

The relationship between international editorial board composition and citation measures in political science, business, and genetics journals

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Three measures of international composition on journal editorial boards – the number of countries represented on the board, the number of international members, and the proportion of international board members – were correlated with impact factor and total citation data in the 1999 *Journal Citation Reports* for 153 business, political science, and genetics journals. With a few exceptions the relationship between international editorial board composition and citation measures was non-linear, leading to the conclusion that international membership on the editorial board can not generally be used as a marker of better journal quality. Yet further investigation is warranted due to positive correlations between some editorial board and citation measures for non-U.S. business and political science journals.

Introduction

A journal's editorial board serves as a highly visible quality indicator. *Lindsey*¹ asserts "The editorial review board of the professional journal confers authority and legitimacy." *Zsindely et al.*² conclude "the editorial bodies of international journals are true "gatekeepers" and their professional status is positively correlated with ... scientific quality." Others^{3,4} have suggested that editorial board membership can be used in journal evaluation.

International connections in publishing are often assumed to indicate higher quality – a contention supported by empirical research of *Katz* and *Hicks*,⁵ who also refer to a belief that "international collaboration ... will bring about ... higher impact research." Intuitively there is considerable reason to believe that international membership on a journal's editorial board might be associated with better overall quality. High quality journals might attract international members to their editorial board and international board members could use their connections to improve journal quality. Indeed, the term "international visibility" is often informally used to ascribe scholarly status.

Accordingly, this research project investigates whether international composition on a journal's editorial board – measured by the number and proportion of international members as well as the number of different countries represented on the board – is associated with better quality as indicated by two traditional ISI *Journal Citation Reports* citation measures: impact factor and total citations received. Three disciplines were chosen for analysis: political science – to represent the social sciences; genetics – to represent the pure sciences, and business – to represent a professional field.

This research has theoretical and practical implications for journal evaluation – a critical but sometimes vexing issue for scholars making manuscript submission decisions, librarians reaching judgements concerning journal cancellation and subscription, as well as deans and promotion and tenure committees evaluating faculty performance. If it could be demonstrated that international editorial board membership correlates with better journal quality, one might, as a tactic for quickly assessing a journal's status, examine a single issue or Web page to ascertain the absolute number and proportion of international board members. Moreover, in a variety of subtle ways these findings might have theoretical implications for international scholarly communication.

Literature review

The large number of studies addressing journal evaluation, journals in the three disciplines under investigation, and cross-national citation patterns are beyond this brief review's scope. Various aspects of international authorship have been addressed in the scientometric or library and information science literature, including:

- The relationship between international collaboration and citation data – *Katz* and *Hicks*⁵ found that domestic collaboration among authors increased a paper's impact by 0.75 citations, whereas international collaboration increased the impact by 1.6 citations;
- Cross-country patterns of international collaboration in scientific research as indicated by co-authored papers – *Kim's*⁶ analysis revealed that Korean scientists displayed a higher collaboration rate with the U.S. than with any other country;
- The proportion of papers in a research area that are based on international collaboration among authors – *Hinze*⁷ discovered this figure was approximately 27% in autoimmune disease research;

- The impact of political events on international collaboration in authorship – *Stefaniak*⁸ found an increase in Polish international co-authorship after the end of Communism in the late 1980s;
- The proportion of authors in a single journal or a group of journals with an international affiliation – a summary by *Nisonger*⁹ of thirteen bibliometric studies of library and information science journals found that international authorship ranged from 1.7% to 27.9%.

Numerous other examples could be cited.

The historical evolution of scholarly journal editorial boards has been traced to the late seventeenth century by *Zuckerman* and *Merton*.¹⁰ A number of studies have addressed issues relating to editorial board composition in an international context. *Zsindely* et al.¹¹ concluded that the number of a country's citizens on editorial boards of international science journals can be used as a "new science indicator" of that country's contribution to research. *Zsindely* et al.² also discovered that for international chemistry journals the total citations to editorial board members correlated with the journal's impact factor. However, this literature review failed to identify a single study investigating the relationship between citation measures and the international make-up of a journal's editorial board.

