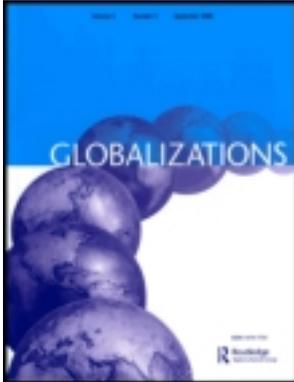


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## Globalizations

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### A Bibliometric Analysis of 20 Years of Globalization Research: 1990-2009

Xingjian Liu <sup>a</sup>, Song Hong <sup>b</sup> & Yaolin Liu <sup>b</sup>

<sup>a</sup> University of Cambridge, UK

<sup>b</sup> Wuhan University, China

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## A Bibliometric Analysis of 20 Years of Globalization Research: 1990–2009

XINGJIAN LIU\*, SONG HONG\*\* & YAOLIN LIU\*\*

\*University of Cambridge, UK

\*\*Wuhan University, China

**ABSTRACT** *We present a bibliometric analysis of globalization research published during 1990–2009, based on three online library catalogues, the Science Citation Index, and the Social Science Citation Index databases. Our analysis summarizes major research patterns in globalization research and could serve as an alternative and potential guide for future research in this field. The volume of books and articles on globalization has exploded since the 1990s, and there is an even distribution of globalization literature across subject categories, reflecting the interdisciplinary nature of globalization research. International organizations appear as the most cited authors in globalization research. A keyword analysis suggests that cities and networks have a central position in studies of contemporary globalization and reveals several major strands in globalization studies.*

**Keywords:** bibliometrics, globalization, research trends, networks

### Introduction

Globalization comprises patterns and processes in which the world communities are integrated through a global network of people, material, and information (Castells, 1996; Holton, 2008). Research on contemporary globalization has gained great academic interest in the past three decades, and globalizations have been analyzed from various perspectives, including economic development (Hall et al., 2009), international division of labor (Friedman, 1986), food security (Milestad et al., 2010), world cities and global cities (Sassen, 2001; Taylor, 2004), multinational corporations (Alderson and Beckfield, 2004; Morshidi, 2000), and social reform (Hartzell et al.,

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*Correspondence Address:* Xingjian Liu, Department of Geography, University of Cambridge, Downing Place, Cambridge CB2 3EN, UK. Email: x1306@cam.ac.uk (corresponding author); Song Hong, School of Resource and Environmental Sciences, Wuhan University, China. Email: songhongpku@126.com; Yaolin Liu, School of Resource and Environmental Science, Wuhan University, China. Email: yaolin610@163.com

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2010). Unlike these studies, which focus on specific facets of globalization, a bibliometric analysis could help us reveal some global trends in globalization research and provide a supplementary and innovative perspective on research frontiers. In bibliometric studies, analytical procedures summarize the patterns and developments in published scientific research (Andres, 2009; Pritchard, 1969), and have been applied to reveal research trends in physical sciences, engineering, and social sciences (Nederhof et al., 2005; Li et al., 2009; Silvertsen, 2009; Tarkowski, 2007). Moreover, advanced bibliometric techniques have been continuously developed and help us reveal the temporal evolution of scholarly output (Chiu and Ho, 2007; Xie et al., 2008; Zhang et al., 2009).

In this article, we applied bibliometric techniques to globalization research published during 1990–2009, aiming at (1) demonstrating the authorial, geographic, and categorical patterns in the studies of globalizations; (2) explaining some research trends discovered from our analysis; and (3) providing an alternative and potential guide for future research.

### Data and Methods

We employed two bibliometric sources to establish research patterns within globalization literature. First, we identified all books that contained the keyword ‘globali\*’ in WorldCat (the world’s largest library catalogue) and the US Library of Congress online catalogue in the last 30 years. We also identified all books in the British Library online catalogue that had ‘globali\*’ in their book titles. Our search term ‘globali\*’ included any word that begins with ‘globali’, such as ‘globalization’, ‘globalisation’, ‘globalizing’, and ‘globalized’. In fact, our search term encompassed all search terms that had been used in previous bibliometric analyses of globalization (Oner et al., 2010; Oswick et al., 2009).

Our catalogue search resulted in 6,497, 15,793, and 100,896 books in the British Library online catalogue, US Library of Congress online catalogue, and WorldCat, respectively. This catalogue data was used to reveal the general publication output on globalization. We did not analyze the contents of these books for the following reasons: first, there were data redundancies in the catalogue data. For example, books were often treated as different records if they were translated into other languages or reprinted. Second, a substantial amount of books were non-scientific works, and did not necessarily reflect the research frontier in a field. Moreover, the most productive author in globalization, according to WorldCat, is Dr Philip Parker, who has developed computer programs to produce more than 200,000 books. And, third, research papers are more suitable to reveal the dynamics of this interdisciplinary field, as they are published at a faster rate than books. Still, research papers comprise the majority of publications in this field (Silvertsen, 2009), and contents and trends in books are usually reflected in papers through citations/quotations.

