



Journal editorship index for assessing the scholarly impact of academic institutions: An empirical analysis in the field of economics



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ABSTRACT

Assessing the scholarly impact of academic institutions has become increasingly important. The achievements of editorial board members can create benchmarks for research excellence and can be used to evaluate both individual and institutional performance. This paper proposes a new method based on journal editor data for assessing an institution's scholarly impact. In this paper, a journal editorship index (JEI) that simultaneously accounts for the journal rating (JR), editor title (ET), and board size (BS) is constructed. We assess the scholarly impact of economics institutions based on the editorial boards of 211 economics journals (which include 8640 editorial board members) in the ABS Academic Journal Guide. Three indices (JEI/ET, JEI/JR, and JEI/BS) are also used to rank the institutions. It was found that there was only a slight change in the relative institutional rankings using the JEI/ET and JEI/BS compared to the JEI. The BS and ET weight factors did not have a substantial influence on the ranking of institutions. It was also found that the journal rating weight factor had a large effect on the ranking of institutions. This paper presents an alternative approach to using editorial board memberships as the basis for assessing the scholarly impact of economics institutions.

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1. Introduction

Scholarly impact refers to how much an academic institution contributes research outcomes for the advancement of scientific knowledge and for the production of benefits for society, culture, and the environment (Moed & Halevi, 2015). Assessing an academic institution's scholarly impact has become increasingly important because government agencies and funding bodies rely on evaluation scores to allocate limited resources for research. As a measure, scholarly impact embraces both qualitative and quantitative methodologies, including the application of bibliometric indicators and peer review. Data sources used to evaluate institutional scholarly impact are publications, citations, patents, collaborations, and levels of expertise of the individuals within the institution.

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In addition to these measures of prestige, the achievements of editorial board members can create benchmarks for research excellence and can be used to evaluate both individual and institutional performance (Frey & Rost, 2010; Hardin, Beauchamp, Liano, & Hill, 2006; Lahiri & Kumar, 2012; Lu, Li & Wu, 2018). The editors of the top journals are individuals who have a higher academic level of influence and act as gatekeepers for scientific studies in their subject field. If an institution has a prestigious reputation, the faculty from that institution are more likely to be selected to serve on an editorial board. Data sources regarding editorial board membership present at least three advantages for assessing the scholarly impacts of academic institutions (Braun, Dióspatonyi, Zádor, & Zsindely, 2007):

- (a) The appointment of editorial board members of a journal is often based on high standards that reflect aspects of scientific quality. Additionally, counting the number of editorial board members is a simple quantitative approach.
- (b) The identification of editorial board members of the premier journals is straightforward and unequivocal.
- (c) Indicators based on journal editorship offer a new perspective compared with the most commonly used publication counts and citations to assess the institutional impact. These indicators provide a supplement to the current ranking results of academic institutions' scholarly impacts.

Some studies have used editorial board data to assess the scholarly impact of academic institutions. For example, Urbancic (2011) ranked the academic standing of universities based on faculty representation on the editorial boards of business education journals. Chan, Fung, and Lai (2005) ranked international business institutions based on the editorial board membership of 30 leading international business journals. Chan and Fok (2003) used membership representation to rank finance departments, adjusted for department size and journal quality. They concluded that the number of faculties represented on editorial boards of quality journals indicates a finance department's quality. Trieschmann, Dennis, Northcraft, and Nieme (2000) showed that there is a correlation between annual business school rankings and editorial board memberships. These studies build on research by Kaufman (1984) in finance, Gibbons (1990) in statistics, Mittermaier (1991) in accounting, and Gibbons and Fish (1991) in economics. Several studies have also used editorial board membership to evaluate the scholarly impact of different academic programmes. For example, Urbancic (2004) assessed the research reputations of real estate programmes using editorial board memberships.

Although editorial board membership is an appropriate data source for evaluating the scholarly impact of academic institutions, the following questions have received little attention in previous studies:

- (a) Since the quality of a journal influences the reputation of editorial board members, how can the journal's quality be accounted for in an editorial board index?
- (b) Considering that editorial board size influences the reputation of editorial board members, how can the influence of the editorial board size on institutional assessment be identified?
- (c) As the title of an editorial board member influences the reputation of the board member, how can the influence of different editor titles be assessed?

In this paper, a new and comprehensive index, the journal editorship index (JEI), is proposed to measure research excellence and evaluate institutional reputation. This index considers multiple elements of a journal, including the size of the editorial board, the journal rating, and the editors' titles. Then, we use the new index to assess institutions in the economics field based on editorial board data. We focus on economics for the following two reasons. First, there are acknowledged academic communities and prominent journals within the field of economics (Beaulier, Elder, Han, & Hall, 2016; Jin & Hong, 2008). Thus, it is convenient to obtain credible editorial board data to conduct the empirical research. Second, a large number of studies focus on the rankings of economics institutions using bibliometric data, based on publications or citations. This study constructed a new indicator based on editorial board membership and used this indicator to rank economics institutions. It is convenient to compare the ranking lists that are based on different methods.

