Chapter 4
Uneven internationalization
Uneven internationalization

Chapter presentation ................................................. 143

• The globalization of research collaboration (Koen Frenken, Jarno Hoekman and Sjoerd Hardeman) 144
• Where are social sciences produced? (Yves Gingras and Sébastien Mosbah-Natanson) 149
• The hegemony of English (Ulrich Ammon) 154
• Social science research in the Latin American and the Caribbean regions in comparison with China and India (Jane M. Russell and Shirley Ainsworth) 156
• Scientific mobility and the internationalization of social science research: the case of mainland China (Koen Jonkers) 160

References and background resources 162
Chapter presentation

Although social sciences were first institutionalized as academic disciplines in Europe and North America, they are no longer only a Northern project. They have become increasingly global and, some say, more diverse. Social scientists are also more numerous and mobile than in the past. They share their knowledge and research more readily, more rapidly and more frequently through new communication channels such as the web and the internet, and collaborate more with foreign colleagues. Many social scientists assume that their disciplines have become increasingly international in recent decades and that this trend will develop further in future. It is hoped that this internationalization process will reduce the knowledge divides in social sciences between different regions of the world without destroying diversity. This chapter’s goal is to evaluate whether these assumptions are correct by mapping global production and international collaboration in the social sciences.

There are many ways of assessing the current level of social sciences’ internationalization. One is to determine where social science journals and papers are produced and whether this production is equally spread across the world. Another is to measure the share of papers co-authored by social scientists from different regions and countries, and a third is to measure whether citations in social science papers are more international today than they used to be. The papers in this chapter use all these indicators, and others, to draw maps of the sites of social science production and the flows of international scientific collaborations and exchanges through citations. They rely on various databases of social science journals, publications and articles (Thomson’s Social Sciences Citation Index [SSCI], Ulrich, Elsevier’s Scopus, International Bibliography of the Social Sciences [IBSS]), although the authors are well aware of their limitations. Journals from developing countries are still poorly represented in international databases. Social science publications in the developing world are often in keeping with local interests and remain invisible with the existing tools (Russell and Ainsworth). This means that no exhaustive view of international social sciences is possible. But the papers in this chapter agree on the main trends in the production and exchange of social science.

This chapter starts off by showing that the perception that there has been an internationalization of the social sciences in the past two decades is no illusion. The fall of the Soviet Union, the European Union’s research policy, and other changes in the political context have doubtless played an important role in this slow internationalization process. All regions show a decline in the share of self-citations. Asia, Africa and Latin America are becoming slightly more international in terms of the citations used in social science articles (Gingras and Mosbah-Natanson). Their scholars also participate in international collaborative articles more often.

The USA is still the primary country for social science collaborations with other regions of the world, followed by the UK, Canada and Australia (Frenken, Hoekman and Hardeman). Yet North America’s share of international collaborative social science research has declined slightly in the past decade, while that of Western Europe has increased. Nevertheless, central regions for the production of the social sciences are also the ones where collaborations with other regions of the world are the least likely to take place. The more peripheral a region or country, the higher its share of international collaboration in its total number of publications.

The internationalization of social science research in developing countries mainly takes the form of a growing dependence on citations of papers produced in Europe and North America, and can be measured by the geographical origins of the references in social science journals (Gingras and Mosbah-Natanson). Internationalization thus tends to reinforce the centrality of the West over the rest of the world. Another sign of this dependence is linguistic (Ammon). More than 80 per cent of the academic and refereed journals in the social sciences are edited in English. Also, more than 75 per cent of the publications in the International Bibliography of the Social Sciences are in English.

The hegemony of the North in the social science production is not only obvious from a linguistic standpoint. Four countries – the USA, the UK, the Netherlands and Germany – produce two-thirds of the social science journals registered in the most encompassing of the social science journals’ databases. North America alone produced in the last ten years more than half of the social science articles registered in the Thomson SSCI database. Europe is the second producer, and published almost 40 per cent of the world’s social science articles in the past decade.
Nevertheless, the contribution of other regions is growing. Oceania, Latin America and Africa each contribute less than 5 per cent to the world production of articles. But the Asian share of world social science published papers has increased, particularly in the past decade. It represents almost 9 per cent of the world production. Chinese and Japanese are respectively the fifth and sixth languages used in social science journals. China’s growth is in good part due to the production of researchers with Chinese surnames outside of mainland China, and visible especially in some subfields such as management science (Jonkers). The Russian Federation is the principal country whose social science output is failing to increase.

Social science production and collaboration retain a very strong core–periphery pattern and have a highly asymmetrical structure of exchange. But there are signs of gradual change (Frenken et al.). What will locally produced knowledge become in the light of this uneven process of internationalization? Answering this question will require careful study of the gradual changes in the social sciences’ world structure, and there need to be more regional and discipline-specific studies (Russell and Ainsworth).

The globalization of research collaboration

Koen Frenken, Jarno Hoekman and Sjoerd Hardeman

Despite the globalization of research in general, and of research collaboration in particular, peripheral regions have not become better integrated into the world social science system over the past two decades. This means that the Western dominance of social science remains a pertinent issue. Social science dominated by just a few regions runs the risk of diminishing intellectual novelty and excluding less favoured researchers from agenda-setting discourses on ‘issues of global relevance’.

Introduction

Scientific research involves worldwide communication, collaboration and competition. With the advent of the internet, English as the dominant academic language, and cheap air travel, these processes are becoming ever more global. Globalization provides once-peripheral research communities with opportunities to make contact with the communities that have dominated social science knowledge production. But despite pervasive trends towards globalization, high-income countries still dominate social science knowledge production (Gingras, 2002). This pattern is similar to the geography of natural science knowledge production (May, 1997; King, 2004; Frenken, Hardeman and Hoekman, 2009).

The benefits associated with the internationalization of research collaboration are said to be considerable (Katz and Martin, 1997). They stem from the sharing of knowledge, expertise and research infrastructures; the production of scientific knowledge with more diverse intellectual inputs; and the opportunity to solve issues of global relevance such as inequality, epidemic diseases, and global warming.

We study the globalization of the social science system by analysing research collaboration between nine global geographical regions over the past two decades. We use publications listed in the Web of Science (WoS) database with multiple addresses and track the changes that occur over time in these regions’ shares in the collaborative production of mainstream social science research.

Data

The data for this study are extracted from research articles published in social science journals listed in the Social Science Citation Index (SSCI) and the Arts and

We defined a case of research collaboration as any paper with a pair of institutional addresses from more than one of these geographical regions. We aggregated all of these inter-regional collaborations into a region-by-region matrix, counting the number of research collaborations between any two regions in a particular discipline and particular time period. This procedure means that a single article may be linked to more than one unique regional pair. For example, a publication involving an Egyptian, Indian and US organization will be counted as collaboration between Arab States and South Asia, between Arab States and North America, and between South Asia and North America. However, a publication with multiple addresses does not necessarily involve multiple authors. Individual authors may have multiple affiliations and may create collaborative links between countries.