A second bibliometric source we employed was the Scientific Citation Index (SCI) and Social Sciences Citation Index (SSCI) bibliographic databases, which were compiled by the Institute of Scientific Information, USA. Approximately 60–70% of social science publications (Silvertsen, 2009) are articles, and bibliometric analyses based on articles could still be useful for revealing research trends in social science and humanities (Nederhof et al., 2005; Silvertsen, 2009). We consider SCI and SSCI as reliable sources for our bibliometric study, as they are the most frequently used indices in scientific output analysis (Kostoff, 2000). We assembled scholarly publications on globalization, based on bibliographic searches in the SCI and SSCI databases. The search term ‘globali\*’ was used to gather publications that contained search terms in publications’ titles, abstracts, or keywords. We used this searching strategy to

ensure we generated a relatively large pool of globalization-related studies. Though this searching strategy might include certain papers that merely mention 'globali\*' in their titles, abstracts, or keywords in passing, the robustness of this analysis would sustain as the bibliometric database is large enough to downplay the impacts from incorrectly included articles. Additionally, we gathered all papers that were published in two specialized journals (*Global Networks* and *Globalizations*) and special issues on globalization in SCI and SSCI-indexed journals, such as *Management and Organization Review*, *The ANNALS of the American Academy of Political and Social Science*, *Identities: Global Studies in Culture and Power*, and *Business Ethics Quarterly*.

Document information was then retrieved from individual documents, including author name(s), affiliation(s), subject category (ies), journal name(s), and publication title(s) and year(s). Duplicated records were eliminated. Applying the above-mentioned searching procedure, a total of 21,843 globalization publications were located in the SCI and SSCI database. We have sampled our bibliographic results to rule out irrelevant search results, and the large number of publications in our analysis could also help to iron out the effects of irrelevant individual articles. As was standard in other bibliometric studies (Ho, 2007; Zhang et al., 2010), papers by researchers in England, Northern Ireland, Scotland, and Wales were grouped as documents from the United Kingdom. Scientific collaborations were judged based on the complete count strategy, i.e. each signatory on the document was treated equally.

Seventeen document types<sup>1</sup> were found in these 21,843 publications, out of which 13,296 are articles. Book reviews (3,791; 17.35%), proceeding papers (1,925; 8.81%), reviews (1,283; 5.87%), and editorial materials (1,242; 5.68%) also comprised a significant portion of the total. Other less significant document types included meeting abstracts (102), letters (70), news items (47), corrections (30), reprints (26), notes (9), biographical items (5), discussion (4), bibliography (1), correction/addition (1), item about an individual (1), and software review (1). (The number shown in parentheses indicates the number of papers found for each document type.) Compared with bibliometric studies of other fields, globalization research has a relatively large number of book reviews, which is consistent with the fact that nearly 30% of social sciences are published in books, and book reviews derive from these books. We did not include book reviews in our analysis, as book reviews contained less useful information for bibliometric analyses. For example, many book reviews contained few references, which could bias the productivity analysis, and did not have keywords, which were vital to our keywords analysis. Moreover, as mentioned previously, book contents, which were reviewed in book reviews, could also be reflected in research articles. As consistent with other bibliometric analyses, in the following analysis we excluded documents of other types and focused on peer-reviewed and original research articles.

In globalization studies, 20,223 (92.58%) of the 21,843 journal articles were written in English. This observation was consistent with the fact that most journals in the SCI and SSCI databases are published in English, and English is also the major academic language. Other publishing languages included German (532), Spanish (324), and French (255).

In the following sections, we present results from a bibliometric analysis that demonstrated research trends in globalization studies from the following aspects: scholarly output, major subject categories and most active journals, most productive and most cited authors, geographic distribution of publications across countries, and keywords analysis. In comparison, previous bibliometric or meta-analysis of globalization research often utilized smaller bibliometric sources and adopted a limited set of bibliometric analyses (Oswick et al., 2009).

## Results and Discussions

### Research Output

A clear interest in globalization research has emerged since the 1990s, although a few globalization studies were published previously (Figure 1). For example, the earliest document on globalization in the SCI and SSCI databases was published in 1966. The volume of books on globalization in WorldCat and the US Library of Congress online catalogue grew continually during 1980–2009; it started to increase significantly in the year 1995, and has exploded in the past two decades. This trend coincided with a series of events that facilitated globalization in the last two decades, including the growth of multinational enterprises and a global supply chain (Sassen, 2001); the fall of the Iron Curtain, and consolidation of economic zones such as the European Union; the deployment of low-cost communication and Internet in the 1990s; and the emergence of new types of business that facilitate the circulation of people, materials, and information, such as outsourcing and in-sourcing.