The paper is organized as follows. Section 2 reviews three key considerations when using journal editorship data sources. The journal editorship index (JEI) is introduced in Section 3. Section 4 describes the data used in the empirical study and the results of the empirical study. Section 5 provides the study's major Conclusions and discussion. The final part of the report details the study's limitations and proposes suggestions for future research.

2. Key variables

In this section, we introduce how editorial board data samples were selected and treated, regarding each factor that affects rankings based on editorial board representation.

2.1. Selecting high-quality journals

There are usually two approaches for selecting high-quality journals: one method is to consider what earlier studies have documented as prime research outlets, and the other method is to examine the journal's impact (Chan & Fok, 2003; Hardin, Liano, Chan, & Fok, 2008; Urbancic, 2011). The first approach treats all the selected journals equally without considering the journal tier. In the second approach, the journals are categorized according to impact factors. However, this approach is

limited in that a high citation rate of a journal does not equate to a high citation rate of the journal's papers. This method does not consider the different citation habits of authors in various fields and subfields, the accessibility of citations (e.g., easily available papers are cited more often), and the inclusion of self-citations. Therefore, it is questionable whether these two methods can be used to determine the leading journals, as these approaches can bias an institutional ranking. Wu, Li, Zhu, Song, and Li (2015) proposed the journal rating adjusted publications (JRAP) index to rank institutions using the journal rating from the ABS Academic Journal Guide.

The ABS Academic Journal Guide is a widely accepted journal list in the business and management field and reflects the perceptions of reputable editors, scientific committees, and experts (Thomas, Morris, Harvey, & Kelly, 2009; Xu, Liu, & Rousseau, 2015). The journal list and the journal rating in the ABS Academic Journal Guide are produced using the combination of quantitative analysis and qualitative judgement. First, a number of subject experts confirm the original journal scope. Second, journal metrics from the impact factor, the SCImago journal rank, and the SNIP are selected to evaluate the journal quality. Third, the evaluations are again conducted by subject experts. After agreements have been reached by the scientific committee members and editors, the journals in the guide are assigned a rate (Hussain, 2013).

In the ABS Academic Journal Guide, the quality of a journal can be measured by one of five ratings: 4*, 4, 3, 2, and 1, with lower values indicating lower quality and vice versa. The definitions of each rate are as follows: A journal rating of 4 or 4* indicates that the journal is an elite world journal; 3-rated journals are highly regarded; 2-rated journals publish research of an acceptable standard; and the last class of journals, 1, publishes research with a more modest standard (Hussain, 2013; Thomas et al., 2009). These journals on the ABS list have also been considered leading journals in previous department rankings (Andrikopoulos & Economou, 2015; Frey & Rost, 2010; Lee, Cronin, McConnell, & Dean, 2010).

2.2. Counting the size of the editorial board

The editorial board size has an enormous impact, both on the appropriate representation of board membership and on the institution ranking (Burgess & Shaw, 2010; Harzing & Metz, 2013). The board memberships reflect the research communities as well as the academic reputation. Several researchers have studied the increasing size of journal editorial boards and have come to opposing conclusions. Some researchers show that larger editorial boards indicate declining elitism, while others argue that larger research communities reflect the growth in management as a subject and the expansion of boards to cope with the increased number of journal submissions (Burgess & Shaw, 2010; Harzing & Metz, 2013; Metz & Harzing, 2009). As a board size varies from three to 172 members (e.g., *Journal of the American Statistical Association*), it is unknown whether economic journals' board sizes exacerbate over-representation or under-representation and thus bias the relative ranking of some institutions (Urbancic, 2011). Unfortunately, few studies examine this feature.

2.3. Dealing with differences in editor titles

Among different journals, there are various editor positions, including the editor, managing editor, board member, advisory editor, and more. The lack of uniformity in the similar positions' terms across journals can lead to problems, both in assessing the editor's influence and in assessing institutional quality (Frey & Rost, 2010). Additionally, within an editorial board, editor titles reflect different academic reputations and standings. Frey and Rost (2010) showed that with some journals, all of the editors are concerned with the practical management of the journal rather than with academic contributions, or the entire board consists of co-editors or advisory editors. Thus, members of a journal editorial board are not necessarily equal in the gatekeeper process. Some members may review more papers than other members (Urbancic, 2011). However, differences in editor titles are not reflected in the current studies on institution ranking.

3. Editorial board data from the ABS Academic Journal Guide

The ABS Academic Journal Guide is a widely accepted journal list in the business and management field. There are 22 subfields in the guide, and economics is the largest subfield. Among the 1385 journals in the guide, 315 journals are categorized as belonging to the economics subfield, accounting for 22.74% of the total. This paper focuses on the editorial board of economics, so the journal list with the journal rating of the economics subfield in the ABS Academic Journal Guide was chosen as the journal sample in this study.