Although it is well known that scientific research results are mostly made available to the scientific community by publishing them in WoS journals, the propensity to do so varies between regions. Only certain countries have long social science traditions and well-established norms for communicating findings in this way. Furthermore, WoS is known to be biased towards English-language journals. WoS mainly lists findings in journal articles (thus excluding scientific reports, working papers and books) that have been published in journals edited and published in a select group of mainly Anglo-Saxon countries, and which have been written in one of a few favoured languages, mainly English and, to a lesser extent Spanish, German and French.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total</th>
<th>Anthropology</th>
<th>Area studies</th>
<th>Economics</th>
<th>Environmental studies</th>
<th>Geography</th>
<th>History</th>
<th>International relations</th>
<th>Political science</th>
<th>Sociology</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>11,359 (1)</td>
<td>1,567 (1)</td>
<td>275 (1)</td>
<td>5,797 (1)</td>
<td>1,260 (1)</td>
<td>544 (2)</td>
<td>50 (1)</td>
<td>459 (1)</td>
<td>781 (1)</td>
<td>626 (1)</td>
</tr>
<tr>
<td>Western Europe</td>
<td>10,168 (2)</td>
<td>1,372 (2)</td>
<td>202 (2)</td>
<td>5,121 (2)</td>
<td>1,242 (2)</td>
<td>606 (1)</td>
<td>49 (2)</td>
<td>389 (2)</td>
<td>678 (2)</td>
<td>509 (2)</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>3,206 (3)</td>
<td>315 (4)</td>
<td>117 (3)</td>
<td>1,665 (3)</td>
<td>491 (3)</td>
<td>187 (3)</td>
<td>2 (7)</td>
<td>155 (3)</td>
<td>112 (5)</td>
<td>162 (3)</td>
</tr>
<tr>
<td>Southern, Central and Eastern Europe and CIS</td>
<td>2,337 (4)</td>
<td>372 (3)</td>
<td>74 (4)</td>
<td>1,126 (4)</td>
<td>173 (7)</td>
<td>102 (5)</td>
<td>7 (5)</td>
<td>101 (4)</td>
<td>226 (3)</td>
<td>156 (5)</td>
</tr>
<tr>
<td>Oceania</td>
<td>2,270 (5)</td>
<td>220 (7)</td>
<td>34 (7)</td>
<td>1,093 (5)</td>
<td>335 (4)</td>
<td>187 (3)</td>
<td>14 (3)</td>
<td>96 (5)</td>
<td>132 (4)</td>
<td>159 (4)</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>1,348 (6)</td>
<td>295 (6)</td>
<td>45 (6)</td>
<td>498 (6)</td>
<td>242 (5)</td>
<td>80 (6)</td>
<td>8 (4)</td>
<td>42 (6)</td>
<td>68 (6)</td>
<td>70 (6)</td>
</tr>
<tr>
<td>sub-Saharan Africa</td>
<td>1,051 (7)</td>
<td>313 (5)</td>
<td>57 (5)</td>
<td>302 (7)</td>
<td>194 (6)</td>
<td>68 (7)</td>
<td>5 (6)</td>
<td>25 (7)</td>
<td>24 (7)</td>
<td>63 (7)</td>
</tr>
<tr>
<td>South Asia</td>
<td>570 (8)</td>
<td>88 (8)</td>
<td>14 (9)</td>
<td>229 (8)</td>
<td>142 (8)</td>
<td>30 (8)</td>
<td>1 (8)</td>
<td>14 (9)</td>
<td>23 (8)</td>
<td>29 (8)</td>
</tr>
<tr>
<td>Arab States</td>
<td>245 (9)</td>
<td>52 (9)</td>
<td>18 (8)</td>
<td>85 (9)</td>
<td>43 (9)</td>
<td>4 (9)</td>
<td>0 (9)</td>
<td>15 (8)</td>
<td>12 (9)</td>
<td>16 (9)</td>
</tr>
</tbody>
</table>
This means that as a bibliometric tool, WoS is only suitable for evaluating each region’s contribution to mainstream social science, and not for drawing conclusions about the total world production of social scientific research. Peripheral countries’ scientific knowledge production will be more applied and less oriented towards the global publication system represented by WoS (Sancho, 1992). This under-representation is caused by the lack of financial and intellectual support, language barriers, and fewer career incentives to publish, among other factors. This under-representation limits the value of WoS-based studies for informing statements about ‘Western-dominated’ mainstream science. Nevertheless, what is considered mainstream science also changes over time. The number of journals with a particular (regional) focus either decreases or increases over time. In our analysis, this dynamic is simply another representation of what is considered mainstream science.

Results
Table 4.1 shows the number of co-publications each region was involved in during the period 2004–2008, per discipline and as a whole. Inter-regional research collaboration in general is dominated by North America and Western Europe, while there is little co-publication by the Arab States, South Asia, and Sub-Saharan Africa. These results suggest a strong core–periphery structure in collaborative social science research.

In some disciplines, the regional rankings deviate from this general picture. Sub-Saharan Africa ranks relatively high in terms of the total number of co-publications in area studies and in anthropology. The Southern, Central and Eastern Europe and CIS region ranks relatively low (7) in environmental studies compared with its overall ranking (4). East Asia and the Pacific ranks relatively low...
in history (7) in relation to its overall ranking (3). There are tentative explanations for these marked deviations. Sub-Saharan Africa is an important study object; there is a lack of political interest in environmental matters in Eastern Europe; and the language barrier is significant in East Asia and the Pacific. But further research is needed to understand these patterns.

Obviously the number of co-publications between any two regions is significantly affected by differences in their total number of publications. We therefore measure the strength of inter-regional collaboration links by using the Salton index1 to control for regions with a high total number of co-publications automatically having stronger links with other regions. Figure 4.1 shows the ten strongest links according to the Salton index. The figure shows that even after controlling for the total number of co-publications, the same core–periphery structure appears as is found in Table 4.1, with North America and Western Europe featuring in the ten strongest links. Figure 4.2, which shows the ten weakest links, reinforces this conclusion. The ten weakest links never feature North America or Western Europe.

**The changing spatial structure of collaborative world social science research**

Although the current state of collaborative social science research has a clear core–periphery structure, a dynamic analysis is needed to understand whether this structure is weakening or strengthening as a result of globalization. Figure 4.3 shows that North America’s share of the total number of collaborations has decreased considerably. However, North America’s decline cannot be contributed to the peripheral regions’ share increasing. Instead, the

---

1. The Salton index (Salton and McGill, 1983) is constructed as follows: $I_{ij} = \sqrt{\frac{C_{ij}}{C_{ii} \cdot C_{jj}}}$, where $0 \leq I_{ij} \leq 1$. $C_{ij}$ is the total number of co-publications of region $i$ with region $j$, $C_{ii}$ is the total number of co-publications for which region $i$ is involved and $C_{jj}$ is the total number of co-publications for which region $j$ is involved.
Conclusion
Research collaboration in the social sciences is dominated by North America and Western Europe. Although the role of Western Europe has become somewhat more prominent at the expense of North America, the core–periphery structure for Western countries and the rest of the world has endured for the past two decades. Collaboration, as represented by joint publications and as indexed in WoS, continues to be dominated by Western social scientists.