However, our analysis of catalogue data suggested a trend that was different from a previous analysis that only utilized the British Library online catalogue (Oswick et al., 2009). Oswick's study, as well as our analysis, suggested that the volume of books on globalization peaked around 2002 and declined afterwards in the British Library online catalogue. This pattern led previous studies (Oswick et al., 2009) to conclude that globalization is a 'fad' word (Abrahamson, 1991), which is characterized by 'a rapid upsurge in popularity, a leveling out of interest and then decline as it is superseded by another fad' (Oswick et al., 2009). This was contrary to patterns revealed by WorldCat and the US Library of Congress online catalogue. We noticed that the search in the British Library online catalogue allowed us to identify books containing 'globali\*' in their titles, whereas search in the other two catalogues located books that used 'globali\*' as keywords. The latter search method generates a more comprehensive pool of literature and provides a better image of the development of globalization studies. This difference

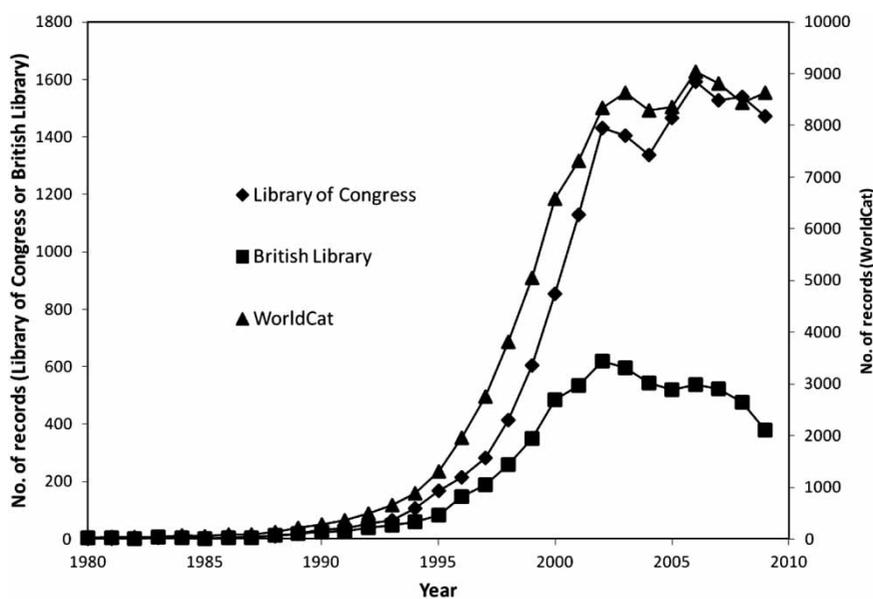


Figure 1. The growth of published books on globalizations in three online catalogues.

could well be the source of misjudgment on globalization being a ‘buzzword’ in other studies (Abrahamson, 1991; Oswick et al., 2009).

We summarize major bibliometric descriptors based on the SCI and SSCI databases for the period of 1990 to 2009 in Table 1. The number of articles on globalization increased from 16 in 1990 to 1,682 in 2009. The average length of a globalization article during this period was 17.02 pages. The collaboration index, which was defined as the average number of signatories per publication, increased steadily from 1.19 in 1990 to 1.85 in 2009. This growing collaboration index indicated that globalization studies progressively involved more scientific collaborations, although this growth rate was less than collaboration indices documented in natural sciences (e.g. Chiu and Ho, 2007; Tian et al., 2008; Zhang et al., 2010). Examples of the expansion of the knowledge repository of this field also included the increasing number of citations and references. The average number of references in an article grew from 8.13 in 1990 to 43.67 in 2009. Moreover, publications on globalization had an average of 5.77 citations, which was relatively high for social sciences. These major bibliometric descriptors reflected growing scientific production and research collaboration in this field, indicating a substantial growth within globalization literature.

*Subject Categories and Major Journals*

An even distribution of globalization literature across different subject categories was revealed by our analysis (Table 2). Published globalization research was found in 219 ISI-identified

**Table 1.** Major bibliometric descriptors for globalization research for the period of 1990–2009

PY	TP	NO.AU	AU/TP	NR	NR/TP	PG	PG/TP	TC	TC/TP
1990	16	19	1.19	130	8.13	190	11.88	43	2.69
1991	43	58	1.35	940	21.86	567	13.19	359	8.35
1992	85	119	1.40	1912	22.49	1187	13.96	1233	14.51
1993	77	116	1.51	2265	29.42	1046	13.58	733	9.52
1994	117	177	1.51	3455	29.53	1823	15.58	1377	11.77
1995	153	226	1.48	5063	33.09	2462	16.09	2147	14.03
1996	205	289	1.41	6323	30.84	3083	15.04	1877	9.16
1997	320	474	1.48	10912	34.10	5413	16.92	4308	13.46
1998	426	581	1.36	15116	35.48	7203	16.91	4099	9.62
1999	499	741	1.48	17376	34.82	7925	15.88	4951	9.92
2000	705	1038	1.47	26522	37.62	11993	17.01	7490	10.62
2001	711	1090	1.53	27209	38.27	11998	16.87	6656	9.36
2002	717	1126	1.57	28912	40.32	12314	17.17	7645	10.66
2003	819	1286	1.57	34237	41.80	14705	17.95	7367	9.00
2004	777	1306	1.68	34615	44.55	13819	17.79	6475	8.33
2005	906	1564	1.73	40329	44.51	16400	18.10	6411	7.08
2006	923	1647	1.78	40009	43.35	15907	17.23	4722	5.12
2007	1180	2123	1.80	51689	43.80	20839	17.66	3770	3.19
2008	1451	2615	1.80	63057	43.46	24604	16.96	2494	1.72
2009	1682	3115	1.85	73457	43.67	27273	16.21	1231	0.73
<b>Total</b>	13296	22609		556282		226324		76778	
<b>Mean</b>			1.70		41.84		17.02		5.77

*Note:* PY: Publication year; TP: Total publication; No. AU: Number of authors; NR: Total references; PG: Total pages; TC: Total citations.