Methodology

In order to investigate whether international editorial board composition is predictive of higher citation scores in the *Journal Citation Reports* in the three disciplines under study, the following steps were carried out:

1) *Identification of the journal sets for the study.* The Web-version of the 1999 *Journal Citation Reports* (the most current available during the fall of 2000 when this project was initiated) was accessed to identify the 52 titles included in the "Business" subject category, the 76 titles listed under "Political Science" (both from the *Social Sciences JCR*) and the 105 under "Genetics and Heredity" from the *Science JCR*. These titles were entered into an Excel spreadsheet that was used to compile the project's data.

2) *Identification of editorial boards.* For each of these 233 titles the first 1999 issue, if available in the Indiana University Libraries, was examined. For titles unavailable in the Indiana University library system, interlibrary loan and accessing journal Web pages were used as alternative strategies to obtain editorial board membership. Boards under variant name forms, such as "editorial advisory board" or "editorial committee," were also considered. However, the board of directors of the society publishing a journal was

not considered an editorial board and thus such lists not used in the analysis. The focus was on board members per se rather than editors or associate/assistant editors. Thus, assistant editors who also served on the board would have been included in the analysis in their capacity as board members, but assistant editors not on the board would have been excluded.

3) *Calculation of three international editorial board membership measures.* For each journal the number of different countries (including the country of publication) represented on the editorial board were counted. Also, the number and proportion of international editorial board members were calculated. A board member was operationally defined as an international member if his/her institutional affiliation was in a different country than the journal's primary place of publication. Accordingly, this investigation is not centric to the U.S. nor any other country. A British editorial board member on a U.S. journal and a French board member on an Australian journal would both be considered international members. In the small number of instances (less than a half dozen) in which an editorial board member was listed with dual institutional affiliations in both the journal's country of publication and another country, the individual was counted as one-half (0.5) an international member. The number of international members was obtained through a simple count. The proportion was the number of international members divided by the total membership expressed as a decimal, i.e., if three of ten members were from a different country a value of 0.300 was assigned. In the rare instances where all members were international the value was 1.000. For the small number of journals – primarily in political science – that listed both “national” and “international” editorial boards, the two boards were combined for the purpose of calculating the three measures of international composition.

4) *Gathering JCR citation data.* The two citation measures (impact factor and total citations) were compiled through a Web interface from the 1999 JCR.

5) *Correlating international editorial board membership measures with citation data.* The three measures of international editorial board composition calculated in step three above were correlated with the two citation measures compiled in step four, using Pearson Product Moment Correlation computed with Kwikstat 1.3. This resulted in a set of six correlations for each subject area and eighteen for the entire study.

6) *Partitioning the results for U.S. and non-U.S. journals.* U.S. and non-U.S. journals were then analyzed separately to determine if different patterns exist for the two categories.

7) *Micro analysis of specific high ranking and low ranking titles.* Taking a micro approach, the international Editorial Board composition was examined for titles ranking in the top 10% and the bottom 10% for each discipline.

Limitations

A few limitations should be acknowledged. The official list of editorial board members might not be current because there is a time lag – often several months or more – between the time a member enters or exits the editorial board and the appearance of the information in a journal's masthead. Also, institutional affiliation may not necessarily correspond with a board member's actual nationality. However, it is exceedingly improbable that these factors would skew or invalidate the results.

In this era of the global economy, there may be an inherent ambiguity in determining a journal's country of publication. A journal's editorial office and publisher may be in two different countries, while the publisher might be owned by an international conglomerate headquartered in another nation. In this investigation the country of publication assigned by the Institute for Scientific Information was considered definitive, except that "England" was interpreted as the United Kingdom. One should note that the author's personal inspection of the ISI's country assignments did not reveal glaring inaccuracies although a few were questionable.

Furthermore, regression analysis does not, of course, indicate causal relationships. A positive correlation between international editorial board membership and citation measures would not explain whether better quality journals attract international members to the editorial board, international editorial board members attract more high quality articles, or more sophisticated explanations come into play.

Editorial board composition represents only one facet of international influence on a journal. Other aspects include: subject content, the nationality of editorial staff (such as editors-in-chief, assistant editors, and associate editors); the nationality of authors; the extent of international collaboration among authors; and whether or not the title advertises itself as an international journal. Finally, it is recognized that editorial boards represent formal structures that do not necessarily reflect informal interactions used in refereeing and recruitment of manuscripts.