Despite the globalization of research in general and research collaboration in particular, peripheral regions have not become better integrated into the world social science system over the past two decades. This means that the Western dominance of social science remains a pertinent issue. As argued by Yeung (2001), among others, social science dominated by just a few regions runs the risk of diminishing intellectual novelty and excluding less favoured researchers from agenda-setting discourses on ‘issues of global relevance’.

Further quantitative analyses of the global science system, making use of WoS as well as other databases (for example, Google, Scopus), would support a better understanding of the core–periphery structure’s persistence. A number of spatial scientometrics methodologies are now available to study the spatial structure and dynamics of the global science system in detail. These include the determinants of research collaboration, citations and mobility (Frenken et al., 2009). Analyses can include the classical determinants of geographical distance and national borders, but also language, quality and social networking effects.

Consequently, scientometricians can make an important contribution to our critical understanding of the geography of social science knowledge production.

Koen Frenken, Jarno Hoekman and Sjoerd Hardeman

Koen Frenken is full professor in the economics of innovation and technological change and a member of the board of the Eindhoven Centre for Innovation Studies (ECIS) at Eindhoven University of Technology, the Netherlands. He is also a research fellow at the Urban & Regional research centre Utrecht (URU) at Utrecht University. He specializes in evolutionary economics, complexity theory, geography of innovation, geography of science, and scientometrics. http://econ.geo.uu.nl/frenken/frenken.html

Jarno Hoekman holds a Masters degree in geography and is currently a Ph.D. student in innovation sciences at Eindhoven University of Technology. He is also a research fellow at the Urban & Regional research centre Utrecht (URU) at Utrecht University. His research focuses on geographical aspects of scientific knowledge production, with a special interest in issues of globalization.

Sjoerd Hardeman holds a Masters degree in economics and is currently a Ph.D. student in innovation sciences at Eindhoven University of Technology. He is also a research fellow at the Urban & Regional research centre Utrecht (URU) at Utrecht University. His research focuses on geographical aspects of scientific knowledge production, with a special interest in the localization and global dissemination of scientific practices.
Where are social sciences produced?

Yves Gingras and Sébastien Mosbah-Natanson

Beyond a general growth in the number of papers and journals in the social sciences around the world, the globalization and internationalization of research have essentially favoured Europe and North America, the regions which were already dominant. Furthermore, the autonomy of the other regions has diminished and their dependence on central actors has increased over the past twenty years. Also, Europe has increased its centrality and is now comparable to North America.

During the past decade, internationalization and globalization have emerged as a central focus for the social sciences. The effects of these new, or at least accelerated, trends on cultures, economies and other aspects of social life since the 1980s have been widely studied by social scientists from many disciplines, particularly economics and sociology. But we can also be reflexive and address the question to the social sciences themselves: are they becoming more international or even global?

The objects of the natural sciences (particles, atoms, cells and galaxies) are universal. So these subjects lend themselves to international collaboration, which has grown rapidly in these disciplines. However, the social sciences’ usual objects are more locally embedded, which has made internationalization less obvious and rapid (Gingras, 2002; Gingras and Heilbron, 2009). It is thus worth looking in more detail at the geographical distribution of social science journals, at the evolution of production by region of social science papers over the period from 1990, and, finally, at the flux of inter-citations between regions.

These indicators can shed light on changes in the relations between regions. Does increased internationalization favour the emergence of a delocalized discourse, using all contributions from different countries equally? Or does it accentuate peripheral countries’ dependency on the already dominant scientific regions of Europe and North America?

In order to measure such changes, we could analyse the changing topics that social scientists study and ascertain whether they are becoming less local and more internationally distributed. We would certainly find an increase in the use of key words and terms such as ‘international’, ‘transnational’ and ‘comparative studies’. But behind the verbal unification of topics, are there more exchanges between countries, or simply different local uses of the same expressions or buzzwords? Are contributions from peripheral countries now more visible in Europe and North America than in the past?

Methodology

Our analysis of global trends in knowledge production in the social sciences is based on two databases. The first is the SSCI of the WoS, which covers articles on social sciences disciplines published in about 1,200 journals and includes all authors’ addresses as well as each paper’s list of references. The second is the Ulrich database, which identifies existing journals in all fields as well as their country of publication, the languages used in the journal, the country in which the editor is domiciled, and among other information, whether the articles in the journal are peer-reviewed or not.

Given the limitations of these databases, this study cannot pretend to provide an exhaustive view of the world distribution of social sciences. Nonetheless these sources, used with caution, can provide a good understanding of change and evolution over time on a scale that cannot be observed without their use.

In order to analyse the relations between social scientists from different countries globally, we divided the world

---

1. We focus on social science journals and articles. For an analysis of the world production of social science monographs, see Kishida and Matsui (1997). For the case of Europe, see Sapiro (2008).

2. We take ‘article’ to mean three types of papers: articles, notes and reviews.

3. We used the 2004 Ulrich CD-Rom.

4. For more details on the limits of these databases, see Archambault et al. (2006) and their contribution to the present book.
into seven regions: Europe, North America (the USA and Canada), Latin America (including Mexico and the Caribbean countries), Africa, Asia (including the Middle Eastern countries), Oceania (Australia, New Zealand and the surrounding islands) and the Commonwealth of Independent States (CIS). Finally, since the definition of social sciences is far from universal, we adopt the one used by the National Science Foundation in its reports on Science and Engineering indicators.6

**The world distribution of social science journals**

Social science journals can serve as the point of entry for an analysis of the world distribution of social science knowledge production. The Ulrich database gathers far more scientific journals than the Thomson WoS: we identified a total of 6,640 academic journals, a number that drops to 3,046 if we consider only peer-reviewed journals. We also compared the results with SSCI (which covers 1,162 journals) and focused our analysis on two variables: the geographical origins of the journals (by region), and the language used in each journal.

As Table 4.2 shows, the picture varies according to the database used, but remains coherent on a global level: Europe and North America far outweigh the rest of the world in academic publications. Using Ulrich or the SSCI shows that Europe accounts for about 45 per cent of world journal production. North America is behind with 37 per cent of refereed journals in the Ulrich database but equal at 46 per cent according to the SSCI. All the other regions are well behind, with less than 10 per cent of refereed journals or publications each (for social science journals from central and peripheral countries, see Narvaez-Berthelemot and Russell, 2001). Significantly, journals from these regions are more visible in the Ulrich database than in the SSCI, which is more selective in its choice and more focused on English-language journals from the UK and North America. In terms of papers, however, Thomson data shows that Europe produces only 38 per cent of papers, while North America accounts for 52 per cent of papers in SSCI.

These results remind us that data from Thomson WoS tends to underestimate the presence of non-central social sciences journals. That said, we will see that in terms of citations, the central actors in the field also tend to concentrate their citations on the central journals and countries, and themselves neglect contributions from outside Europe and North America.