**Table 2.** The 20 major subject categories in globalization research

Subject categories	TP	TP%
Economics	1667	7.95
Geography	1476	7.04
Sociology	1375	6.56
Political Science	1223	5.83
Planning & Development	1010	4.82
Management	901	4.30
International Relations	831	3.96
Social Sciences, Interdisciplinary	814	3.88
Business	780	3.72
Environmental Studies	730	3.48
Anthropology	667	3.18
Education & Educational Research	537	2.56
Urban Studies	532	2.54
Area Studies	401	1.91
Communication	313	1.49
Operations Research & Management Science	269	1.28
Public Administration	240	1.14
Law	225	1.07
Social Issues	222	1.06
Public, Environmental & Occupational Health	221	1.05

Notes: (1) TP: Total publication; TP%: Percentage of papers in individual subject categories. (2) Individual publications could be classified into multiple subject categories.

subject categories in the SCI and SSCI databases. None of these 219 subject categories accounted for more than 10% of the total publications, whereas bibliometric analyses of other fields usually identify several major subject categories. This even distribution of literature reflects the interdisciplinary nature of globalization research. The five most common categories were economics (1,667 articles; accounting for 7.95% of the total), geography (1,476; 7.04%), sociology (1,375; 6.56%), political science (1,223; 5.83%), and planning and development (1,010; 4.82%). A further 21 subject categories comprised at least 1% of the total globalization literature.

Articles on globalization appeared in 2,600 journals, and the top 20 most productive journals are summarized in Table 3, along with the number of papers that individual journals published and the number of citations to these articles. There was a concentration of globalization publication in the most active journals, as the top 20 journals (0.77% of the total 2600 journals) published 13.6% of the total globalization research. *Global Networks* and *Globalizations* ranked top two, as we included all papers from these two journals in our bibliometric database. Other journals that published the most globalization research included *Third World Quarterly*, *Environment and Planning A*, and *Review of International Political Economy*. The average citation rate of one journal for publishing globalization studies could be the most direct measure for assessing the journal's impact in a field and was defined as the ratio between the total number of citations to globalization publications and the total number of publications in that journal. Globalization articles that were published in these journals had generally received more citations than the impact factors of these journals (Table 3), which suggested that these journals have

**Table 3.** The 20 most-active scholarly journals in globalization research

Journals	TC	TP	TC/TP	IF
Global Networks: A Journal of Transnational Affairs	1001	208	4.81	1.038
Globalizations	51	164	0.31	0.479
Third World Quarterly	367	110	3.34	0.834
Environment and Planning A	1016	109	9.32	2.070
Review of International Political Economy	771	101	7.63	0.861
Futures	191	90	2.12	0.973
International Journal of Urban and Regional Research	1166	85	13.72	1.400
Journal of Business Ethics	325	85	3.82	1.125
Urban Studies	1129	85	13.28	1.513
World Development	949	80	11.86	1.612
Geoforum	616	78	7.90	1.878
Ekonomicky casopis	57	77	0.74	0.289
International Sociology	543	76	7.14	0.780
Theory, Culture & Society	563	75	7.51	0.821
ANNALS of the American Academy of Political and Social Science	277	72	3.85	1.039
Tijdschrift voor Economische en Sociale Geografie	300	64	4.69	0.802
International Social Science Journal	110	62	1.77	0.140
Higher Education	222	61	3.64	0.823
International Journal of Human Resource Management	377	61	6.18	0.869
Antipode	1170	60	19.5	1.284

Note: TP: Total publication; TC: Total citations; IF: 2010 ISI Journal Impact Factor.

drawn more attention by publishing globalization articles. We understand that these citation rates are not directly comparable to journals' ISI impact factors that are computed within a two-year window after publication. Nevertheless, we should note that the study of globalization is interdisciplinary and covers a wide range of fields. Therefore, some journals that are listed as top journals in our analysis would not be familiar to researchers in another field, and the standard for high average citation rate could vary across different fields. This is similar to the scenario that an impact factor of two might be high for geographic journals and could be average in environmental studies (Zhang et al., 2010).

