics	9	11	Crime and delinquency	4	5
Work and occupation	6	13	Alcohol and drugs	10	91
Organization and stratification	10	30	Legal studies	4	5
Urban and rural studies	4	7			
<i>Political and historical</i>	44	74	<i>Life course studies</i>	29	74
General political science	11	15	Marriage and family	9	34
Third world issues	2	2	Childhood	1	4
Historical studies	4	4	Adolescence	4	9
Politics and policy	14	25	Gender and sexuality	5	10
Welfare and social work	3	12	Aging and gerontology	10	17
Social movements	10	16			
<i>Culture and theory</i>	35	64	<i>Applied sociology</i>	23	44
Cultural studies	11	14	Disasters and accidents	2	3
Media and communication	7	9	Planning and regional	4	13
Theory	13	35	Administrative studies	6	7
Knowledge and religion	4	6	Technology and resources	6	12
			Consumer and advertising	5	9

Note: This is a classification of journals by primary emphasis, not of article topics.  
SSCI: *Social Science Citation Index*; SA: *Sociological Abstracts*.