

GEOGRAPHICAL DISTRIBUTION OF INTEREST AND PUBLICATIONS ON LEAN CONSTRUCTION

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Background and Knowledge Gap

It is a common view that certain countries show more interest in Lean Construction Principles than others. Some researchers within the Lean Construction community publish more and are more cited than others. Academic publishing within the field of LC is in an historical perspective a relatively new phenomenon. A mapping of the geographical distribution of LC related publications does not seem to have been carried out. An assessment of the geographical distribution of academic publication could therefore give some indicators on the prevalence of the concepts as well as research productivity of individual countries.

Research Aim and Methodology

The paper addresses the following research questions:

- 1) Where do those who show interest in Lean Construction come from?
- 2) Is there any connection between geographical distribution of academic publications and where those who show interest in Lean Construction come from?

This study examines scientific contribution by different countries with the use of data related to academic publication and general interest in LC by different countries represented with the use of web-traffic data. To measure interest, we chose to accredit academic contributions by country as a quantitative measure of interest. Academic contribution was supplemented with data about the general interest related to the field of LC. Web-traffic in form of number of viewing-session was chosen as an indicator of public interest. The data spans from four primary sources; 1) IGLC proceedings, 2) Lean Construction Journal, 3) viewer-traffic of the IGLC web-page and 4) viewer-traffic of the Lean Construction blog. All papers from the proceedings and the journal database were registered and ranked in two categories based on country of origin: Publications and authors per 106 inhabitants. The use of quantitative data in form of data traffic are categorized as webometrics, which is an emerging research field emphasising the use of various types of data to study the Web (Vaughan and Yang, 2013). The data from the IGLC web page and the Lean Construction Blog was gathered with the use of Google Analytics. The final dataset was tested for potential correlations by determine the Pearson r correlation coefficient. In order to linearize the relationship between the variables we applied a logarithmic transformation. This was considered convenient in order to eliminate skewness created by large values in the dataset. Countries with either zero publications or sessions are excluded from the graphical presentation of the findings as

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well as for the Pearson r calculation. Therefore, the representation only consist of countries with both academic publishing and web traffic.

Research Findings

Table 1 compares the data on the number of authors, papers- and sessions as well as the data on number of papers, authors and web-sessions per 10 million inhabitants' country-by-country. Figure 2 show the distribution of all 48 countries with publications per 10,000,000 inhabitants on the x-axis and sessions per 10,000,000 inhabitants on y-axis. In order to present the data, we used a log-10 scale for both the Y-and the X-axis. This was necessary because of the large range of values.

Table 1: top 20 countries, by no. of papers

	Country	No. of authors	No. of papers	No. of Sessions	Papers / 10 millions	Authors/ 10 millions	Sessions/ 10 million
1.	United States	1038	453	24239	14,1	32,3	754
2.	Brazil	619	224	8585	11,0	30,3	420
3.	UK	527	223	8566	34,8	82,2	1337
4.	Lebanon	69	222	1162	355,9	110,6	1863
5.	Finland	161	84	1696	153,4	294,0	3097
6.	Norway	207	80	6281	153,6	397,5	12061
7.	Chile	179	72	2040	41,1	102,2	1165
8.	Sweden	122	57	1429	58,2	124,5	1458
9.	Denmark	94	54	1337	96,7	168,4	2395
10.	Germany	105	44	5926	5,4	13,0	733
11.	Australia	94	41	2332	18,0	41,3	1025
12.	Israel	74	32	593	39,1	90,5	725
13.	New Zealand	48	26	1372	58,1	107,3	3066
14.	Peru	35	19	4011	6,2	11,4	1305
15.	Netherlands	24	17	1504	10,0	14,1	884
16.	Taiwan	25	16	0	6,8	10,7	0
17.	South Korea	47	16	347	3,1	9,2	68
18.	Singapore	33	15	1160	25,9	57,1	2006
19.	Portugal	27	13	446	12,0	24,9	412
20.	Colombia	34	10	1158	2,1	7,2	245

Figure 2: Log-10 representation of countries, by publications and sessions per 10 million inhabitants