#### *Most Prolific and Most Cited Authors*

Important authors in globalization were identified in two ways. First, the most prolific authors were identified by counting authors' signatories in the 13,296 globalization articles. Second, using CiteSpace (Chen, 2004), we analyzed the 556,282 references in these 13,296 articles to find the most cited authors in globalization studies. The analysis of the most productive authors suggested that a small group of active authors produced a substantial amount of publications: among the 17,595 authors who (co)authored at least one globalization article, 14,623 (83.11%) contributed only one article. The most productive author identified from globalization research in the SCI and SSCI databases was Taylor PJ with 33 articles. Other prolific authors included Beck U with 19, Derudder B with 18, and Wei YHD with 18 articles. We present the article output descriptors of the 25 most productive authors in Table 4. We noticed the impact of the Globalization and World Cities (GaWC) network (Hall and Pain, 2006), as four

**Table 4.** The 25 most productive and most cited authors

Prolific authors				Most cited authors	
Name	TP	TC	TC/TP	Name	TC
Taylor, PJ	33	716	21.70	World Bank	1295
Beck, U	19	314	16.53	Castells, M	1225
Derudder, B	18	164	9.11	Harvey, D	1117
Wei, YHD	18	92	5.11	Giddens, A	1117
Sassen, S	15	126	8.40	Sassen, S	1090
Turner, BS	14	173	12.36	OECD	943
Wu, FL	14	291	20.79	Appadurai, A	884
Jorgenson, AK	13	178	13.69	Held, D	876
Beaverstock, JV	12	371	30.92	Dicken, P	659
Parnreiter, C	12	40	3.33	Beck, U	643
Robertson, R	12	138	11.50	Rodrik, D	622
Sklair, L	12	96	8.00	Hirst, P	617
Ward, K	12	136	11.33	Robertson, R	607
Witlox, F	12	99	8.25	Amin, A	600
Harvey, M	11	70	6.36	Ohmae, K	584
Le Heron, R	11	83	7.55	Porter, ME	555
Pieterse, JN	11	105	9.55	Krugman, P	552
Yeoh, BSA	11	124	11.27	UN	532
Balaz, P	10	8	0.80	Bourdieu, P	512
Brenner, N	10	651	65.10	Foucault, M	508
Coe, NM	10	295	29.50	Jessop, B	502
Hay, C	10	71	7.10	Massey, D	474
Jones, A	10	79	7.90	Wallerstein, I	469
Lin, GCS	10	128	12.80	Storper, M	454
Mittelman, JH	10	28	2.80	WHO	449

Note: PY: Publication year; TP: Total publication; TC: Total citations.

GaWC researchers (Taylor, Derudder, Sassen, and Beaverstock) were listed in this top 25 list. This suggested that the study of cities in globalization has become one of the major subfields in globalization research. We need to admit that this list of prolific authors is by no mean exhaustive, as authors could have other publication outlets such as monographs. International organizations such as the World Bank, the United Nations (UN), the Organization for Economic Cooperation and Development (OECD), and the World Health Organization (WHO), appeared on the list of most cited authors, which suggested that reports, publications, and data produced by these organizations serve as solid bases for globalization research.<sup>2</sup> In addition, Sassen S, Beck U, and Robertson R were listed as both most prolific and most cited authors. This list of most cited authors implicitly suggests that many books were seminal in this interdisciplinary field (e.g. Sassen's *Global Cities* (2001), and Castells's *The Rise of Network Society* (1996)). The fact that books were well cited by papers suggests that (1) books were important publication outlets in social sciences (as we discussed previously, books generally comprise 30–40% of the publications in the social sciences); and (2) contents and trends in books were 'reflected' in papers through citations/quotations, which could in turn be revealed by our bibliometric analysis.

We also identified the most cited articles in our database, and publications that are being cited most frequently by articles in our database. Among the globalization-related studies in the SCI and SSCI databases, the most cited articles (along with their authors, publication year, subject categories, and citation counts) included 'The globalization of markets' (Levitt, 1993; Business/Management; 436 times), 'Neoliberalizing space' (Peck and Tickell, 2002; Geography; 389), 'Globalization and the inequality of nations' (Krugman and Venables, 1995; Economics; 353), 'Neo-Marshallian nodes in global networks' (Amin and Thrift, 1992; Geography/Planning and Development/Urban studies; 305), 'Location, competition, and economic development: local clusters in a global economy' (Porter, 2000; Economics/Planning and development/Urban studies; 261), and 'The limits to globalization: technology, districts and international trade' (Storper, 1992; Economics/Geography; 185). We noted that our counts of citations were by no means complete, as ISI only counted citations from and references to SCI- and SSCI-indexed journals, i.e. citations from non-SCI journals were not counted. In comparison, publications (along with their authors, publication year, and citation counts) that are most frequently cited by the articles in our bibliometric database included *The Consequences of Modernity* (Giddens, 1990; 374 citation counts), *Global Transformations: Politics, Economics and Culture* (Held, 1999; 368), *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Harvey, 1989; 345), *The Rise of the Network Society* (Castells, 1996; 316), and *Globalization in Question: The International Economy and the Possibilities of Governance* (Hirst and Thompson, 1996; 288). Again, the citations here only included citations that were from SCI/SSCI-indexed journals, and these publications could well be cited by other journals, reports, or online materials.

#### *Geographic Distribution of Publications*

We produced the distribution of publications across different countries, based on the authors' affiliations. The 25 most productive countries/territories in globalization research are listed in Table 5, summarizing the number of total publications, single-country authored articles, and internationally collaborated articles. We noticed that the geographic distribution of globalization research was not globalized and demonstrated an Anglo-American impact: out of these 25 countries/territories, 13 were from Europe, 2 were from North America, 1 was from South America, 6 were from Asia, 2 were from Oceania, and only 1 was from Africa.