The latest ABS Academic Journal Guide released in 2015 defines each journal rating and indicates that journals with a rating of 2 publish research of an acceptable standard, which means that journals with a rating below 2 may publish research of a more modest standard in the economics field. Therefore, class 1 journals in the ABS were excluded in this study to confirm the quality of journals and reputable editors. The other four categories (2, 3, 4 and 4*) of the journals were used in our sample. Finally, we selected 211 journals in the field of economics, econometrics, and statistics rated 2 or above in the ABS Academic Journal Guide to rank institutions in the subject area of economics.

We consulted the homepage of each journal and collected the names of persons who serve as editors, co-editors, board members, honorary board members, and so on. To identify the economists who serve at more than one institution, the data were checked by consulting the person's website. Some misspellings of the names, institutions, or countries were corrected. If a person served on more than one journal, he or she was counted as many times as his or her name appeared because this study focused on institutional rankings rather than individual rankings. The final sample included 8640 people from

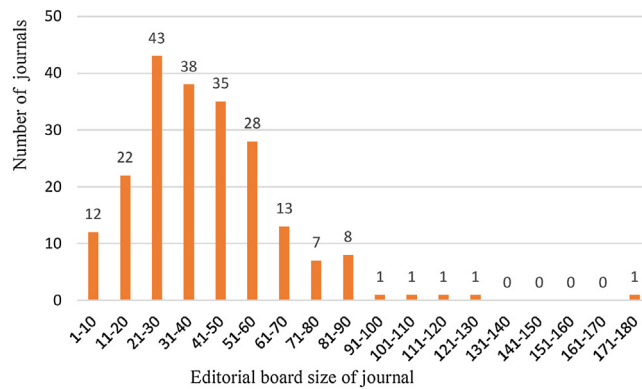


Fig. 1. The distribution of editorial member size.

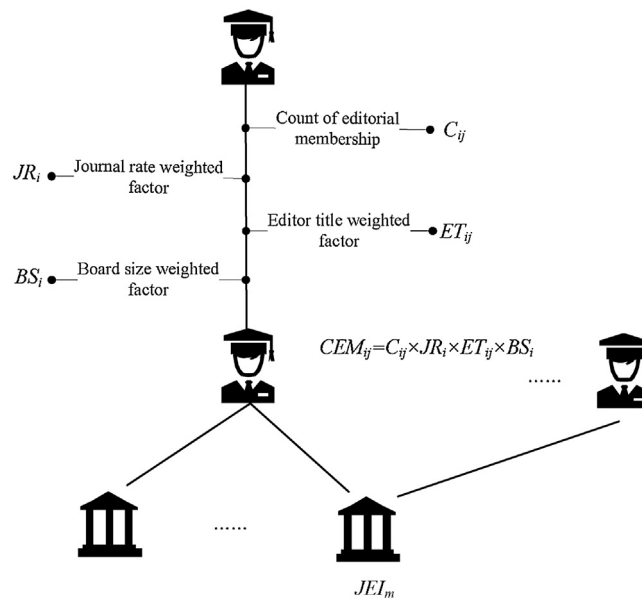


Fig. 2. How the journal editorship index is constructed.

1424 institutions; 1358 of these people (20.28%) had multiple board memberships. The distribution of editorial board size is shown in Fig. 1.

As shown in Fig. 1, the journal’s editorial board size distribution was skewed. Most of the journals had an editorial board that contained between 20 and 30 people. The total editorial board of the 211 journals included 8640 people, and the average editorial board size was 41 people.

4. Construction of the journal editorship index

To address shortcomings in the application of the editorial board method for assessing academic institutions, a new index, the journal editorship index (JEI), was developed. The index is described in detail in Fig. 2.

4.1. Counting the score of each editor (CEM)

In previous studies, the count of editorial board members was the primary index for determining the number of editorial board members (Chan & Fok, 2003). We assumed that the score of each editor was influenced by her/his editor title, the rating of the journal she/he served, and the board size of the journal. Therefore, the influences of the editor title, journal rating, and the board size were treated as weight factors, and a comprehensive index based on editorial board membership was constructed. First, the index score of each editorial board member (CEM) was computed using the following equation:

$$CEM_{ij} = C_{ij} \times JR_i \times ET_{ij} \times BS_i \tag{1}$$

Table 1

The number of journals and number of editorial board members within a different journal rating.

Journal rating	Number of journals	Number of editorial board members
2	120	4591
3	68	2872
4	17	871
4*	6	306
Total	211	8640

where $C_{ij} = 1$ if j is an editorial board member for the journal i , and otherwise, $C_{ij} = 0$. The JR_i indicates the journal rating weight factor of the journal i ; the ET_{ij} indicates the editor title weight factor of the editor j in the journal i , and the BS_i indicates the board size weight factor of the journal i .