Results

It was not possible to compile editorial board data for all the journals listed in the *JCR* under the three disciplines. A few journals were unavailable, while, more frequently, an editorial board could not be identified. This may have reflected the absence of an editorial board or the fact that the editorial board was simply not published, although for this investigation's purpose the precise reason is not necessarily relevant. Also, in some cases the published editorial board list did not indicate an

institutional or geographical affiliation for the members. The pertinent data is summarized in Table 1.

Table 1. Summary of data compiled for the study

Discipline	Journals in <i>JCR</i>	Included in analysis	No editorial board	Editorial board but no institutional affiliation	Journal not found	Title changed
Business	52	37 (71.2%)	10 (19.2%)	3 (5.8%)	2 (3.8%)	
Genetics	105	71* (67.6%)	13 (12.4%)	8 (7.6%)	13 (12.4%)	
Political Science	76	45 (59.2%)	10 (13.2%)	15 (19.7%)	5 (6.6%)	1** (1.3%)
Total	233	153 (65.6%)	33 (14.2%)	26 (11.2%)	20 (8.6%)	1 (0.4%)

* For 2 of the 71, data was gathered only on total citations, because the impact factor was unavailable.

** One journal was listed under both its current title (*Journal of Commonwealth and Comparative Politics*) and former title (*Commonwealth and Comparative Politics*), but only the current title's editorial board was analyzed.

The table indicates data concerning international editorial board composition was gathered for nearly two thirds of the titles (65.6%) in the study set. Although not stated in the table, editorial board data was compiled for 63.6% of U.S. journals (82 of 129) and 68.3% of non-U.S. titles (71 of 104). The absence of a publicly advertised editorial board was the most frequent reason data could not be obtained. More than 90% of the 233 titles could be located for direct inspection.

Table 2 tabulates the findings on editorial board composition. Data in parentheses stand for average figures per journal. To illustrate presentation of data in the table's last row, there were 153 journals in the analysis. These titles had an average of 7.3 different countries represented on their editorial boards. There were 4954 editorial board members, equally a mean of 32.4 members per journal: 2063.5 of these were international members, averaging 13.5 per title. Finally, 41.7% of all board members were international members, but the mean international make-up per journal was 45.1%.

It is apparent from Table 2 that international editorial board membership was much higher in genetics (55.7% of all members) than in political science (33.8%) or business (28.5%). In each discipline all three measures of international editorial board composition are strikingly higher for non-U.S. than for U.S. journals: 8.5 versus 6.3 for the average number of countries on a board; 19.5 compared to 8.3 for the mean number of international members; and 74.1% contrasted to 22.1% for the overall proportion of international members.

Table 2. International composition on editorial boards

Discipline	Number of titles	Mean countries per title (mean data per journal given in parentheses)	Total board members (mean data per journal given in parentheses)	Total international members (mean data per journal given in parentheses)	Proportion of international members
Business					
U.S. Titles	25	(5.9)	1258 (50.3)	190 (7.6)	15.1% (14.5%)
Non-U.S.	12	(8.2)	356 (29.7)	270 (22.5)	75.8% (75.8%)
All titles	37	(6.6)	1614 (43.6)	460 (12.4)	28.5% (31.3%)
Genetics					
U.S. Titles	31	(8.5)	1122 (36.2)	382 (12.3)	34.1% (34.9%)
Non-U.S.	40	(9.2)	1163 (29.1)	891.5*(22.3)	76.7% (77.4%)
All titles	71	(8.9)	2285 (32.2)	1273.5(17.9)	55.7% (58.8%)
Political Science					
U.S. Titles	26	(4.2)	710 (27.3)	110 (4.3)	15.5% (16.2%)
Non-U.S.	19	(7.2)	378 (19.9)	258 (13.6)	68.3% (59.7%)
All titles	45	(5.4)	1088 (24.2)	368 (8.2)	33.8% (34.6%)
Total					
U.S. Titles	82	(6.3)	3090 (37.7)	682 (8.3)	22.1% (22.8%)
Non-U.S.	71	(8.5)	1864 (26.3)	1381.5(19.5)	74.1% (70.9%)
All titles	153	(7.3)	4954 (32.4)	2063.5(13.5)	41.7% (45.1%)

* A member with dual institutional affiliation in the country of publication and another country is counted as half an international member.