If we examine the specific countries where refereed social science journals are edited, we observe that among the top twenty, nine are European, four Asian (India, Japan, China and Singapore), two Latin American (Brazil and Mexico), two Oceanian (Australia and New Zealand), two North American (USA and Canada) and one from Africa (South Africa). By publishing more than 1,000 refereed social sciences journals, the USA is the first country (with a quarter of the social science journals), followed by the UK, the Netherlands and Germany. Together these four countries publish two-thirds of all social science journals.9

These results confirm the centrality of two major producers of social sciences, Europe and North America. These two regions account for about three-quarters of the world’s

---

5. Europe is defined as the 27 members of the European Union, plus Switzerland, Norway, Iceland, Albania and the ex-Yugoslavian countries.
6. When we use the Thomson database, only the following disciplines are included in our definition of “social sciences”: area studies, anthropology and archaeology, criminology, demography, economics, science studies, geography, planning and urban studies, international relations, political science and public administration, miscellaneous social sciences, general social sciences and sociology. Since the Ulrich database is based on a different classification, we consider the following sections: social sciences, anthropology, archaeology, sociology, political science, geography, criminology and business and economics (the former section does not distinguish between economics and business, so there is an over-evaluation of this section as the SSCI separates economics and business).
7. These countries are: the UK, Germany, the Netherlands, France, Poland, Italy, Austria, Switzerland and Belgium.
8. Although China is only ninth in terms of academic and refereed journals (and the third Asian country), it becomes fifth in the world and top in Asia if we extend our corpus and look at academic journals in general.
9. The position of the Netherlands can largely be explained by the large number of international journals edited in the country. These journals contain contributions from many countries, not only or even mainly from the Netherlands. As we shall see, this can be corrected by examining the papers’ country of origin.
social science journals. If we compare these results with those obtained using the SSCI data, the concentration is even stronger; the two regions produced more than 90 per cent of the social science journals from 1998 to 2007. The difference between these results can largely be explained by the SSCI only covering ‘core’ journals on the social sciences disciplines.

The dominant languages of the social sciences

The domination of European and North American social sciences has an obvious effect on the languages used for the diffusion of research results in these fields. Using the Ulrich and SSCI data, we assessed the relative weight of each language by considering its presence in social science journals.10

Table 4.3 shows that the first five languages are Western ones. English is by far the most used language in social science journals: 85.3 per cent of the refereed journals covered in Ulrich are edited totally or partially in English. French, German, Spanish and Portuguese follow. Chinese is the most-used non-European language, accounting for 1.5 per cent of the academic social science journals in Ulrich. This result is an indication of China’s new role in the social sciences disciplines.

For example, if we consider the larger set of academic journals more generally by including non-refereed journals, the proportion of English-language journals falls to 69.6 per cent. This indicates the stronger concentration of English in scientific communities as opposed to the larger intellectual communities, which are naturally more attached to their local languages. If we use the SSCI to consider the languages in which the articles are written (and not those of the journals), English articles account for around 94 per cent (in the period 1998–2007) of the total. This larger proportion illustrates the Thomson WoS database’s English-speaking bias. Nonetheless, it does not differ much from Ulrich, making strong domination of English in the social sciences field a fait accompli.

Global trends in the production of scientific papers

We can take a first glance at the global evolution of the social sciences in recent decades by examining the number of research articles written by authors from each region during the two decades 1988–1997 and 1998–2007. SSCI data11 shows a substantial overall rise of about 21 per cent in the numbers of social science articles between the two periods: from 187,109 published between 1988 and 1997, to 226,940 published between 1998 and 2007.

As shown in Figure 4.5, the growth varies greatly from region to region, with the largest in Latin America (an increase of 74 per cent), Europe (increasing by 58.4 per cent) and Asia (a rise of 56.7 per cent). For Africa and Oceania the growth is only about 30 per cent, while the CIS is the only group of countries facing a decline in its production of social science papers (-4.6 per cent). This reflects the disorganization that followed the fall of the USSR (Wilson and Markusova, 2004). Part of the overall growth is also the result of the SSCI database’s changing content: over the years it has covered more European journals. The relative stability of North American growth (of only 3.8 per cent) suggests that its system has attained a plateau, whereas a region like Asia is still building its social science research system.

Nonetheless, North America is the largest producer of papers in the social sciences, with more than half of the total number of articles, and is the only region publishing an average of more than 10,000 articles per year. With other countries’ growing contributions, the North American share of the total is bound to diminish over time: from 61 per cent of the total of social science articles over the period 1988–1997, this percentage drops to 52.2 per cent over the next ten-year period (1998–2007). Europe is the second most important actor in social sciences and its share grew substantially, from 29.1 per cent during 1988–1997 to 38 per cent during 1998–2007.

---

10. If journals are plurilingual, they are counted as a separate unit in each language.

11. We only considered articles with at least one address, and attributed the paper to the country mentioned in that address. In the case of multi-authored papers, we attributed one paper to each country mentioned in the addresses. Consequently, the totals for countries can add up to more than 100 per cent.

**Table 4.3 >** The ten prevalent languages in social science journals

<table>
<thead>
<tr>
<th>Language</th>
<th>% Ulrich refereed journals in 2004 (N = 3,046)</th>
<th>% Thomson SSCI articles 1998–2007 (N = 226,984)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>85.3</td>
<td>94.45</td>
</tr>
<tr>
<td>French</td>
<td>5.9</td>
<td>1.25</td>
</tr>
<tr>
<td>German</td>
<td>5.4</td>
<td>2.14</td>
</tr>
<tr>
<td>Spanish</td>
<td>4.0</td>
<td>0.40</td>
</tr>
<tr>
<td>Portuguese</td>
<td>1.7</td>
<td>0.08</td>
</tr>
<tr>
<td>Chinese</td>
<td>1.5</td>
<td>0.00</td>
</tr>
<tr>
<td>Dutch</td>
<td>1.5</td>
<td>0.01</td>
</tr>
<tr>
<td>Japanese</td>
<td>1.0</td>
<td>0.06</td>
</tr>
<tr>
<td>Polish</td>
<td>0.9</td>
<td>0.00</td>
</tr>
<tr>
<td>Italian</td>
<td>0.6</td>
<td>0.01</td>
</tr>
</tbody>
</table>
Chapter 4

Uneven internationalization

Two regions is confirmed by international collaborations analysis (see the contribution by Frenken et al. in this Report), we can also obtain a complementary measure by looking at the origins of citations in the articles produced by social scientists from the different regions. Using the SSCI database, we examine the geographic origins of references to different countries’ social science journals during two periods of three years, 1993–1995 and 2003–2005, in each region, based on the 200 most-cited journals.