4.1.1. Journal rating weight factor (JR)

Traditionally, using the count of the editorial board memberships index to rank institutions was based on the assumption that each editor had the same academic reputation regardless of the journal rating (Braun et al., 2007; Gibbons & Fish, 1991). However, researchers have realized that the different rates of the journals will generate different levels of influence, and some researchers have tried to count the influence of the journal rating. However, determining the journal rating weight is always a problem. Chan et al. adopted the impact factor of the journal as the journal rating weight (Chan & Fok, 2003; Chan et al., 2005), and Wu et al. treated the journal rating in the ABS Academic Journal Guide as the weight (Li, Wu, Li, & Li, 2017; Wu et al., 2015), which provided inspiration for subsequent research.

In this study, we counted the journal rating weight by considering the journal's prestige and the degree of difficulty of being an editor of the journal. A high-prestige journal should be assigned a heavy weight. We treated the journals with a 2 rating in the ABS Academic Journal Guide as the baseline and assigned the weight as 1. The journals with ratings of 3, 4 and 4* were assigned a relatively heavy weight according to the result of a comparison with a journal with a 2 rating. The number of journals and the number of editorial board members along with the different journal ratings can be seen in Table 1.

According to Table 1, the number of journals with a rating of 4 was 17, which is 2.8 times higher than the number of journals with a rating of 4*. Similarly, the ratio of journals with ratings of 3 and 2 to the journals with a rating of 4* were 11 and 20, respectively. The larger the ratio is, the less prestige the journal has. We calculated the ratio of the number of editorial board members along with the different journal ratings and reached a similar conclusion. Therefore, based on the baseline weight, we set the journal rating weight factor as follows.

$$JR_i = \begin{cases} 16 & \text{journal rated 4* in the ABS Journal Guide} \\ 9 & \text{journal rated 4 in the ABS Journal Guide} \\ 4 & \text{journal rated 3 in the ABS Journal Guide} \\ 1 & \text{journal rated 2 in the ABS Journal Guide} \end{cases} \quad (2)$$

4.1.2. Editor title weight factor (ET)

All editor titles were unified and divided into four classes according to their reputation and academic role. The first class of editor is responsible for the final validation of manuscripts and includes the Chief Editor, Editors-in-Chief, Chair, Editor, and so on. The second class of editor is responsible for assisting the editor in completing the validation of manuscripts and includes the titles of Co-editor, Co-Chairman, Vice President, Senior Associate Editors, Area Editor, Associate Editors, and so on. The third class of editor is responsible for assisting the editor or the associate editor in contacting the reviewers to review the manuscripts and includes board member positions such as Editor Panel, Editorial Board, Panel Members, and so on. The fourth class of editor is concerned with the advisory or management work of the journal and less with its academic content and includes positions such as honorary board members, advisory board, editor advisory council, and so on. The managing editors manage the journal and were placed in the fourth category.

It is important to determine the editor title weight according to the prestige of different editor categories. Giméneztoledo, Románromán, Perdiguero, and Palencia (2009) surveyed the character of each editor type and found that the majority of journals had the same structure: a chief-editor category, a co-editor category, and a board member category. The chief-editor manages the editorial process and is treated as the most prestigious editor in a journal. The co-editor category is responsible for assisting the editor in validating the manuscripts, so its prestige is less than the chief-editor category but more than the board member category. We calculated the number of editorial board members within different editor categories, which is shown in Table 2.

According to the statistical result in Table 2, the number of members in the co-editor category was approximately 1.5 times the number of members in the chief-editor category, which may indicate that the weight of the chief-editor category should be 1.5 times the weight of the co-editor category. The statistical results also show that the board member category was the most frequent category for editorial board members. We regarded the board member category as a baseline and set its weight as 1. We set the weight of the co-editor category as 2, considering its relative prestige to the baseline. The weight of the chief-editor category was set as 3, according to the result of a comparison with the co-editor category. Traditionally, the honorary board member category is excluded from the calculations. Because their contributions to academic publishing

Table 2
The number of editorial board members in different editor categories.

Editor category	Number of editorial board members
Chief-editor category	414
Co-editor category	614
Board Member category	7136
Honorary Board Member category	485
Total	8640

Table 3
The statistical results of journal board size.

Quantiles	Interval of board size	Number of journals
Below 33.3%	[3, 28]	70
33.3%–66.6%	[29, 46]	71
Above 66.6%	[47, 172]	70

should also be recognized, honorary board members were included in the current study’s ranking but contributed a low weight to adjust for the index. Finally, the *ET* weight factor is defined as follows.

$$ET_{ij} = \begin{cases} 3 & \text{Chief-editor category} \\ 2 & \text{Co-editor category} \\ 1 & \text{Board Member category} \\ 0.5 & \text{Honorary Board Member category} \end{cases} \quad (3)$$