The United States led the productivity ranking of countries, and produced the most single-country (3,385) and internationally collaborated articles (781). The UK published the second largest amount of articles (2,229), followed by Canada (880), Australia (764), and Germany (721). There were 6,764 single-country articles from these five countries, which were responsible for 50.87% of the total 13,296 articles. As is consistent with other bibliometric analyses (Tarkowski, 2007; Zhang et al., 2010), economic development correlated with scholarly output: the seven industrialized countries (G7 group: Canada, France, Germany, Italy, Japan, the UK, and the USA; we picked 'G7' here only for the illustration of globalization studies in industrialized countries) and three out of the four emerging 'BRIC' countries (BRIC: Brazil, Russia, India, and China) were the most productive countries in globalization research (or four out of five BRIC countries, as South Africa has joined BRIC recently). We also noticed that Hong Kong, as a special administrative area of China, has produced a substantial amount of globalization research, the number of which is on a par with that of mainland China. Despite the fact that the volume of both single-country and internationally collaborated articles increased during our study period, the percentage of single-country articles constantly

**Table 5.** The 25 most productive countries/territories in globalization research

Country/Territory	TP	TP%	SP	SP/TP%	CP	CP/TP%
USA	4166	28.24	3385	81.25	781	18.75
UK	2229	15.11	1641	73.62	588	26.38
Canada	880	5.97	637	72.39	243	27.61
Australia	764	5.18	567	74.21	197	25.79
Germany	721	4.89	534	74.06	187	25.94
Netherlands	384	2.60	234	60.94	150	39.06
France	373	2.53	242	64.88	131	35.12
Spain	286	1.94	214	74.83	72	25.17
Italy	253	1.72	154	60.87	99	39.13
China	234	1.59	96	41.03	138	58.97
Sweden	213	1.44	145	68.08	68	31.92
Hong Kong, China	213	1.44	130	61.03	83	38.97
Switzerland	199	1.35	117	58.79	82	41.21
Singapore	178	1.21	121	67.98	57	32.02
India	175	1.19	131	74.86	44	25.14
South Korea	164	1.11	110	67.07	54	32.93
Japan	164	1.11	106	64.63	58	35.37
Brazil	159	1.08	98	61.64	61	38.36
Belgium	158	1.07	80	50.63	78	49.37
South Africa	158	1.07	103	65.19	55	34.81
New Zealand	158	1.07	94	59.49	64	40.51
Denmark	154	1.04	104	67.53	50	32.47
Turkey	144	0.98	116	80.56	28	19.44
Norway	137	0.93	89	64.96	48	35.04
Austria	125	0.85	67	53.60	58	46.40

*Note:* TP: Total publication; TP%: Percentage of papers in individual subject categories; SP: Number of publications produced by single countries; CP: Number of publications produced by multiple countries.

decreased. This temporal evolution suggests that the globalization research was becoming more internationally connected, and was consistent with our previous observation on the increasing collaboration index.

### *Keywords Analysis*

A keyword analysis was performed to demonstrate the trends in globalization research. As keywords reflect the topics of individual papers, an analysis of the patterns of keywords should be informative about the development of research topics. We understand that future research questions are derived from theoretically led insights and empirically led quest, and bibliometric analysis itself does not necessarily give rise to emerging topics. Keyword analyses should, however, still reflect the development of topics in the past, identify the relative importance of topics at the current stage, and ‘guestimate’ the future evolution of research trends. As mentioned previously, our database could include certain articles that merely mention ‘globali\*’ in passing, whereas keyword analyses should focus on the essential topics and help to minimize the impact of these incorrectly included articles.

We performed a keyword analysis based on author keywords and ‘keywords plus’ (Chiu and Ho, 2007; Xie et al., 2008) in these 13,296 articles (Table 6). The author keywords were part of research articles and were provided by the authors, whereas the other group of keywords used in our analysis (the keywords plus) were a series of keywords that were generated by ISI based on information about individual papers’ citation and references patterns (Garfield, 1990). For simplicity, author keywords and keywords plus were both termed keywords in the following analysis.

The 13,296 articles had 23,545 unique keywords, which had 74,171 occurrences. However, 17,056 (72.4%) out of these 23,545 keywords appeared once, whereas 22,594 (95.96%) keywords appeared in fewer than 10 papers. We present the 40 most frequently used keywords and their frequency ranking at 5-year intervals during 1995–2009 in Table 6. During this period, these 40 (0.1%) of the 23,545 keywords appeared 13,290 times and thus accounted for 17.92% of the total keyword occurrences. The frequency of keywords and their ranks followed a power-law distribution (Reed, 2001): a small group of keywords is widely used, while most keywords are not frequently employed. This power-law distribution has also been discovered in other bibliometric studies (Li et al., 2009).

Our search terms in the data retrieval process, ‘globalization’ and ‘globalisation’, ranked top among these 40 most frequently used keywords. However, ‘globalization’ was used far more often than ‘globalisation’ as a keyword, which reflects the dominance of American spelling. This terminological preference was also consistent with the fact that the US produced most publications in this field.