All three measures varied considerably among the journals in each discipline. The number of international editorial board members ranged from 0 to 96 in business, 0 to 89 in genetics, and 0 to 44 in political science, while the number of countries on the boards ranged from 1 to 19 in business, 1 to 18 in genetics, and 1 to 17 in political science. The proportion of international editorial board make-up varied from 0 to 100% in each subject under investigation.

This paper emphasizes the data on editorial board make-up since the citation measures are readily available from the *Journal Citation Reports*. It should be briefly noted that the impact factor scores ranged from 0.025 to 4.391 with a mean of 0.958 for business titles, 0.119 to 19.220 with a 2.823 mean for genetics journals, and 0.017 to 2.116 with a 0.536 mean for political science. The number of citations received in 1999 ranged from 3 to 4147 with a 820.5 mean for business journals, 6 to 39,351 with a 3458.7 mean for genetics, and 5 to 3154 with a 285.7 mean for political science. The citation scores were generally higher for U.S. journals. The mean impact factors for U.S.

versus non-U.S. titles were 1.117 versus 0.625 in business; 3.377 versus 2.397 in genetics; and 0.631 versus 0.406 in political science. The corresponding ratios for mean total citations were: 930.4 versus 591.6 in business and 396.3 versus 134.4 in political science. In exception to this pattern, non-U.S. genetics journals received a mean of 3489 citations compared to 3416 for their U.S. counterparts.

The results of correlating the three measures of international editorial board composition and the two citation measures upon which this analysis is based are tabulated in Table 3.

Table 3. Correlations between international editorial board composition and *JCR* citation measures

Business journals			
Variables	Pearson's r		
	All	U.S.	Non-U.S.
Number of International Editorial Board Members & Impact Factor	0.07	−0.04	0.71
Number of International Editorial Board Members & Total Citations	0.27	−0.02	0.93
Proportion of International Members on Board & Impact Factor	−0.22	−0.18	0.03
Proportion of International Members on Board & Total Citations	−0.07	−0.16	0.28
Number of Countries on Editorial Board & Impact Factor	−0.13	−0.11	0.09
Number of Countries on Editorial Board & Total Citations	−0.05	−0.07	0.28
Genetics journals			
Variables	Pearson's r		
	All	U.S.	Non-U.S.
Number of International Editorial Board Members & Impact Factor	0.01	0.09	0.07
Number of International Editorial Board Members & Total Citations	0.08	0.13	0.09
Proportion of International Members on Board & Impact Factor	−0.07	−0.12	0.15
Proportion of International Members on Board & Total Citations	0.04	−0.04	0.12
Number of Countries on Editorial Board & Impact Factor	0.01	−0.05	0.09
Number of Countries on Editorial Board & Total Citations	0.02	0.00	0.05
Political science journals			
Variables	Pearson's r		
	All	U.S.	Non-U.S.
Number of International Editorial Board Members & Impact Factor	0.03	0.03	0.31
Number of International Editorial Board Members & Total Citations	−0.14	−0.14	0.30
Proportion of International Members on Board & Impact Factor	−0.16	−0.12	0.08
Proportion of International Members on Board & Total Citations	−0.23	−0.23	0.14
Number of Countries on Editorial Board & Impact Factor	0.09	0.06	0.36
Number of Countries on Editorial Board & Total Citations	−0.10	−0.13	0.58

Examination of the data in Table 3's "All" column (which combines U.S. and non-U.S. journals) shows essentially no correlation between editorial board and citation data. Indeed, nine of the sixteen correlations under this heading are actually negative – although generally quite weak negative correlations. Plotting the data and inspecting the p scores (which were usually quite high) indicated – with the exception of some correlations for non-U.S. business and political science journals – a non-linear relationship between international editorial board membership and the two citation measures. That thirteen of the sixteen correlations for U.S. journals are weakly negative may reflect the fact that U.S. journals (compared to non-U.S. titles and the entire study set) had higher citation scores but lower measures of international editorial board make-up.