4.1.3. Board size weight factor (*BS*)

The editorial board size influences the prestige of the editor. The relevant research realized this problem and adopted corresponding measures. [Bedeian, Fleet, and Hyman \(2008\)](#) used a random sampling method to extract an equal number of editors from the journals with a larger scale editorial board to reduce the impact of the editorial board size on the results. When calculating the significance of editors, [Frey and Rost \(2010\)](#) assumed the total significance of a journal was equal to 1 and set the significance of each editor as $1/n$ (n is the number of similar editors within the same journal). Smaller boards might reflect smaller research communities, and the editor of a smaller board should reflect a higher weight. Among the 211 economic journals, the smallest board was the *Review of Agricultural Economics* with three members, and the largest board was the *Journal of the American Statistical Association* with 172 members. According to the method adopted by Frey and Rost, the editor of the *Journal of the American Statistical Association* only received a $1/172$ significance rating, which in our opinion, was too small compared to the editor of the *Review of Agricultural Economics*, who received a $1/3$ significance rating ([Frey & Rost, 2010](#)).

The journal’s editorial board size distribution can be seen in [Fig. 1](#), which indicates that the distribution is skewed. Therefore, a quantile-weighted method was used to set the board size weight. We divided the 211 journals into three groups according to the board size, below 33.3%, between 33.3% and 66.6%, and above 66.6%. [Table 3](#) shows the statistical results of the journal board size.

We regarded the quantiles between 33.3% and 66.6% as the baseline and set the weight to 1. The editors with smaller boards were set at a higher weight. Therefore, the weight of editors belonging to the quantiles below 33.3% was set at 1.2, and the weight of editors belonging to the quantiles above 66.6% was set to 0.8. Board size weights were set as follows.

$$BS_i = \begin{cases} 1.2 & \text{the journal board size is below the 33.3\% quantile} \\ 1 & \text{the journal board size is between the 33.3\% and 66.6\% quantile} \\ 0.8 & \text{the journal board size is above the 66.6\% quantile} \end{cases} \quad (4)$$

4.2. Calculate the journal editorship index score of institutions

The score of editor j of journal i for institution m is denoted by IFP_{ijm} and is given by:

$$IFP_{ijm} = \begin{cases} \frac{CEM_{ij}}{T_{ij}} & \text{if editor } j \text{ of journal } i \text{ belongs to institution } m \\ 0 & \text{if editor } j \text{ of journal } i \text{ doesnot belong to institution } m \end{cases} \quad (5)$$

Table 4
The top 20 countries and their editorial board memberships.

Rank	Countries	\sum Editor titles				Total number of editorial board memberships
		Chief-editor	Co-editor	Board Members	Honorary Board Member	
1	USA	205	318	3473	185	4181
2	UK	74	98	764	91	1027
3	Germany	17	23	286	17	343
4	Canada	13	18	243	12	286
5	France	14	12	236	13	275
6	Australia	14	25	188	17	244
7	Netherlands	13	8	182	16	219
8	Italy	8	12	159	10	189
9	China	4	15	129	7	155
10	Spain	2	9	131	4	146
11	Switzerland	7	8	123	5	143
12	Japan	3	6	93	6	108
13	Israel	3	5	87	6	101
14	Sweden	4	7	77	6	94
15	Belgium	2	2	84	6	94
16	Denmark	9	4	65	1	79
17	Austria	1	6	61	3	71
18	Norway	1	4	46	2	53
19	India	1	1	45	0	47
20	Singapore	2	2	39	0	43

T_{ij} is the number of institutions that the editor j of journal i belongs to. If he or she belongs to multiple institutions, each institution receives an equal score. The total score of each institution is summed, yielding a JEI_m score for the institution m that is given by:

$$JEI_m = \sum_{i=1}^n \sum_{j=1}^{p_i} IFP_{ijm} \quad (6)$$

n is the number of journals, and p_i is the number of editors in the journal i . JEI_m is calculated by considering the editors belonging to the institution m and summing their IFP score.

5. Empirical analysis in the economic field

5.1. Ranking results for board membership

In this section, the overall institutional distribution and country ranking in the field of economics is analysed. Then, the ranking of institutions based on the JEI index is proposed. Further comparisons of rankings based on four other indices are provided.

5.1.1. Overall analysis of editorial board members worldwide

Table 4 presents the results of the country rankings. We did not add other factors, such as population, in this list. The table shows the first 20 countries according to the number of board positions held by scholars active in the various countries. It shows the number of editors per country (\sum Board Membership) and the resulting ranking as well as the number of each category of editor title per country. The top five countries with the largest board memberships were the U.S. (4181), the UK (1027), Germany (343), Canada (286), and France (275). The U.S. led in the economics profession, with the largest number of board memberships. Non-US institutions included 4117 board memberships, which was competitive with the 4181 memberships in the U.S.