As might be expected, Table 4.4 shows that in respect of all regions and in the two relevant periods, the two most-cited regions are Europe and North America. Citations

Table 4.4 > Origins of citations by region for the 200 most-cited journals

<table>
<thead>
<tr>
<th>Citing regions</th>
<th>Africa</th>
<th>Latin America</th>
<th>Asia</th>
<th>CIS</th>
<th>Europe</th>
<th>Oceania</th>
<th>North America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>22</td>
<td>11.7</td>
<td>0</td>
<td>0.2</td>
<td>0.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asia</td>
<td>0.4</td>
<td>0.8</td>
<td>0.5</td>
<td>0.3</td>
<td>6.8</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>CIS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36.7</td>
<td>15.3</td>
<td>0</td>
</tr>
<tr>
<td>Europe</td>
<td>45.4</td>
<td>53.4</td>
<td>32.1</td>
<td>33.9</td>
<td>31.2</td>
<td>41.8</td>
<td>30.9</td>
</tr>
<tr>
<td>International</td>
<td>5.2</td>
<td>3.1</td>
<td>3.7</td>
<td>2.3</td>
<td>3.6</td>
<td>2.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Latin America</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Oceania</td>
<td>0.3</td>
<td>0.2</td>
<td>0.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>North America</td>
<td>26.7</td>
<td>30.9</td>
<td>51.6</td>
<td>56.2</td>
<td>58.2</td>
<td>54.1</td>
<td>30.8</td>
</tr>
<tr>
<td>Capture rate</td>
<td>48.3</td>
<td>50.7</td>
<td>47.8</td>
<td>43.9</td>
<td>45.9</td>
<td>45.5</td>
<td>55.1</td>
</tr>
</tbody>
</table>

Notes:
1. This table should be read as follows: for example (top left), restricted to the 200 most-cited journals in African social sciences articles, 22 per cent of the references in the period 1993–1995 come from African social sciences journals.
2. The ‘capture rate’ measures the percentage of the total number of references in the 200 most-cited journals.

Asian countries hold the third place in the hierarchy, producing 8.9 per cent of the social science articles during 1998–2007, or 20,203 articles. Asia is followed by Oceania, which produced almost 5 per cent of the articles in that decade. The other three regions, Latin America, Africa and CIS, produced less than 2 per cent of the social science articles, and less than 4,000 articles per decade.

In summary, Europe and North America maintain their largely dominant position, although North America has seen its relative share decline over time. The other regions clearly play a peripheral role, even though their share of world production has increased over the past twenty years (for a more detailed account by discipline and by country, see Glänzel, 1996).

Citations in social sciences: autonomy or dependence?

One of the main questions for contemporary social sciences is the peripheral regions’ degree of autonomy from or dependence on the two main social sciences producers, Europe and North America. While the centrality of these two regions is confirmed by international collaborations analysis (see the contribution by Frenken et al. in this Report), we can also obtain a complementary measure by looking at the origins of citations in the articles produced by social scientists from the different regions. Using the SSCI database, we examine the geographic origins of references to different countries’ social science journals during two periods of three years, 1993–1995 and 2003–2005, in each region, based on the 200 most-cited journals.

As might be expected, Table 4.4 shows that in respect of all regions and in the two relevant periods, the two most-cited regions are Europe and North America. Citations

Figure 4.5 — Production in the social sciences by region

Figure 4.5 shows the production in the social sciences by region for the years 1998 and 2007. The chart indicates that North America and Europe are the most productive regions, with a significant share of the total production. Asia follows as the third region, with a lower but still substantial contribution. Oceania, Latin America, Africa, and CIS are the least productive regions, with a small fraction of the total production.
of European and North American journals vary between 61.7 per cent (CIS, 1993–1995) and 98.5 per cent (North America, 2003–2005) of the 200 most-cited journals’ overall citations. We can distinguish European-dependent countries and North-American-dependent countries in terms of citations. Hence, Africa is largely a European-dependent region, with more than half of its references being to European journals in 2003–2005. By contrast, Latin America and Asia are North American-dependent regions, with more than half of their references being to North American journals in the two periods. Oceania is an intermediary case while the CIS, having been comparatively autonomous in 1993–1995, became more dependent on North America ten years later. North America is largely autonomous in terms of citations (around 80 per cent are ‘self-citations’; that is, citations of papers originating from the USA or Canada), while European citations are almost equally divided, with intra-European citations having a slight advantage above inter-citations.

Following this first observation, the question is whether important changes occurred between 1993–1995 and 2003–2005. A first noticeable trend in all the regions (albeit at different levels) is the decline of self-citations, by which we mean citations of papers from an author’s own region. The rate of self-citation was halved in peripheral regions like Africa, Latin America, Oceania and the CIS. In the period 1993–1995, 22 per cent of the references in African papers were to African social science journals. Ten years later, this proportion had fallen to only 11.7 per cent. The decline is even stronger in Asia.

For the two major social science producers, Europe and North America, a slight decline can also be observed, indicating better recognition of foreign contributions. We can also observe an increase in the proportion of citations of European and North American journals in most regions. This rise can be relatively small and insignificant (for example, 1 per cent more European citations in the case of the CIS between the two periods) or much bigger (10.6 per cent more European citations from Latin America).

**Conclusion**

From all these data on publication and citation practices, we can conclude that beyond a general growth in the number of papers and journals in the social sciences around the world, the globalization and internationalization of research have essentially favoured Europe and North America, the regions that were already dominant. Furthermore, the autonomy of the other regions has diminished and their dependence on central actors, as measured by citations, has increased over the past twenty years. Finally, Europe has increased its centrality and is now comparable to North America.

Although the tendency to interpret any rise in internationalization as a sign of openness is a strong one, we should not ignore the fact that there is tension between autonomy and dependence. It is not impossible that the increase in exchanges (through collaboration or citation practices) with central countries could lead to increased dependence instead of greater autonomy, as the inter-citation analysis has shown. At the same time, we should not underestimate the possibility that by having access to central journals and collaborators, researchers from peripheral countries can improve the visibility of their work in North America and Europe. Finally, given that the objects of the social sciences are more local than those of the natural sciences, it is clear that these local realities are better studied by local social scientists using local resources, even if their visibility on the international scene remains low. We could even predict that too much internationalization could induce a tendency to study more ‘central’ problems at the expense of socially important local ones.

---

Yves Gingras and Sébastien Mosbah-Natanson

Yves Gingras is Canada Research Chair in the History and Sociology of Science and Professor in the Department of History at the Université du Québec à Montréal (UQAM). His research areas are the sociological history of scientific disciplines and the development of research in universities. His most recent book is *Propos sur les sciences* [Considerations on Sciences] (Paris, Raisons d’agir, 2010).

Sébastien Mosbah-Natanson is a postdoctoral fellow at the Université du Québec à Montréal (UQAM). He recently edited with Sylvain Crépon *Les sciences sociales au prisme de l’extrême droite* [Social Sciences as Seen from the Far Right] (Paris, L’Harmattan, 2008). His current work is on the globalization of social sciences and the sociology of intellectuals.
The hegemony of English

Ulrich Ammon

English is an asymmetric global language whose benefits are unequally distributed. Native speakers are the gatekeepers to funding and publishing. There is also an anglophone-centred flow of information and an anglophone perception of scientific achievement. The anglophones’ linguistic advantage contributes to the enhancement of their countries’ competitive advantage in science, and in related businesses such as publishing, as well as to the attractiveness of their universities.

English is the global language of social science, and is used extensively – both passively and actively – by non-anglophone academics (Ammon, 2001; Carli and Calaresu, 2003). The preference for English is less pronounced in the social than in the natural sciences, but more so than in the humanities (Ammon, 1998, pp. 137–79).

Gingras and Mosbah-Natanson in this Report illustrate the dominance of English using the Ulrich and WoS databases. Figure 4.6 offers another overview of the proportions of major languages in social science publications, even if this figure (based on the International Bibliography of the Social Sciences [IBSS] and the library collection of the London School of Economics) is somewhat biased.