We could discern the nation-state tradition in globalization research from the top ranked keywords. Individual countries such as United States, China, and India were listed among the top keywords, whereas ‘state’ and ‘countries’ ranked 4th and 23rd respectively. Our analysis also suggested a decline in ranks of the ‘old powers’ in terms of scholarly attentions, as ‘United States’ dropped from 3rd to 14th during 1995–2009. In the meantime, we could also perceive that ‘new powers’ are becoming focus in research areas, as the ranking of ‘China’ and ‘India’ gained substantial increases. This redistribution of the world’s power has been confirmed by previous studies. For example, city-level analysis suggested the rise of Asia-Pacific cities and the repositioning of Western cities (Pereira and Derudder, 2010; Taylor et al., 2010).

Global networks are major dimensions of contemporary globalization, as Castells claimed: ‘Networks are the fundamental stuff of which new organizations are and will be made?’ (Castells, 1996, p. 168). The social, economic, political, and cultural networks among individuals, organizations, and countries, sustain the development of our society. A fair understanding of global networks is crucial for solving the emerging issues in globalization (Holton, 2008). The importance of networks in globalization was also reflected in our keywords ranking, as ‘networks’ and ‘network’ ranked 13th and 229th on the keywords ranking. ‘Migration’, as one the major generators of international flows of people, also ranked high (12th) (Findlay et al., 2003).

Although globalization involves many dimensions of our society, political and economic globalizations are central in contemporary globalizing processes. This was reflected by the fact that 5 out of the top 10 keywords were related to politics and economics: ‘politics’, ‘trade’, ‘policy’, ‘growth’, and ‘governance’ ranked second, fifth, sixth, seventh, and ninth, respectively. It is particularly true that political and economic variables are decisive in any attempt to understand globalization (Friedman, 1986). This is also consistent with our previous finding that economics and political sciences were among the major categories of globalization research. Interestingly, keywords related to the change of our physical environment, i.e. global environmental changes, had not gained high rankings in our list. As there is another ‘global environmental change’ literature,

**Table 6.** The rankings of the most frequently used keywords for the periods 1995–1999, 2000–2004, and 2005–2009

Keywords	Rank			Occurrences		
	1995–1999	2000–2004	2005–2009	1995–1999	2000–2004	2005–2009
globalization	1	1	1	256	1077	2276
politics	2	2	2	33	129	249
globalization ↑	7	3	2	23	122	249
state	5	4	4	24	110	216
trade	8	7	5	21	84	201
policy	5	5	6	24	95	188
growth ↑	17	10	8	15	73	174
United States ↓	3	6	14	32	91	139
governance ↑	97	9	7	5	74	180
China ↑	32	24	9	11	50	171
performance	32	8	13	11	78	147
migration	23	15	10	13	54	154
networks ↑	41	14	11	9	57	152
management	10	24	11	18	50	152
innovation	10	12	15	18	63	136
culture	13	13	16	17	59	118
model	13	15	16	17	54	118
world	20	11	21	14	67	110
Industry	20	20	19	14	52	114
technology ↓	3	18	27	32	53	94
economy	17	20	22	15	52	108
gender	37	20	20	10	52	113
countries ↑	62	40	18	7	32	115
knowledge ↑	52	23	22	8	51	108
identity ↓	13	34	25	17	35	105
Europe ↑	52	28	24	8	44	106
power ↑	75	26	28	6	46	93
firms ↓	16	31	29	16	39	92
cities ↓	17	18	44	15	53	77
city	52	15	40	8	54	81
perspective	62	63	30	7	26	90
education	41	34	30	9	35	90
integration ↑	178	66	26	3	25	102
democracy	41	59	35	9	27	85
geography	28	30	42	12	40	78
institutions ↑	97	50	33	5	30	88
space	37	34	38	10	35	82
labor	62	26	41	7	46	80
market	52	31	36	8	39	83
India ↑	270	34	36	2	35	83

Note: ↑ indicates that the ranks of corresponding keywords have significantly increased, while ↓ indicates the opposite direction.

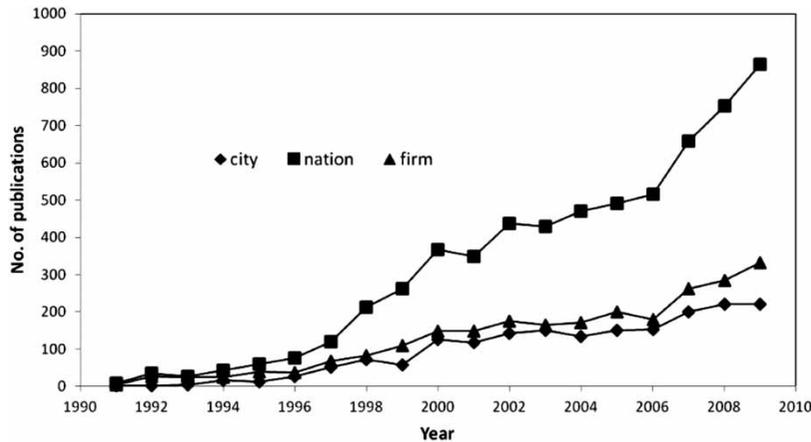


Figure 2. The growth of globalization research on nations, cities, and firms in the SCI and SSCI databases

there needs to be synergies and integrations of studies on globalization and global environmental changes (Leichenko and O'Brien, 2008).

