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Efficiency evaluation and ranking of Iranian accounting Journals: A –DEA based approach

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Abstract Data Envelopment Analysis (DEA) as a data-oriented non parametric method is commonly used for evaluating the efficiency of a group of decision-making units (DMUs) with multiple inputs and outputs. This paper aims to analyze the possibility of measuring the performance of Accounting Journals by DEA models and propose a ranking for a set of Journals. This study constructed traditional radial DEA models where the outputs are number of included articles, number of Volume and number of issues. Three indicators are also introduced as inputs, namely, Published Articles, time to accept and acceptance rate. The data set for study is included internal Iranian Accounting Journals in the year of 2024. The results are illustrated in the set of 31 journals from the internal Iranian web sites. Employing the input/output oriented standard DEA models can be a useful method to amend the best operating Journal in the selected sample. To sum up, running super-efficiency models prevail the top-ranked journal among the selected sample.

Keyword*:* Data Envelopment Analysis (DEA), Iranian Accounting Journal, Academic Journal Evaluation, Input/output Indicator.

1 Introduction

The evaluation of academic journals has been a matter of interest among researchers. For scientific researchers, publishing articles play vital role for their promotion, acquire funding and securing their carrier. A limited article publication in high-ranked journals may adversely affected the researcher's professional development. However, it seems insufficient to rely on journal ranking as a means for evaluating the paper published inside these journals. Although, journal ranking serves a crucial measure for practical assessing of researchers. Furthermore, altering in journal ranking can significantly lead to redistribution of academic authority. That is to say, dropping a journal from the essential parts of Web of Science Core Collection such as Science Citation Index (SCI) or the Social Science Citation Index (SSCI) may considerably affect the submission procedure. In this case, the authors withdraw their manuscripts form the excluded journals. There are three main metrics for journal evaluations. The first category is

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Impact Factor (IF) and a series of indicators such as H-index or Eigen factor score [1]. These metric are typically found in Clarivate Analysis based on their citations in Web of Science (WOS) System. The second includes the list of academic journals criticized by experts and academic community such as ABS ranking (released by Chartered Association of UK Business Schools), ISC (Islamic World Science Citation Center) or UT/DALLAS journal list (released by University of Texas) and so on. The third category for journal ranking are suggested by researchers including innovative methods. One of the most favorite methods recently used is non parametric approaches such as Data Envelopment Analysis (DEA). This non parametric techniques is concerned with comparative assessment of the efficiency of decision making units (DMUs). In the classical DEA models, which pioneered by Charnes et.al [2] and then extended by Banker et.al [3], the efficiency of a unit is obtained by maximizing ratio of the weighted sum of its outputs to the weighted sum of its inputs, subject to the condition that this ratio does not exceed one for any DMU. This nonparametric technique has been used in many contexts including education systems, health care units, agricultural productions, military logistics and many other applications (See Amirteimoori and Kordrostami [4], Asmild et.al [5], Lozano et.al [6], Tohidi and Matrood [7] and Maghbouli and Pourhabib Yekta [8]). In the literature of performance analysis, there are a few studies who considers the academic journals performance and ranking. Each study expands the application of DEA and the choice of indicators as inputs or outputs. One of the pioneering work in evaluation realm back to Lozano and Salmeron [9] Their study evaluates Operations Research/ Management Science journals with Data Envelopment Analysis (DEA) based on two indicators. The first indicator was the duration of the refereeing/publication process and the relation between the length of the articles published and their impact. The second indicator was the data publicly available through the ISI Journal Citation Reports database. The results indicated that various journals could increase their operational efficiency in the refereeing/publication process as well as in controlling article lengths, thereby providing advantages for both authors and readers.