There are noticeable differences both between and within disciplines. Certain disciplines such as economics are more likely to be anglophone than others such as law. Likewise, international law is more likely to be anglophone than national law. Representative data on this is missing, however.

Causes of the hegemony of English

Despite the English language’s privileged position, built notably through colonialism and economic power, English, French and German were of broadly similar importance for the social sciences in the early twentieth century. The First World War, the Second World War and the fall of the Soviet bloc all helped to accelerate the expansion of English. The USA became a global centre for science. Its language supremacy was enhanced by a combination of factors. These included superior resources for research and for the development of bibliographical databases and citation indices; the abolition of foreign language requirements in US universities (forcing others to use English); and halo effects such as the extension of academic prestige to the English language (Ammon, 1998, pp. 179–204).

Figure 4.6 — Percentage shares of major languages in social science publications worldwide
(rank order following 2005; all other languages < 1 per cent)
Consequences of the language hegemony

To call English the lingua franca of science masks existing language divides. English is not a lingua franca in the sense of being a non-native language for all its users – as, for instance, was medieval Latin. It is an asymmetric global language whose benefits are unequally distributed. The fact that virtually everyone uses English for global interactions contributes to the spread of innovation and boosts the advancement of science. But non-native speakers of English have to devote greater efforts than native speakers to the language because they are obliged to learn it, and therefore contribute more heavily to the creation of the public good of a common language (Van Parijs, 2008). They also continue to be weighed down by poorer skills, which often exclude them from conferences and publication opportunities (Ammon, 1990). Native speakers are the gatekeepers to funding and publishing (Burrough-Boenisch, 2006; Flowerdew, 2008). There is also an anglophone-centred flow of information and an anglophone perception of scientific achievement (Durand, 2001). While both anglophones and non-anglophones read and publish in English, the latter also publish in their own native languages. The anglophones’ linguistic advantage contributes to the enhancement of their countries’ competitive advantage in science, and in related businesses such as publishing, as well as to the attractiveness of their universities.

Difficulties in communication can arise from any non-anglophone setting, especially from different text conventions whose transference can appear awkward (Clyne, 1987). One source of confusion is terminology, since English can be more – but also less – refined than other languages. The English term social class, for instance, can either relate to the German soziale Klasse (antagonistic and in the Marxist tradition) or Sozialschicht (non-antagonistic). The notion of identity has three possible translations in Japanese: 主体性 shutaisei, 独自性 dokujisei or 自己認識 jiko-ninshiki, each word having a slightly different meaning.

This goes to suggest that a single global language not only contributes to the advancement of science through wider communication, but also hampers its progress by disregarding the cognitive potential of other languages. This concern, based on the Humboldt and Sapir-Whorf hypothesis, seems applicable to the social sciences, since cultural differences are intrinsically present within the semantic structure of a given language. It also implies that multilingualism gives non-anglophones a cognitive advantage, although this needs corroboration and certainly does not fully make up for their difficulties in communicating.

Is greater ‘linguistic equity’ possible?

Attempts to promote linguistic equity should also heed efficiency in scientific communication. While all non-native speakers of English are affected by its dominance, it impacts two groups disproportionately:

- Those whose language has recently lost in international prominence (for instance, French or German) or who have recently become involved in global communication (for instance, Russians).
- Those whose language is at a considerable structural distance from English and who find English especially difficult to learn well (for example, Chinese, Japanese).

While the problems of the first group will decline, those of the latter will persist.

Solutions and guidance on these issues could be encouraged by awareness-raising campaigns (like La Madeleine, 2007; Ammon and Carli, 2008). Scientific organizations could establish special committees to deal with the problems raised by the dominance of English and to develop proposals for improvements. There is a need for greater university training on writing scientific papers in English (Swales and Feak, 2000) and for greater editorial support for publishing (Burrough-Boenisch, 2006; Flowerdew, 2008), ideally with professional as well as linguistic help (Benfield and Feak 2006, p. 1). This could be financially supported by leading publishers. The same applies to oral presentations at conferences. In the long run, automatic translation and interpretation may bridge the language divide, or English-language skills may become so ubiquitous that anglophones will lose their advantage, although this would produce more obstacles for other languages. Non-native-speakers, the vast majority of the total, may even gain normative control over the global language, thereby leading, at least in the case of scientific communication, to the predominance of non-native strains of English (Ammon, 2003, p. 33; 2006).
Social science research in the Latin American and the Caribbean regions in comparison with China and India

Jane M. Russell and Shirley Ainsworth

In this contribution, we focus on the overall production, international collaboration patterns, and the main subject areas and thrusts of research in the Latin American and Caribbean countries (LAC). We specifically emphasize Brazil, Mexico and Argentina, the major players in LAC science, comparing their performance with that of India and China, the other emerging economies.

In developing countries, social science research is considered to be primarily of local relevance and to impact only its immediate surroundings, making publication in national books and journals the main communication outlets. Nonetheless, a growing presence in the highly visible mainstream journals published predominantly in English indicates an increasing awareness that much of this research also has implications for the global scientific community. In this short contribution, we focus on the overall production, international collaboration patterns, and the main subject areas and thrusts of research in the Latin American and Caribbean countries (LAC). We specifically emphasize Brazil, Mexico and Argentina, the major players in LAC science, comparing their performance with that of India and China, the other emerging economies.

The SSCI, which brings together the world’s most-cited social science journals and which covers 50 disciplines, reported a fourfold increase from 852 in 1995 to 3,269 in 2007 in research papers (articles, conference papers, reviews, letters and notes) from the LAC region. Brazil showed an increase from 274 items in 1995 to 1,690 in 2007, Mexico from 248 to 581, and Argentina from 92 to 239. When we compare these three countries with India and China, and with LAC as a whole, all six show significant increases (Figure 4.7). China shows the most marked growth over the period, moving from being fourth of the five individual countries in 1995 to a predominant first position in 2007. India shows the smallest increase and drops from the first position of the individual countries in 1995 to third, behind China and Brazil, at the end of the period. In 2008, Brazil was the fifth most populous country in the world; nevertheless, with approximately 195 million inhabitants, it was considerably smaller than China and India with their 1,325 million and 1,149 million inhabitants respectively. The populations of Mexico and Argentina were 108 million and 40 million respectively in 2008 (Population Reference Bureau, 2008). These figures suggest that these
Scientifically speaking, small countries tend to have a high percentage of internationally collaborative papers. In small Latin American countries such as Bolivia, Ecuador, Guatemala, Nicaragua and Panama, between 74 per cent and 86 per cent of publications are co-authorships with at least one other country. Conversely, only around 30 to 38 per cent of papers published in scientifically more developed countries such as Brazil, Mexico and Argentina are co-authored (Sancho et al., 2006).

In the mid-1990s, international co-publications accounted for about 60 per cent of China’s total publication output in the SSCI. At the beginning of the twenty-first century, this had dropped to between 40 and 50 per cent. But in 1995, the total number of Chinese papers was small (at 198) compared with its 2007 total of 2,324. This suggests that China increased both its overall international visibility and its number of internationally co-authored papers. The three LAC countries have a notable presence in the SSCI in terms of their population when compared to the two populous Asian countries.