'State', 'firm', and 'city' ranked among our top list, which was consistent with the fact that firm, city, and nation are three important factors in globalization (Sassen, 2001; Taylor, 2004). For example, cities were deemed base points of contemporary globalization and networked society, and multinational firms played vital roles in forming our increasingly connected global community (Castells, 1996). Therefore, we also identified the number of publications with focus on city, nation, and firm, respectively. Three sets of search terms were used to refine our bibliographic search of globalization literature: 'cities' or 'city' or 'urban\*' or 'metro\*' were used to find city-centered globalization studies; 'nation' or 'state' or 'country' or 'countries' were employed to find globalization research on nation-state; and 'firm' or 'corporat\*' or 'compan\*' were adopted to locate articles on firms in globalization. We then plotted out the temporal evolution of volumes of articles on individual topics (Figure 2).

Figure 2 seems to suggest that nation-centered studies were more prevalent than firm and corporation research. There is no doubt that globalizations deal with border-crossing issues, and thus have a nation-state focus. However, the volume of nation-centered globalization research might be inflated for three reasons: first, there is a paucity of subnational data, and many researchers may only be able to employ nation-level statistics provided by organizations such as the World Bank and the UN. This is consistent with previous observation that the World Bank and the UN were listed as most cited authors in globalization research. Second, a number of studies on international and transnational affairs use 'globalization' and 'internationalization' interchangeably. Third, analyses of firms and cities were usually positioned with national backgrounds.

Another important strand of globalization revealed in our keywords analysis was the knowledge economy. 'Innovation' (15th), 'industry' (19th), and 'technology' (20th) propel the development of our economies, whereas 'knowledge' (25th) and 'education' (33rd) determine individuals', corporations', and nations' ability to innovate and develop new technology, which in turn is vital for sustainability and competition in this new century. Social and culture issues were also important in globalization studies, with 'culture', 'gender', and 'identity' ranked 16th, 22nd, and 25th, respectively. International division of labor is a major outcome

of globalization, and is closed associated with keywords such as ‘labor’ (38th) and ‘market’ (39th).

## Conclusions

In this article, we provide an alternative perspective on the research trends in globalization studies, by conducting a bibliometric analysis of research output, most active journals and subject categories, distribution of publications across countries, and keywords. Information from both library catalogues and online journal databases suggests that the scientific output in globalization research enjoyed substantial growth since the 1990s. This piece could also be useful to administrators, librarians and/or other supporting staff, as patterns revealed in this study could lead to informed decisions on library development, journal subscription, and/or curriculum evaluation. Given that bibliometric analyses based on different materials would surely generate different findings, our analysis and associated interpretations were made based on our dataset and aimed at revealing major research trends in this field.

Our bibliometric analysis could be limited in that we only included papers in our analysis, and did not analyze the content of books and other types of publications. However, this problem could be alleviated by the fact that (1) papers comprised a significant percentage of globalization publications; (2) contents of books could be revealed in papers through quotations/citations, which in turn were reflected in our bibliometric analysis; and, (3) papers are published at a faster rate and are therefore more suitable for revealing research dynamics. We have also devised our search words to include as many relevant publications as possible, and we also note that our analysis has limitations with quantitative analyses, and that a qualitative approach may reveal a very different landscape in this interdisciplinary field. Future work could also include more advanced bibliometric techniques (such as co-citation analysis), which often require more detailed datasets.

Here is a summary of major findings from our bibliometric analysis:

- There was an even distribution of globalization literature across different subject categories, indicating the interdisciplinary nature of globalization research.
- The five most common categories were economics, geography, sociology, political science, and planning and development.
- International organizations appeared on the list of most cited authors, which suggests that reports and data produced by these organizations were a solid knowledge repository of globalization research.
- The US attained a leading position in globalization research by contributing the largest share of single-country and internationally collaborated articles.
- A keyword analysis found a terminological preference on ‘globalization’, suggested networks’ central position in studies of contemporary globalization, and revealed several major strands in globalization studies.

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## Notes

- 1 Records in the SCI/SSCI databases were categorized as one of the thirty-two (32) ISI document types. A list of all document types can be found on ISI websites.
- 2 Researchers cite works from these organizations in their peer-reviewed work. However, these citations themselves have do not mean the references have been peer-reviewed.

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**Xingjian Liu** is a Ph.D. student in the Department of Geography, University of Cambridge, UK. His research interests include globalization and world cities, spatiotemporal data analysis and modeling, and transnational urban networks.

**Song Hong** is Professor in the School of Resource and Environmental Sciences, Wuhan University, China. His research focuses on bibliometrics and environmental sciences.

**Yaolin Liu** is Professor and Dean of School of Resource and Environmental Sciences, Wuhan University, China. He is also Director of MOE Key Laboratory of Geographic Information System, Wuhan University, China and holds a Chang Jiang Scholar Chair Professorship. His major research interests lie in modeling the complex human-environment systems, including (1) spatial modeling and geographic computation; (2) regional development and land use planning; and (3) environmental modeling and assessment.