All the correlations for non-U.S. journals are positive. However, only three are statistically significant at $p < 0.05$, between: the number of international board members and impact factor for business journals ($r = 0.71$); the number of international board members and total citations received for business journals ($r = 0.93$); and the number of countries on the editorial board and total citations for political science journals ($r = 0.58$). For a variety of reasons, these correlations should be viewed cautiously. The sample sizes for non-U.S. journals are small: 19 for political science, 12 for business. If one extreme case among non-U.S. business journals is removed (*Strategic Management Journal*, which had 96 international editorial board members and ranked first in the category in impact factor at 2.146) the correlation between the number of international board members and impact factor falls to ($r = -0.09$) although the correlation between number of board members and total citations received remains statistically significant at ($r = 0.68$).

Table 4 summarizes the editorial board data for both high and low ranking journals according to citation measures. These were operationally defined as titles that ranked in the top or bottom ten percent in their discipline's ranking by either total citations received or impact factor. Twelve of the 20 top titles (4 from each discipline) were from the U.S., whereas 12 of the bottom 20 (2 from business, 7 from genetics, and 3 from political science) were published outside the U.S.

Table 4 demonstrates that the 20 journals in the top and bottom ten percent of their discipline's citation rankings are not notably different in terms of the number of countries or international members on their editorial boards, but the bottom decile actually has a larger proportion of international membership. Micro analysis of specific titles showed that in all disciplines journals with high as well as low measures of international editorial board composition were located in both the top and bottom ten percent.

Table 4. Editorial board data for journals ranking in the top ten percent and the bottom ten percent in their discipline according to citation measures

Top 10%				
Discipline	Number of titles with data	Mean number of countries on board	Mean number of international members	Mean proportion of international members
Business	5	6.2	25.8	26.6%
Genetics	10	8.5	19.6	60.3%
Political Science	5	5.4	5.7	22.2%
Total	20	7.2	17.7	42.3%
Bottom 10%				
Discipline	Number of titles with data	Mean number of countries on board	Mean number of international members	Mean proportion of international members
Business	5	9.4	16.2	43.9%
Genetics	10	8.0	22.9	53.6%
Political Science	5	3.8	7.6	54.0%
Total	20	7.3	17.4	51.3%

For example, among top ranking genetics titles *Gene* had a 100% international configuration on its editorial board whereas *Gene Therapy* had an 8.5% international make-up. In the bottom tier of genetics journals, *Genetic Counseling* had a 100% international configuration on its editorial board contrasted to 0% for *Genetics in Medicine*.

Conclusions

This study has relevance for journal evaluation, international scholarly communications, and the analysis of journal editorial boards. However, any conclusions must remain tentative until more research is conducted.

The findings demonstrate the extensiveness of international presence on scholarly journal editorial boards although there is wide variation by discipline and place of publication. It is noteworthy that international editorial board composition is much higher in genetics than in the two social science subject areas – a finding that was particularly pronounced for journals published in the U.S. One is tempted to speculate this reflects the nature of the subject matter and the historical development of the three disciplines – political science and business are newer areas more centric to the U.S. That

in each discipline all three measures of international editorial board make-up are higher for U.S. than for non-U.S. journals is not surprising and may reflect among other factors the U.S.'s larger size and dominant position in scholarship.

One can not conclude, based on the data gathered for this project, that international composition on a journal's editorial board is a marker of higher journal quality or impact as indicated by traditional citation measures. International participation on editorial boards may be so pervasive that it does not necessarily distinguish high and low quality journals. Yet one can not reject the possibility that for non-U.S. social science journals the extent of international influence on the editorial board is associated with better quality. Additional investigation is required to determine whether the few statistically significant positive correlations between some editorial board and citation measures for non-U.S. business and political science journals are an artifact of this particular study or an indication of a genuine phenomenon that might lead to the development of decision rules for evaluation of non-U.S. journal titles.

Further research

Some questions for further research include: What results would be found in other disciplines or professional fields? Would results differ if each U.S. state were treated as a separate country? Would different patterns be observed on the editorial boards of electronic journals? What longitudinal trends would appear, if data were gathered retrospectively at 5 year intervals? What is the association between international editorial board composition and journal ranking by subjective judgement of experts rather than citation measures? What characteristics other than country of publication distinguish journals with high and low international composition on their editorial boards? Can cross national networks of editorial board membership be identified? If so, what is their significance?

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