Another parameter with which to measure a scientific system’s degree of internationalization is the percentage of papers co-authored with scientists from other countries. With 46.9 per cent, China showed the greatest overall percentage of internationally co-authored papers in the thirteen-year period from 1995 to 2007. The LAC countries had 36.2 per cent overall; individually, Brazil had 30.4 per cent, Mexico 32.4 per cent, and Argentina 38.3 per cent. India had 27.2 per cent (Figure 4.8). Mexico, Argentina and India showed an increasing percentage of internationally collaborative papers, with Brazil and China showing lower percentages at the end of the period than at the beginning. LAC showed a small but steady rise before 2007, when its percentage dropped to the 1995 level.

### Figure 4.8 — Annual percentages of research papers produced through international collaboration in Latin America, China and India, 1995–2007

Three LAC countries have a notable presence in the SSCI in terms of their population when compared to the two populous Asian countries.

Scientifically speaking, small countries tend to have a high percentage of internationally collaborative papers. In small Latin American countries such as Bolivia, Ecuador, Guatemala, Nicaragua and Panama, between 74 per cent and 86 per cent of publications are co-authorships with at least one other country. Conversely, only around 30 to 38 per cent of papers published in scientifically more developed countries such as Brazil, Mexico and Argentina are co-authored (Sancho et al., 2006).

In the mid-1990s, international co-publications accounted for about 60 per cent of China’s total publication output in the SSCI. At the beginning of the twenty-first century, this had dropped to between 40 and 50 per cent. But in 1995, the total number of Chinese papers was small (at 198) compared with its 2007 total of 2,324. This suggests that China increased both its overall international visibility and its number of internationally co-authored papers. The three LAC countries have a notable presence in the SSCI in terms of their population when compared to the two populous Asian countries.

Another parameter with which to measure a scientific system’s degree of internationalization is the percentage of papers co-authored with scientists from other countries. With 46.9 per cent, China showed the greatest overall percentage of internationally co-authored papers in the thirteen-year period from 1995 to 2007. The LAC countries had 36.2 per cent overall; individually, Brazil had 30.4 per cent, Mexico 32.4 per cent, and Argentina 38.3 per cent. India had 27.2 per cent (Figure 4.8). Mexico, Argentina and India showed an increasing percentage of internationally collaborative papers, with Brazil and China showing lower percentages at the end of the period than at the beginning. LAC showed a small but steady rise before 2007, when its percentage dropped to the 1995 level.

### Figure 4.9 — Distribution of research papers in respect of the main social science disciplines in Latin America, China and India, 1995–2007

Note: Disciplines based on the RFCD classification scheme (Butler, Henadeera and Biglia, 2006). Papers can be assigned to more than one subject category.

LAC = total Latin America and the Caribbean.
discipline the SSCI most frequently assigns to papers from LAC is medical and health sciences (38 per cent), including 41 per cent of papers from Mexico and 44 per cent from Brazil assigned to this discipline. This is also true for Argentina, India and China but to a far lesser extent (23 per cent, 23 per cent and 18 per cent, respectively).

When we group the disciplines into science and social science and the humanities, only China, India and Argentina have more papers assigned to the latter categories. The three citation indexes include both duplicate records and indeed duplicate journals, and these have humanities and social science subject categories assigned to them, as well as their own social science subject categories. From Figure 4.9, it is apparent that behavioural and cognitive sciences is the main LAC social science discipline, while for India it is studies in human society (including sociology and anthropology). Economics is an important field for Argentina, while commerce, management, tourism and services are priority disciplines for China. Surprisingly, very few papers from all of these countries are within the education field.

Of all the subject categories, public, environmental and occupational health are the topic on which most LAC research focuses, followed by psychiatry (with the

**Table 4.5** > Most prolific subject categories in Latin America, China and India, 1995–2007

<table>
<thead>
<tr>
<th>Brazil</th>
<th>Mexico</th>
<th>LAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public, environmental and occupational health</td>
<td>2,078</td>
<td>Public, environmental and occupational health</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>1,037</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Neurosciences</td>
<td>444</td>
<td>Economics</td>
</tr>
<tr>
<td>Economics</td>
<td>432</td>
<td>Psychology, multidisciplinary</td>
</tr>
<tr>
<td>Behavioural sciences</td>
<td>345</td>
<td>Behavioural sciences</td>
</tr>
<tr>
<td>Nursing</td>
<td>327</td>
<td>Political science</td>
</tr>
<tr>
<td>Social sciences, interdisciplinary</td>
<td>292</td>
<td>Neurosciences</td>
</tr>
<tr>
<td>Psychology, multidisciplinary</td>
<td>288</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Environmental studies</td>
<td>242</td>
<td>Environmental studies</td>
</tr>
<tr>
<td>Psychology</td>
<td>232</td>
<td>Psychology, biological</td>
</tr>
<tr>
<td>Psychology, biological</td>
<td>199</td>
<td>Psychology</td>
</tr>
<tr>
<td>Argentina</td>
<td></td>
<td>LAC</td>
</tr>
<tr>
<td>Economics</td>
<td>342</td>
<td>Public, environmental and occupational health</td>
</tr>
<tr>
<td>Neurosciences</td>
<td>130</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Anthropology</td>
<td>127</td>
<td>Economics</td>
</tr>
<tr>
<td>Public, environmental and occupational health</td>
<td>123</td>
<td>Psychology, multidisciplinary</td>
</tr>
<tr>
<td>Psychology, multidisciplinary</td>
<td>121</td>
<td>Neurosciences</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>116</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Behavioural sciences</td>
<td>104</td>
<td>Behavioural sciences</td>
</tr>
<tr>
<td>Psychology</td>
<td>98</td>
<td>Environmental studies</td>
</tr>
<tr>
<td>Clinical neurology</td>
<td>73</td>
<td>Psychology</td>
</tr>
<tr>
<td>Political science</td>
<td>52</td>
<td>Social sciences, interdisciplinary</td>
</tr>
<tr>
<td>Urban studies</td>
<td>48</td>
<td>Management</td>
</tr>
<tr>
<td>Argentina</td>
<td></td>
<td>LAC</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>699</td>
<td>Economics</td>
</tr>
<tr>
<td>Economics</td>
<td>685</td>
<td>Management</td>
</tr>
<tr>
<td>Anthropology</td>
<td>517</td>
<td>Business</td>
</tr>
<tr>
<td>Public, environmental and occupational health</td>
<td>396</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Management</td>
<td>383</td>
<td>Psychiatry</td>
</tr>
<tr>
<td>Social work</td>
<td>335</td>
<td>Public, environmental and occupational health</td>
</tr>
<tr>
<td>Environmental studies</td>
<td>318</td>
<td>Operations research and management science</td>
</tr>
<tr>
<td>Planning and development</td>
<td>293</td>
<td>Education and educational research</td>
</tr>
<tr>
<td>Information science and library science</td>
<td>282</td>
<td>Environmental studies</td>
</tr>
<tr>
<td>Operations research and management science</td>
<td>266</td>
<td>Psychology, multidisciplinary</td>
</tr>
<tr>
<td>Environmental sciences</td>
<td>199</td>
<td>Business, finance</td>
</tr>
</tbody>
</table>
to the international scientific community and which is therefore readily available for comment, feedback and utilization. Furthermore, in the past two years the SSCI has greatly increased the number of journals it covers from non-English-speaking countries. In the present study, we found that 35.4 per cent, 39.4 per cent and 12.8 per cent of all research papers from Brazil, Mexico and Argentina respectively appeared in national journals indexed by the SSCI. The vast majority of these papers were published in Spanish or Portuguese. The corresponding numbers were 18.6 per cent for India, a reduction from 31.8 per cent in 1995, and 1 per cent for China, almost all of which were in English.