Halkos and Tzeremes [10] used a two-step procedure to evaluate Economic Journals. First of all, the selected 229 Journals was evaluated using DEA standard methods using one composite inputs and two composite outputs. Then, based on their efficiency scores, the journals are categorized into four main category. Compared with the Diamond's list, the core economic journals was also valid. The results also declares the Journals with the highest citation performance. Xiang-yang et.al [11] applied a multi-layer DEA approach for evaluating 28 journals of Chinese agricultural universities and colleges. This paper set the number of published articles as inputs and three outputs are represented as number of self-cited articles, the number of citable articles and the number of included articled are determined as outputs. Since, the Journals are scarcely adopted in databases such as SCI, EI, and CABI, the data are recorded by China Agricultural Science and Technology Literature Database, and China Science and Technology Periodical Database. Rosental and Weiss [12] employed the DEA model with constant return to scale (CRS) property for evaluating journals with (articles published each year) as input. The output indicators of this study consist article influence, H-index, Discounted IF, Total Citation, IF, Five-year IF, Immediacy Index, Eigen factor Score, Article Influence Score. Karami et.al [13] also evaluated Psychological Journals with DEA models including seven indicators. The study employs both constant return to scale (CRS) and various return to scale (VRS) DEA models for assessing the selected thirty journals. Kun Chen et.al [1] employed integer DEA model for assessing and ranking management science and operation research journals with only one input and five outputs. The input is Cost-Excessive self-citation rate which the collection source of Web of science. The list of outputs are IF, Eigen factor score, H-index. These indicators are gathered from the Web of Science. The rest of two

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outputs are called as ABS ranking (Charted Association of Business Schools in UK) and UT/DALLAS list (the released list of University of Texan in DALLAS). Huang et.al [14] reflected new insights for Journal Evaluation in China. The authors, firstly introduce and compare the most currently influential journal lists and indexing services. The findings showed that the evaluation of core journals plays a crucial role in journal's editorial procedures and strategies. In order to facilitate the ongoing development of their academic journals, it is essential for both publishers and publishing houses to assess the journal evaluations as well as supervision. Yasin Sesen [15] also conducted a study about Scientific Journal evaluation in Turkey. The findings of the study examined the critical importance of locations of publication and indexing for studies alongside evaluating their content verifying whether their quality meets measurable criteria. The aim of study is to derive a high-quality scientific publishing ecosystem within the academic community. To do so, the journals which meets the low quality measures are curtailed in both internal and international fronts, hence, the study may enhance the development of Journal publishing. C.Ibrahim [16] analyze the efficiency of Indonesian journals by conducting DEA models and investigating the correlation between the number of researchers associated with the journal and the expenses borne by researchers for publication concerning the scientific strengths achieved. The input indicator in this study was set as author, the editorial team and Article Publication Charge (APC). Output indicator are included scientific strength (publications and citations).The results showed that the DEA score of the top journals in Indonesia that WOS index is greater than the DEA value of the journals indexed by Scopus, but the difference is small. J. Jablonsky [17] proposed a new DEA –based citation performance metrics for ranking the set of 80 journals from the Web of Science category Operations Research and Management Science. Outputs of the models are the citation counts from Q1 to Q4 categories, and other journals. Also, the impact factor of the journals from the previous year are considered as one of the inputs. Maghbouli et.al [18] assessed the efficiency of Internal Iranian Operation Research Journal with DEA. Their study identified 41 active OR journals. In this evaluation, three inputs namely time to accept, acceptance rate and the number of submitted articles are extracted from the Journals website for the year of 2024. The output indicator are adopted as IF or ISC coefficient and number of published articles. The evaluation indicated that there are 19 efficient Journals in the selected sample. Surveying the literature showed that there are a few studies based on DEA for evaluating and ranking Iranian Accounting Journals. The existing studies focus on journals extracted from Iranian Data base and especially stress on the indicators which are derived from that Journal Websites. The current paper tends to evaluate the Iranian Journal which are released in internal sources such as ISC, Islamic Azad University or MSRT† web sites. Some of these journals are not adopted and listed in Web of Science, so, the only source for data extracting is the journal's websites or the journal list released by Iranian Ministry of Higher Education. Based on the internal data sources, and according to the previous studies based on input-output production system, this study aims to explore the performance of the set of Accounting Journals within the year of 2024 by non-parametric DEA models and derive an index that allows the rankings of the journals. Section 2 of the paper contains the brief discussion of DEA models used in the paper and described the methodological framework of the study. The sequence section informs about the selected journals and data collection, input and output indicators and presents the results of implementing the models and indicates the top-ranked Journals. The last section discusses the results and possible direction for future researches.