5.1.2. Institutional ranking based on editorial board membership

Table 5 provides a ranking of institutions applying the JEI indicator to 211 economics journals. Only the top 20 rankings are presented in Table 5. Columns (3)–(6) provide the number of editorial board memberships across the four types of editor titles and the number of editors across different journal ratings. These factors contributed to developing the JEI score. In Table 5, the US accounted for 80% of the top 10 institutions and the percentage in the top three was 100, suggesting the leading role of US institutions in international economics research. The top three US institutions have a higher average both on the number of editorial board memberships and the number of editors across different journal ratings, especially the numbers on journals rated 4* or 4. For example, there were 147 editorial board memberships and 33 editorial board members at Harvard University, and 135 memberships and 34 at Stanford University. Although the number of editorial board memberships was 118 at the University of Chicago, the number of editors was 39, rating first in these universities.

Table 5
The first 20 institutions: editorial board memberships and number of journals per rating.

Rank	Institutions	\sum Editor titles				\sum editorial board membership of different journals				JEI	U.S. News and World Report ranking as of 2017	Frey and Rost (2010) ranking (p. 18) (range: 1–20)
		I	II	III	IV4*	4	3	2				
1	University of Chicago	7	12	90	9 19	20	42	37	836.1	6	8	
2	Harvard University	12	7	121	7 12	21	57	57	832.8	1	1	
3	Stanford University	8	9	111	7 15	19	54	47	721.1	3	2	
4	London School of Economics	8	16	107	9 15	15	60	50	698.4	9	6	
5	University of Pennsylvania	11	8	76	4 5	30	30	34	585.8	4	3	
6	Northwestern University	6	7	82	3 15	18	36	29	585.7	13	4	
7	Columbia University	2	9	105	8 8	21	49	46	557.8	8	11	
8	Yale University	4	13	83	4 11	14	42	37	539.5	11	14	
9	University of Oxford	12	13	82	114	10	39	65	491.4	10		
10	New York University	5	12	70	4 8	13	34	36	461.1	7	7	
11	Massachusetts Institute of Technology	2	11	73	3 8	11	39	31	438.0	2	5	
12	Princeton University	3	5	58	5 10	13	27	21	430.1	15	15	
13	University of Michigan	5	1	84	4 4	22	31	37	411.9	12	8	
14	Duke University	4	9	69	2 5	16	30	33	376.6	16	10	
15	University of California at Berkeley	3	7	78	6 1	16	35	42	368.8	5	9	
16	Cornell University	8	7	75	4 4	15	30	45	364.0	20	19	
17	University College London	0	5	45	8 9	15	23	11	342.2	34		
18	University of California at Los Angeles	1	2	59	3 7	10	25	23	305.7	22		
19	University of California at San Diego	1	7	48	2 3	14	28	13	286.2	35		
20	University of Wisconsin at Madison	6	3	39	8 3	8	24	21	269.5	55		

Note: I: Chief-editor category; II: Co-editor category; III: Board member category; IV: Honorary board member category. The ranking based on the JEI.