While all these countries, and the LAC region as a whole, increased their overall production in the thirteen-year span that we studied, China and Brazil made the biggest gains by far. These two countries were also the only ones to show a smaller percentage of international collaboration at the end of the period than at the beginning, perhaps suggesting growing independence for their research efforts. Indian publication patterns are more in keeping than China’s with the less productive LAC countries of Mexico and Argentina. Nevertheless, India and China are more similar to one another than to the LAC nations in their publishing patterns.

1. The Dare/UNESCO database is a legacy directory of institutions and journals published worldwide in the social sciences. It was last updated in June 2004, but is still available: http://databases.unesco.org/dare/form.shtml

Jane M. Russell and Shirley Ainsworth

Jane M. Russell is a senior researcher at the University Centre for Library Research (CUIB) at the National Autonomous University of Mexico (UNAM). She specializes in topics relating to the communication, collaboration and evaluation of science in developing countries, with special emphasis on Latin America.

Shirley Ainsworth is head librarian of the Biotechnology Institute of UNAM. She specializes in electronic information resources and has been working in bibliometrics for research evaluation and in collaboration studies.
Scientific mobility and the internationalization of social science research: the case of mainland China

Koen Jonkers

This paper discusses the internationalization of the Chinese social science research system, with a specific focus on the impact of scientific mobility on this process. The greater international visibility of Chinese social science researchers, and the consistently increasing share of international co-publications in China’s social science output, which is itself growing fast, are indicators of the increasing internationalization of Chinese social science.

This paper briefly discusses the increasing internationalization of the Chinese social science research system, with a specific focus on the impact of scientific mobility on this process. In this paper, ‘internationalization’ refers to the processes of increasing international visibility and openness to the international scientific community through international collaboration and other ties. The paper is primarily based on simple bibliometric indicators of international visibility, complemented by a discussion of other changes in the Chinese research system related to its internationalization.

Several studies have addressed the Chinese research system’s increasing presence in the global science system. Figure 4.10 shows the increasing share of Chinese social science publications1 in the bibliometric databases of Thomson Reuters SSCI and Elsevier’s Scopus. As discussed at length in other sections of this Report, there are limits to the use of bibliometrics, especially as a source of productivity and quality indicators in the social sciences (Archambault and Larivière, in this Report). This is especially important when considering China, which has a vibrant domestic-language scientific press (Su, Han and Han, 2001). However, the simple output data derived from these databases can be used as an (imperfect) indicator of the international visibility of the Chinese research system.

As Figure 4.10 shows, China’s world share of social science papers is higher in the Scopus database2 than it is in the SSCI database. There are considerable differences in China’s international visibility in the various social science fields. For example, management science reached almost 4 per cent of the total global share of ‘international visibility’ in 2007, whereas political science lagged behind the social science average, with a share of 0.3 per cent in 2007. Management science’s special position can be explained in part by the fact that in contrast to most Chinese social science research (Wei Lili, in this Report), it receives funding from the Natural Science Foundation of China.3

An important element in the internationalization of the Chinese research system is the inward and outward flow of students and researchers (Jonkers, 2010a). According to China’s Ministry of Education, 47.5 per cent of overseas Chinese students were pursuing social science majors in 2006 (Xinhua News Agency, 2007). There are no exact statistics on the size of overseas Chinese social scientific communities around the world. The final line of Figure 4.10 shows an indirect indicator of their visibility, which is based on publications by researchers with a Chinese heritage surname (Webster, 2004; Jonkers, 2010b). The figure thus shows that in addition to their mainland peers, the overseas Chinese social science community is involved in publishing an increasing share of the global social science output. Researchers with Chinese heritage surnames published well over 8 per cent of the total Scopus social science output in 2007, of which less than half originated from mainland China. Furthermore, the Chinese Government is actively promoting the return of its students from abroad (MOE, 2004). These returned social scientists are helping to increase the Chinese social science research system’s international visibility. They are also said to play important roles in the financial and insurance sector, as well as in think-tanks (see among others, Li, 2006).

1. Publications refer to these document types: articles, letters, notes and reviews.
2. No good explanation was found for the sudden peak in China’s share of SCOPUS papers in 2001.
3. As a reviewer indicated, the NSFC also sponsors social science projects in areas which would in some countries fall under other social science disciplines. It has a special division for management science, but not for other social science fields.
The share of international co-publications in China’s total SSCI output is relatively high and remained fairly stable over the period 1994–2007. In 2007, international co-publications with North America and the EU-15 accounted for around 39 per cent of China’s SSCI publications. The share of international co-publications in the total Scopus output is consistently lower, and fluctuates between 5 per cent and 20 per cent for the period 1990–2007. In recent years, Western European research funding agencies have witnessed stronger interest from their Chinese counterparts in joint funding for social science projects. This has led to a greater number of joint projects in this field.4

Another interesting aspect of the internationalization of the Chinese research system is the establishment of joint laboratories, centres and institutes by foreign research organizations on Chinese soil (Jonkers, 2010). An example is the Joint Institute of Michigan University (USA) and Beijing University. Again, however, the social sciences are under-represented by comparison with the natural sciences in this trend. Other examples of the internationalization of the Chinese social sciences include the hiring of part-time and full-time foreign professors for Tsinghua University’s School of Economics and Management, for example, and a number of twinning agreements with European universities.

The bulk of Chinese social science research is performed by Chinese researchers at universities and at institutes of social science academies. Both of the examples in the previous paragraph – the increasing international visibility of the Chinese social science research system, and the consistently high share of international co-publications in China’s growing social science output – are indicators of the increasing internationalization of the Chinese social science research system.

### Figure 4.10 — China’s increasing share of international social science publications, 1990–2006

Note: China’s share of global SSCI publications is measured relative to the production of the 47 countries with the highest GDP. This may have led to some overestimation of its share of the world SSCI publications. See Ping Zhou, Thijs and Glänzel (2009) for a recent bibliometric study which found lower percentages.

4. COREACH secretariat personal communication. (For information on COREACH, see: http://www.co-reach.org. Accessed November 2009.)

Koen Jonkers

Holds a Ph.D. from the European University Institute. He is currently a postdoctoral fellow at the CSIC Institute of Public Goods and Policies in Madrid. He was also closely associated with the WSSR editorial team. Routledge published his book *Migration, Mobility and the Chinese Scientific Research System* in April 2010.


Thomson Corporation. 2009. *Web of Science 7.0: Science Citation Index Expanded; Social Sciences Citation Index; Arts & Humanities Citation Index*. Philadelphia, Thomson Reuters.