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2 Methodology

Data Envelopment Analysis (DEA) is a non-parametric method for assessing the relative efficiency and performance of the se of homogeneous Decision Making Units (DMUs). The theory and practice of DEA models was first proposed by Charnes et.al [2] and then extended by Banker et.al [3]. In the last decades, thousands of studies contributing the DEA methodologies in different contexts have been published. DEA models assess the relative efficiency of a system that converts multiple inputs into multiple outputs. Assume that there are n DMUs, $DMU_j (j = 1,...,n)$ each one produces s outputs, $y_{rj} (r = 1,...s, j = 1,...n)$ by utilizing m inputs, $x_{ij} (i = 1,...,m, j = 1,...n)$. Relative efficiency of DMU_o is defined by solving the following linear program.

$$
\begin{aligned}
&Max \quad \phi \\
&\text{s,t.} \\
&\sum_{j=1}^{n} \lambda_j x_{ij} \le x_{io} \quad i = 1,...,m, \\
&\sum_{j=1}^{n} \lambda_j y_{rj} \ge \phi y_{ro} \quad r = 1,...,s, \qquad (1) \\
&\lambda_j \ge 0 \;\; j = 1,...,n
\end{aligned}
$$

This model is called a constant return to scale (CRS) model and is known as the CCR envelopment model. From a managerial perspective, this model delivers assessments and targets with an output maximization orientation. The efficiency ratio in Model (1) ranges higher than unity, with DMU_o being considered relatively efficient if it receives a score of one. The non-negative variable $\lambda_j (j = 1,...,n)$ is called as intensity variable. Banker et.al [3] extended Model (1) to variable return to scale (VRS) which has the following linear format:

$$
\begin{aligned}
&Max \quad \phi \\
&\text{s,t.} \\
&\sum_{j=1}^{n} \lambda_j x_{ij} \le x_{io} \quad i = 1,...,m, \\
&\sum_{j=1}^{n} \lambda_j y_{rj} \ge \phi y_{ro} \quad r = 1,...,s, \qquad (2) \\
&\sum_{j=1}^{n} \lambda_j = 1 \;, \\
&\lambda_j \ge 0 \;\; j = 1,...,n
\end{aligned}
$$

Model (2) is also known as BCC output orientation model. The evidence supporting the VRS points to the constraint $\sum_{j=1}^{n} \lambda_j = 1$. The entire frontier (efficient units) in Model (2) meet the optimal value $\phi^* = 1$. The Input-oriented of BCC model which has the following linear format:

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$$
\begin{aligned}
&Min \quad \theta \\
&\text{s,t.} \\
&\sum_{j=1}^{n} \lambda_j x_{ij} \le \theta x_{io} \quad i = 1,...,m, \\
&\sum_{j=1}^{n} \lambda_j y_{rj} \ge y_{ro} \quad r = 1,...,s, \\
&\sum_{j=1}^{n} \lambda_j = 1 \ , \\
&\lambda_j \ge 0 \ \ j = 1,...,n
\end{aligned} \tag{3}
$$

The optimal objective value of Model (3) gives the efficiency measure the efficiency of under evaluated unit DMU_o. To get the efficiency measures of other DMUs, we just need to solve similar problems by targeting on each $DMU_j (j = 1,...,n)$. The efficiency value in Model (3) ranges between zero and one, with DMU_o being considered relatively efficient if it receives a score of one, i.e. $\theta^* = 1$. The dual format of Model (2) is recorded as multiplier BCC model with following linear structure.

$$
\begin{aligned}
&Min \quad \sum_{i=1}^{m} v_i x_{io} - v_o \\
&s.t. \\
&\sum_{r=1}^{s} u_r y_{ro} = 1 \\
&\sum_{i=1}^{m} v_i x_{ij} - \sum_{r=1}^{s} u_r y_{rj} - v_o \ge 0 \quad j = 1,...,n, \\
&u_r \ge \varepsilon \quad r = 1,...,s \\
&v_i \ge \varepsilon \quad i = 1,...,m \\
&v_o \ \ is\ free\ in\ sign
\end{aligned} \tag{4}
$$

In model (4), the weights u_r and v_i are non-negative variables. Where $\varepsilon > 0$ is a non-Archimedean sufficiently small number. The free variable of v_o embedded in Model (3) is linking to the convexity constraint $\sum_{j=1}^{n} \lambda_j = 1$. Equipped with the concept of input excesses and output shortfall, Ahn [19] has defined the additive model as a measure for efficiency with the following format:

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$$
\begin{aligned}
&Min \quad \delta_o = \sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+ \\
&s.t. \\
&\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = x_{io} \quad , \ i = 1,...,m \\
&\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = y_{ro} \quad , r = 1,...,s, \\
&\sum_{j=1}^{n} \lambda_j = 1 \\
&s_r^+ \geq 0 \quad , \ r = 1,...s \\
&s_i^- \geq 0 \quad , \ i = 1,...,m \\
&\lambda_j \geq 0 \quad , j = 1,...,n
\end{aligned}
\tag{5}
$$