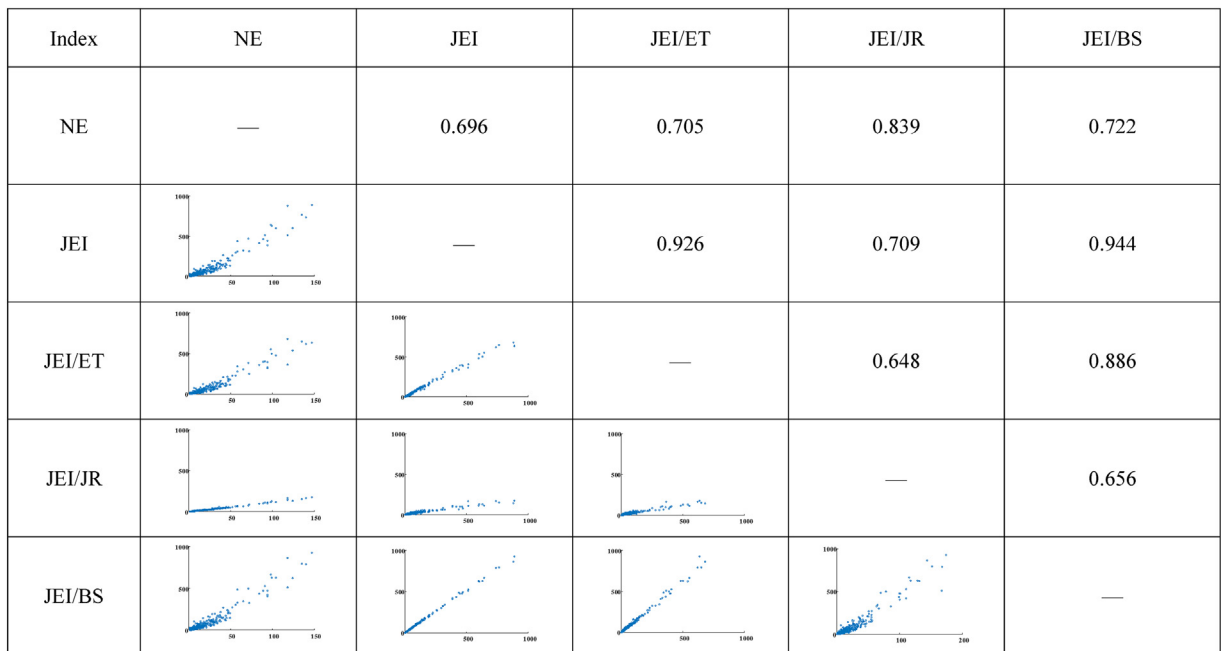


Fig. 3. Correlation models of five indices. The value of each index is on the x and y-axis, including the NE index, JEI index, JEI/ET index, JEI/BS index, and JEI/JR index. NE is the count of editorial board memberships. JEI/ET is the journal editorship index but not weighted by the editor title factor. JEI/JR is the journal editorship index but not weighted by the journal rating factor. JEI/BS is the journal editorship index but not weighted by the board size factor.

To validate the applicability of the ranking results in Table 5, other ranking results were employed to compare with the JEI results. The institutions' rankings provided by *U.S. News and World Report* regarding the best global universities for economics and business are presented, which focus on the research performance, paper citing, faculty resources, and alumni giving of an institution (Gnolek, Falciano, & Kuncel, 2014). The ranking results released by the *U.S. News and World Report* in 2017 were used to compare to the rankings derived from this study. Column 12 of Table 5 indicates that these publications' rankings differ from those of this study. Among the first 20 institutions in the JEI ranking, four institutions (University College London, University of California at Los Angeles, University of California at San Diego, and University of Wisconsin at Madison) were not included in the first 25 institutions provided by the *U.S. News and World Report*. Additionally, there are some significant differences between this study's rankings and those of the *U.S. News and World Report*. For example, the London School of Economics, which ranked 4th in this report, ranked 9th in the *U.S. News and World Report*.

The final column of Table 5 presents the recent rankings of economic institutions based on a study by Frey and Rost (2010). Their rankings were based on journal board membership. However, they used the impact factor to adjust for journal quality and did not consider the weight of editor titles. These methods are quite different from those of the current study.

5.2. Comparison with rankings based on five indices

Table 6 details three new rankings for institutions adjusted using the journal editorship index (JEI/ET, JEI/JR, and JEI/BS). JEI/ET is the journal editorship index but not weighted by the editor title factor. JEI/JR is the journal editorship index but not weighted by the journal rating factor. JEI/BS is the journal editorship index but not weighted by the factor of board size. We also listed the rankings based on the JEI to compare with each ranking. According to Table 6, a dramatic shift in rankings for some institutions can be observed when using the JEI/JR as the ranking index. For example, the University of Chicago ranked 1st when using the JEI and the JEI/ET indices and ranked 5th when using the JEI/JR and number of editors (NE) indices, but ranked 2nd when using the JEI/BS index.

Kendall's tau rank correlation coefficient (τ) was used to explore the relationship between each pair of indicators. Kendall's τ is a non-parametric coefficient and is appropriate for the skewed data used in this paper. Kendall's τ is widely used to compare multiple bibliometric indicators. For example, Finardi and Wildgaard used Kendall's τ to compare bibliometric indicators (Finardi, 2013; Wildgaard, 2015). Fig. 3 presents the rank correlation analyses among various rankings based on the JEI, JEI/ET, JEI/JR, and JEI/BS indices. As shown in Fig. 3, the correlation coefficients in the NE, JEI/ET, JEI/JR, JEI/BS, and JEI indices are strong. The coefficients of four pairs of indicators are >0.8 , those of three pairs of indicators are >0.7 , and those of three pairs of indicators are >0.6 . The JEI/JR index has a moderate correlation with the NE (0.696), JEI/ET (0.648), and JEI/BS (0.656) indices. This indicates that the journal rating is relatively highly sensitive in the procedure employed for institutional rankings compared with other weighting factors. This is evident from the institutional ranking results in Table 6. The ranking was altered by a switch in positions when using the journal rating weight factor.

Table 6

Top 20 rankings of institutions across different indices.

Rank	Institutions	JEI	NE	Rank (Based on NE)	JEI/ET	Rank (Based on JEI/ET)	JEI/JR	Rank (Based on JEI/JR)	JEI/BS	Rank (Based on JEI/BS)
1	University of Chicago	836.1	118	5	657.4	1	136.3	5	847.0	2
2	Harvard University	832.8	147	1	612.0	3	165.4	1	887.5	1
3	Stanford University	721.1	135	3	621.0	2	147.9	4	780.5	3
4	London School of Economics	698.4	140	2	600.2	4	156.7	3	772.5	4
5	University of Pennsylvania	585.8	99	8	468.0	7	122.7	7	628.0	6
6	Northwestern University	585.7	98	9	510.2	5	108.9	9	659.0	5
7	Columbia University	557.8	124	4	505.6	6	125.8	6	608.5	8
8	Yale University	539.5	104	7	442.2	8	109.7	8	627.0	7
9	University of Oxford	491.4	118	5	369.6	11	157.4	2	485.0	11
10	New York University	461.1	91	13	365.6	12	102.3	11	524.5	9
11	Massachusetts Institute of Technology	438.0	89	14	376.8	9	94.8	14	474.5	12
12	Princeton University	430.1	71	16	360.6	13	73.5	16	487.0	10
13	University of Michigan	411.9	94	10	370.8	10	95.0	13	471.0	13
14	Duke University	376.6	84	15	333.6	15	93.5	15	421.5	14
15	University of California at Berkeley	368.8	94	10	308.4	17	96.8	12	407.5	16
16	Cornell University	364.0	94	10	316.0	16	104.0	10	418.0	15
17	University College London	342.2	58	18	333.8	14	53.0	20	397.5	17
18	University of California at Los Angeles	305.7	65	17	292.2	18	62.6	18	342.0	18
19	University of California at San Diego	286.2	58	18	258.4	19	59.2	19	327.0	19
20	University of Wisconsin at Madison	269.5	56	20	217.2	20	63.2	17	295.0	20

