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Bibliometrics and Urban Research: Part I

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Section 2: The Value of Bibliometrics

Bibliometrics and
Urban Research: Part I

Professor Andrew Kirby and
Dr Judith Kamalski

Global urban development was one of the significant innovations of the 20th century, changing both human and natural environments in the process. Approximately 40 scholarly journals exist dedicated solely to urban studies, but with over 3 billion people now living in cities worldwide, it is inevitable that topics with an urban dimension are published across the science spectrum, in journals ranging from topics covering anthropology to zoology.

This breadth of material presents challenges to those with urban interests, and we are collaborating on the production of the first meta-journal in the field, designed to pull together what we know about recent scholarship on cities, in order to keep researchers up to date. As part of the development of Current Research on Cities (CRoC), we investigated the diversity of publications in urban affairs using keyword analysis and found three distinct spheres of ‘urban knowledge’ that contain some overlap but also significant differences.

What we did

We explored the relationship between the different branches of urban research in the following manner. First, we identified three distinct clusters of published material:

1. research published in the 38 journals of the Thomson Reuters “Urban Studies” cluster;
2. research with urban content in the social sciences and humanities;
3. research with urban content published in the applied sciences.

In the SciVerse Scopus database of journal articles published in 2010, which contains 991,000 entries, we identified research papers containing the keyword ‘urban’ plus one of the following keywords—planning, renewal, development, politics, population, transport, housing—that have shown up in a pilot project. We limited the search to Social Science subject areas and to relevant subject areas in the applied Sciences (ignoring medicine, engineering and so forth). This yielded the following numbers of articles and reviews, see Table 1.

Journals	Number of Reviews and Articles	Keywords
Urban Studies cluster	590	5109
Social Sciences	3719	32121
Sciences	2429	57629

Table 1 – Data on urban publications in the three different clusters . Source: Scopus, February 2012.

As a second step of our analysis, we looked at frequencies of keywords attributed by indexers such as MEDLINE and Embase. Redundancies were eliminated and minor categories collapsed: e.g. water use and water planning are aggregated to ‘water’. The three data sets were rearranged according to the keyword frequency, scaled against the grand totals for each column to make them comparable (e.g. 502 as a proportion of 32121 = 156, the first entry in the social sciences column) (see Table 2).

How we interpret these results

From this preliminary analysis, we can make a number of inferences. First, we can see that there is relatively little overlap between the three columns, with 22 of the 60 entries being unique (10 in the Sciences cluster, 9 in the Urban cluster). The variation is systematic: in Sciences, research focuses on water, air and climate, whereas in the other columns it emphasizes housing, governance and planning. Surprisingly, the points of potential convergence – such as ‘sustainability’ – appear only in the Sciences column.

When we examine the origins of the research we begin to understand the lack of integration between the three areas of specialty. Half of the Urban Studies research emanates from the Anglophone countries; in contrast, Chinese authors contribute relatively more to the Sciences cluster (see Figure 1).

A second issue of importance is that research undertaken both in the Social Sciences and Urban clusters is attentive to scale; we have marked the appearance of both ‘neighborhood’ and ‘metropolitan’ in these columns. In contrast, Science research considers broader categories, such as urban versus rural. This reflects the tendency for applied science to apply itself to broad processes such as climate change, and the much narrower concerns of social scientists with phenomena such as gated communities.



Rank	Sciences	Social Sciences	Urban Studies
1	Water 254	Urban Planning 156	Housing 286
2	Environment 144	US 129	US 244
3	Urban Area 143	Urban Area 127	Urban Planning 240
4	Air 93	Urban Population 126	Urban Development 221
5	Land Use 73	Human 109	Policy 215
6	Atmosphere 71	Urban Development 106	Urban Area 176
7	Human 69	History 91	Neighborhood 148
8	US 68	Female 78	Urban Population 119
9	China 63	Housing 69	Urban Economy 90
10	Urban Planning 61	China 64	Metropolitan Area 88
11	Pollution 60	Urban Policy 64	Governance 74
12	Urbanization 54	Male 61	UK 74
13	Urban Population 51	Neighborhood 61	China 68
14	Urban Development 47	Urbanization 59	Social Change 62
15	Sustainability 40	Land Use 58	Urban Renewal 60
16	Climate 38	Rural 58	Urban Society 58
17	GIS 34	Policy 56	Urban Politics 54
18	Transport 34	Planning 54	Education 48
19	Female 32	Adult 51	Urbanization 48
20	Agriculture 29	Metropolitan Area 45	Strategic Approach 48

Table 2 – Appearances of keywords in the three clusters: those in RED are unique, those in BLUE are common to all three columns, and those shaded are discussed in the below interpretation. Source: Scopus, February 2012.