Under Evaluated DMU_o is said to be efficient if and only if $s_r^{+*} = s_i^{-*} = 0$ in Model (5). In other words, it is efficient in all inputs and outputs, and this means that there is no input excesses and output shortfalls. For ranking efficient units. A super-efficiency method which was introduced by Anderson-Peterson [20] is employed. In this method, the under evaluated unit is deleted from the reference set. Then the evaluation is done. Infeasibility and instability are two fundamental problems of the super-efficiency method, and due to these problems; the application of this method has been restricted. However, Super-efficiency models are widely used in DEA studies to obtain a complete and unambiguous ranking of DMUs under evaluations. They offer a superior tool for obtaining a complete ranking of units which is a frequent request of users. In our evaluation, the sample Accounting Journals are ranked with the super-efficient DEA models to distinguish the Journals which are identified as efficient by standard DEA models.

3 Case Study: Evaluation of Accounting Journals

The easiest way for selecting input or output indicators for evaluating academic journals is to directly use the indicators employed in the previous studies. The sample field of journals in this study is Iranian Accounting Journals which are internally published. But this sample we tend to evaluate, are not completely adopted in Web of Science (WOS) database. There are some problems here. First, the whole Iranian Journals are not included in WOS database, even the oldest among them. Second, some of them are placed in ISC released list and some are eligible to enter the list or extracted from the list. On the other hand, the authorization institutes are different. For example, Islamic Azad University has its own released journals and some other journals belong to Iranian Ministry of Higher Education. Equipped with these challenges and exploring the existing articles in this realm, we consider three indicators as inputs. Namely, the number of published articles, time to accept (day) and acceptance rate. More specifically, the reason of employing time to accept(day), acceptance rate and number of published article as input indicators is because their accessibility in most of journal's website. Therefore, these three typical and available details extracted as inputs. Out criteria to select input indicator is different with the existing studies. We believe that, it is more appropriate to use indicators such as days for acceptance and acceptance rate as inputs. By introducing these indicators as inputs, we may

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avoid the subjective bias caused by experts' difficulty in familiarizing all journals especially new journals or ranking a journal from multiple aspects. Although, these indicators may provide a progress in exploring the journal evaluation using DEA models. However, these indicators are not widely recognized in existing studies. For selecting of outputs, we mainly consider three output factors. The first one is the number of included articles, which has a certain reputation in article circles. The second indicator is number of volumes and number of issues for each Journal. Using these three factors as output indicators, make the evaluation fully reflect the performance of journals. Furthermore, the number of volumes and issues are not included in the existing articles in the literature. These factors are reported in all journal's website, also, they are easily available and reported by the academic board of journals. Consequently, according to previous studies and the availability of information about our sample, these six indicators were selected for performance analysis. It should be noted that, we considered these indicators for the evaluation year of 2024. To sum up, our selection of indicators are different with the previous studies in input selection. But, according to our sample and available details, the six mentioned indicators were selected. Since, the employed DEA model follow the perspective of input-output system, it is more convenient to choose VRS models. Since, the Accounting Journals link to different contexts and perspectives, the use of the VRS model would greatly improve the efficiency of the Journals. There are thirty-six Accounting Internal Journal totally with different quartiles. Some of them are not released since the last ten years. And the others has reported no information about the Journal. Then, we exclude five journals from the sample and 31 journals were left for evaluation. Also, the data set are extracted for the year 2024. For more clarification and a comparative analysis, Table 1 shows the number of Journals and their related organization.

Table 1 Number of Journals and Universities

No	Journals	University
1	Accounting and Auditing Review	Tehran
2	Financial Accounting Research	AL Zahra
3	Journal of "Empirical Research in Accounting "	Isfahan
4	Journal of Accounting Advances	Shiraz
5	Financial Accounting	Islamic Azad University, Mobarakeh Branch
6	Journal of Empirical Studies in Financial Accounting	Allameh Tabataba'i
7	Financial Accounting and Auditing Researches	Islamic Azad University, Central Tehran Branch
8	Management Accounting	Islamic Azad University, Science and Research Branch
9	Journal of Accounting Knowledge	Shahid Bahonar, Kerman
10	Journal of Accounting and Auditing Researches	Iranian Accounting Association
11	Journal of Audit Science	State Accounts Court
12	Journal of Financial Accounting	Imam Khomeini International University, Qazvin