6. Conclusions and discussion

This paper developed a new index, called the JEI index, to rank 1422 economic institutions, based on 8725 individuals from the editorial board memberships of 211 journals in the ABS Academic Journal Guide. Different from the most commonly used bibliometric indices which focus on the scientific output, the JEI index brings a new vision for institutional rankings. It starts from the perspective of the scientific research personnel, considering the influence of the journal rating, editor titles, and editorial board membership size. These factors represent the prestige of an institution and represent the academic reputations of an institution's scientific staff (Chan et al., 2005).

Ranked using the JEI index, the top five economic institutions were the University of Chicago, Harvard University, Stanford University, the London School of Economics, and the University of Pennsylvania. The JEI rankings and the rankings provided by *U.S. News and World Report* were compared, and significant ranking differences for some of the academic institutions were found. The *U.S. News and World Report* calculates the rankings using multiple indicators, such as citations, publications, books, conferences, research reputation and so on, all categorized to citation and publication measures. Different from the view of scientific outputs using bibliometric indicators such as citations and publications, the JEI rankings focus on the scientific research personnel, considering the influence of journal rating, editor titles, and editorial board membership size. The differences between these two perspectives imply that the JEI rankings provide a supplement to the existing rankings of academic institutions (Frey & Rost, 2010).

This study suggests that multiple measurements should be considered in the institutional evaluation and that the membership of editorial boards should not be disregarded. The JEI rankings were also compared with Fred and Rost's (2010) rankings, which were also based on the membership of editorial boards. In their index, some influential factors such as journal ratings, editor position, and board size were not considered. Thus, institution rankings vary depending on the measurement approach that is adopted. The inconsistencies of institution rankings need to be considered when researchers interpret institution rankings and when institutional administrators use rankings to make managerial decisions for fundraising and faculty promotion.

The results in Table 5 and Fig. 3 show that rankings based on the NE, JEI/ET, and JEI/BS indices have a high correlation with the JEI, while the JEI/JR index has a moderate correlation with the JEI and other indices. Therefore, it can be concluded that journal rating is a more important factor than the other factors in the JEI index.

7. Limitations and future research

This paper proposed a new index called the JEI to rank economic institutions using the information of editorial board memberships. The empirical study indicated that using editorial board membership provides complementary information for assessing the scholarly impact of economics institutions.

However, editorial board membership is not a perfect ranking criterion. For example, factors such as time limitations and personal preferences for specific journals will cause many experts to choose not to join the editorial board of certain journals (Chan & Fok, 2003; Chan et al., 2005). In this case, editorial board memberships provide incomplete information and using it as the proxy for assessing the scholarly impact of academic institutions creates bias. Therefore, when using editorial boards to measure the scholarly impact, future studies should focus on the following aspects.

First, more research is needed on how to obtain information about editorial board members. Editors are responsible for the quality of journals, and high-quality journals will help to enhance their affiliated institution's reputation. Due to talent flow and the part-time work of the editors, the editorial information from the journal website may not reflect the actual situation. Therefore, by searching for more personal information, such as the editors' names, research area, current research specialty, and affiliations, a better assessment can be made of the editors' academic reputation as well as that of their affiliated institutions.

Second, it is interesting to study the duration of editorial board memberships. This study only provides a snapshot of editorial board membership at one point. In the future, how board membership changes over time may be investigated.

Third, a more systematic approach is needed for determining the weights of the indicators included in the construction of the JEI (i.e., journal rating, editor title, and board size). In this paper, the weights of each factor were assigned based on statistical considerations. However, the weights were, to some extent, arbitrary. Alternative weight assignment schemes should be designed and compared in future studies.

Author's contribution

Dengsheng Wu: Conceived and designed the analysis; Contributed data or analysis tools; Performed the analysis; Wrote the paper.

Jing Li: Collected the data; Wrote the paper.

Xiaoli Lu: Collected the data; Performed the analysis; Wrote the paper.

Jianping Li: Conceived and designed the analysis; Wrote the paper.

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