Why these results are of relevance

The above data suggest that there may be only limited integration of research efforts undertaken by those who work explicitly in urban studies, social scientists who work in “cities”, and scientists who are concerned with the environmental impacts of urban development. Some part of this may be driven by geography and will disappear as more Chinese, Korean and Japanese scholars publish in international journals². What remains however is that there is an astonishingly small commitment to pressing environmental issues such as climate change, sustainability and adaptation outside the science cluster.

When asked for his view on the reasons why these different disciplines influence the field, Professor C. Y. Jim from the Department of Geography at the University of Hong Kong comments, “Cities are the most complex, changeable, multidimensional and enigmatic artifacts ever contrived by humankind. Proper deciphering of this apparently unfathomable riddle demands synergistic confluence of wisdom from different quarters. A transdisciplinary, interdisciplinary and multidisciplinary (TIM) approach is more likely to bring a fruitful union of otherwise disparate concepts and methods and generate innovative ideas to fulfill this quest.”

It is to address this problem that CRoC has been developed. As a meta-journal, the aim is to publish solicited material that can assist in bridging these silos, while building on the points of integration that do exist within the different communities of urban scholarship.

In the next issue of Research Trends, we will look at author distributions in finer detail: rather than assigning all authors with a UK affiliation to the nation as a whole, we can view the specific locations of each affiliation on a map.

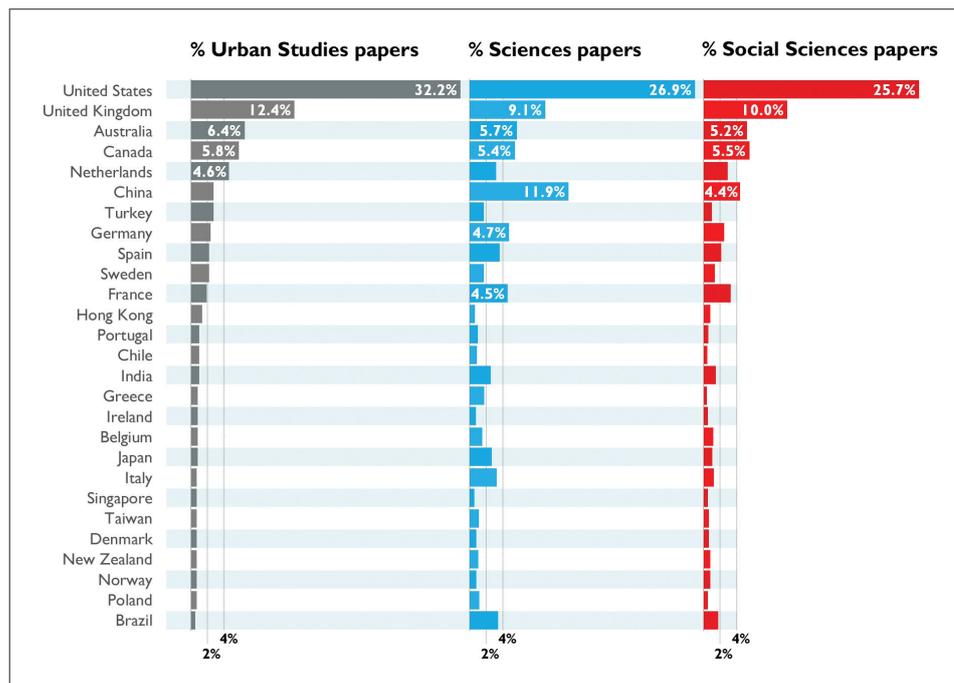


Figure 1 – The percentage of papers within a category that have at least one author with an affiliation in the countries displayed: e.g. 33% of all Urban Studies papers have an author with an American affiliation.

References:

1. Kirby, A. (2012) “Current Research on Cities and its contribution to urban studies”, Cities Volume 29, Supplement 1 S3–S8 <http://dx.doi.org/10.1016/j.cities.2011.12.004>
2. Haijun Wanga et al. (2012) “Global urbanization research from 1991 to 2009: A systematic research review”, Landscape and Urban Planning, 104, 299–309.