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13	Journal of Management Accounting and Auditing Knowledge	Iranian Management Accounting Association
14	Journal of Accounting and Auditing Studies	Iranian Management Accounting Association
15	Financial Management Perspective	Shahid Beheshti
16	Securities Exchange	Securities and Exchange Organization
17	Financial Research Journal	Tehran
18	Financial Engineering and Securities Management	Islamic Azad University, Central Tehran Branch
19	Financial Knowledge of Security Analysis	Islamic Azad University, Science and Research Branch
20	Journal of Investment Knowledge	Financial Engineering Association
21	Islamic Finance Researches	Imam Sadiq University
22	Journal of Financial Management Strategy	Al Zahra
23	Journal of Asset Management and Financing	Isfahan
24	Journal of Health Accounting	Shiraz University of Medical Science
25	Financial Monetary Economic	Ferdowsi University of Mashhad
26	Journal of Monetary and Banking Research	Monetary and Banking Research Institute
27	Accounting and Social Interest	Al Zahra
28	Accounting Knowledge and Research	Iranian Accounting Association
29	Governmental Accounting	Payame Noor University
30	Iranian journal of Value & Behavioral Accounting	Kharazmi
31	Journal of Iranian Accounting Review	Shahid Chamran , Ahvaz

Relevant data of Journals listed in Table 1 are showed in Table 2. As Table 2 shows, some data re reported as zero. This is because of the lack of information or the information does not recorded in the Journal website or related database. Hence, the related quantity is recorded as zero in this evaluation.

Table 2 Basic Data of Journals

	Inputs			Outputs		
No	Published Articles	Time to accept	Acceptance Rate	Included Articles	Number of Volumes	Number of Issues
1	766	220	10	3.107	106	32
2	497	233	19	2.138	59	16
3	598	237	14	3.228	56	15
4	305	233	132	1.435	32	18
5	0	162	0	0	63	16
6	224	361	13	1.677	85	21
7	847	305	21	213115	68	17
8	885	111	21	0	66	17
9	0	70	11	0	60	16
10	0	150	35	0	64	16
11	810	35	31	4795	84	21
12	0	214	16	503971	50	12
13	1048	123	40	726742	60	15

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14	766	120	40	0	52	13
15	497	156	32	1358	47	14
16	598	234	16	2066	70	18
17	0	207	14	1495723	73	27
18	305	85	36	227278	60	16
19	324	118	26	159185	69	17
20	352	131	30	3735	60	15
21	798	190	20	313541	31	13
22	1019	334	16	608717	48	13
23	1134	150	22	449632	50	13
24	189	112	0	0	26	10
25	365	190	21	2028	39	18
26	374	249	18.7	1171991	62	17
27	0	237	14	1246151	56	15
28	422	0	0	0	56	11
29	395	273	24	273471	21	11
30	217	180	25	0	21	11
31	197	0	0	0	19	5

4 Results

In order to analyze the Journals and ranking Journals listed in Table 2, based on DEA models, Models (2), (3) and Additive Model (5) are taken into consideration. Generally, the number of included articles and the number of Published articles can be set as key indicators for evaluation. However, this study aims to assess the Journals' performance based on original set of data available in Journal's website and by DEA optimization models. The results of presented Models using BCC multiplier and envelopment input/output-oriented models are presented in Table 3.

Table 3 Efficiency Scores of Journals by Models (2), (3) (4) and (5)

No.	Efficiency Score of Model (2)	Efficiency Score of Model (3)	Efficiency Score of Model (4)	Efficiency Score of Model (5)
1	1	1	107.55	0
2	0.64	0.25	150.83	1500000
3	0.58	0.2	150.9	1500000
4	0.71	0.37	137.74	1400000
5	1	1	1	0
6	1	1	108.86	0
7	0.69	0.23	0	1300000
8	0.72	0.42	81.26	790000
9	1	1	17.19	0
10	1	1	36.06	0
11	1	1	25.71	0
12	1	1	0	0
13	0.86	0.82	0	160000
14	0.84	0.23	29.15	230000
15	0.61	0.22	113.99	1100000
16	0.84	0.49	142.49	1400000
17	1	1	0	0
18	0.72	0.47	0	390000
19	0.77	0.41	0	660000
20	0.63	0.22	95.45	940000

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No.	Efficiency Score of Model (2)	Efficiency Score of Model (3)	Efficiency Score of Model (4)	Efficiency Score of Model (5)
21	0.6	0.32	0	680000
22	0.61	0.38	0	890000
23	0.65	0.41	0	630000
24	0.69	0	1.45	143.00
25	0.68	0	138.44	1400000
26	0.83	0.42	0	320000
27	0.84	0.68	0	250000
28	1	0.83	1	0
29	0.49	0	0	840000
30	0.5	0.22	100.66	990000
31	0.46	0	2.2	43
Average	0.77	0.51	46.51	560070
Std.	0.18	0.36	58.38	554012

As Table3 indicates, in evaluation with the envelopment output-oriented Model (2), there are nine efficient units. It is worth to note the measures are recorded in the second column of Table 3 is calculated as its reciprocal, that is to say $\frac{1}{\phi^*}$. So, the measures are depicted lower than unity.

According to the third column of Table3, Journals #1, 5,6, 9, 10, 11, 12, 17 are recorded as efficient in evaluation with input-oriented Model (3). Notably, Journal#28 are not recorded as efficient in this assessment. According to Table 1, efficient Journals belong to different quartiles and different organization. Some Journals belong to Islamic Azad University and the others are authorized to Higher Education Ministry or to Scientific Associations. Fourth Column of Table3 under the heading of "Efficiency Score of Model (4)" reports the value of output-oriented BCC multiplier model. In this assessment the non-Archimedean ε are regarded as $\varepsilon = 0.0001$. This evaluation reports only two efficient units. Journals "Financial Accounting" by authorization of Islamic Azad University of Mobarake and "Accounting Knowledge and Research" belongs to Iranian Management Accounting Association are efficient units. The results of Additive Model (5) are also depicted in the last column of Table 3. Interestingly, the units are efficient in Additive Model (5) if and only if they are considered as efficient units by BCC models. The last two rows in Table3 compares the statistics of the efficiency scores. The average of scores in multiplier Model (4) is larger than its envelopment counterpart, Model (2). The quantity of 46.51 versus the reported number of 0.77. However, standard deviation of Model (2) meets the lower quantity 0.18, among the other existing approaches. To further distinguish between the results, the difference between the envelopment BCC models, Model (2) and Model (3) are showed in the following diagram.

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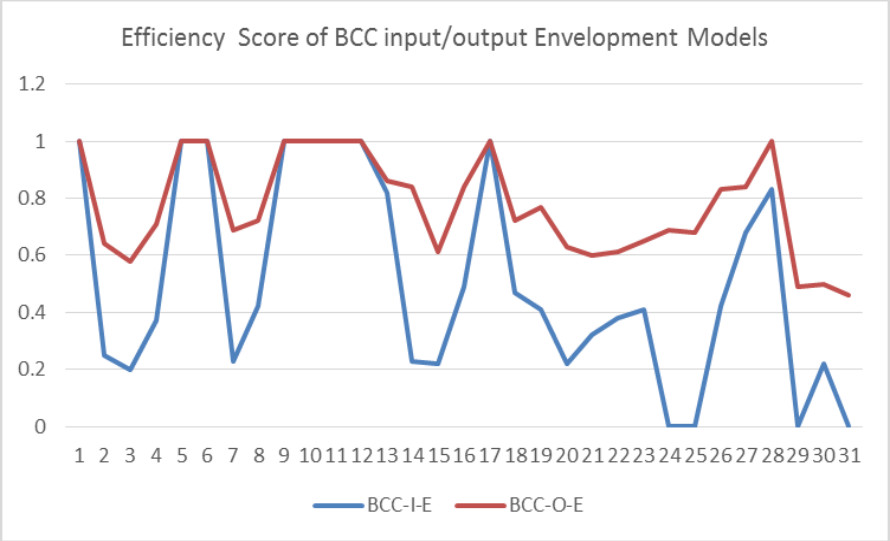

Fig. 1 Results of Efficiency Evaluation

As shown in Fig. 1, from the perspective of output-oriented Model, which is highlighted with the heading "BCC-O-E", the scores has more consistency. While the Input-oriented Model (3) identified as" BCC-I-O" reports the fluctuations in results. The difference between the results of Input and Output oriented BCC model, support that the inverse relation between the efficiency does not satisfy. Also, the difference in efficiency measurement is in line with the selection of output-oriented format of BCC models, as the existing studies in the literature suggested. It is worth to note that, this difference may return the importance of key indicators for evaluation. Also, this difference in efficiency measurement can meet the needs of decision-makers in different decision-making contexts. As the results confirms, 29 percent of Journals are efficient in output-orientation evaluation, while, this number declines to 25 percent in input-oriented perspectives. This difference is apparent from the Fig. 1. In order to have a classification between efficient units, super-efficient model is applied. To do so, the under evaluated unit DMU_o in Models (2) and (3) are excluded from the efficient frontier, then the evaluation is done. The results and the relevant ranking foe efficient Journals are reported in Table4.

Table 4 Ranking of Journals by Models (2) and (3)

No.	Super Efficiency Score of Model (2)	Rank	Super Efficiency Score of Model (3)	Rank
1	0.59	5	Infeasible	
5	0	8	Infeasible	
6	0.89	3	1.71	3
9	0.49	6	2.20	2
10	0.98	2	Infeasible	
11	0.76	4	4.28	1
12	0	7	Infeasible	
17	1.20	1	0.59	4
28	0	9	----	

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As Table 4 shows, in evaluating with Model (2), "Financial Research Journal" published by Tehran University is placed the first rank. On the other hand, this journal has the fourth place in evaluating by Input-oriented Model (3). As Table 4 reports, the Infeasibility occurs for Journals #1, 5, 10 and 12. So, the produced ranking is not representative Hence, the output orientation ranking seems acceptable for ranking. What's more, Input-oriented Model (3) depicts "Journal of Audit Science" authorized by government as the first efficient unit. Regarding to output-oriented efficient Journals from Table 4, the first rank Journal "Financial Research Journal "is indexed in 21 data bases. Whilst, the last Journal by the name of "Accounting Knowledge and Research" has been indexed in only two data bases. However, it is notable that the efficiency scores of the relevant Journals do not consider the number of indexed data base or the number of citable articles and self-cited articles. Hence, these indicators are taken into account the results may be different from the existing finding.

5 Discussion and conclusion

Nowadays, evaluation of academic journals has been attracted the researcher's interest. Generally, three methods exist for journal evaluation. The more accepted category is Impact Factor (IF) and a series of citation-based journal ranking indicators such as H-index, ISC and Eigen factor score, normally are available in Clarivate Analytics JCR (Journal Citation Report). The second category is the lists of journals released by experts such as ABS ranking (released by Chartered Association of UK Business Schools), ISC (Islamic World Science Citation Center) or UT/DALLAS journal list (released by University of Texas). The last type is employing input–output production system perspective and a meta-analysis-like perspective. One of the most common input-output models in the field of journal evaluation is Data Envelopment Analysis (DEA) models. This article mainly adopted the output-oriented standard DEA model based on selected indicators. To conduct the study, the sample of Internal Journal of Accounting were selected. The sample consist of thirty-one Journals. However, it was quite challenging to collect the data set. Since, some websites do not offer complete information. Also, some of the Journals do not belong to international data base. Furthermore, every organization offer different details about its relevant Journal. The details about Journal are achieved by the Journal's website for the year of 2024. Finally, in this study, thirty-one Journal was on our scope. It is worth to note that, it is evident to employ the input/output indicators mentioned in the previous studies for evaluation. In present study, the selected sample leads to choose three input indicators and three output indicators which was suitable and available for our research. Furthermore, this study solely used the variable return to scale models, since the Journals in the sample published in different quartiles. The results of employing DEA models showed that only 29 percent of the Journals are efficient in evaluating with output-oriented models. On the other hand, there are 25 percent of efficient Journals in Input-orientation assessment. By developing this type of assessment for Internal Journals, this study contributes to the interesting debate of Journal Evaluation. This study proves the applicability of DEA methodology in performance analysis of scientific Journals. Based on the observed limitations in this study, doing studies in Journal evaluation in Iran may pave the way by selecting other available indicators for Iranian Journals. Also, comparing different ranking and Scores of Journals from various point of view may conduct the improvement of Journal quality and expands their way for achieving the core and high-cited Journal label in their related realm. Future research can explore employing the integer-based DEA or multi-layer DEA models with

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different indicators mentioned in previous studies. Additionally, expanding this study can provide insights for the Internal Journals for a wide and fare comparison with International Journals in the field of Accounting. Also, it facilitates the development of Journal for publishing more challenging and robust articles.

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