A New Approach to Journal Ranking:

Social Structure in Hospitality and Tourism Journals

Abstract

Purpose: This study introduces a new approach, called the social structure approach, for ranking academic journals by focusing on hospitality and tourism journals; and a hybrid metric, including the combination of the journal impact factor via citations and a social network metric, called the journal knowledge domain index (JKDI).

Design/methodology/approach: Twenty-five hospitality and tourism journals were selected to test this approach. Collaboration-based metrics, productivity-based metrics, and network-based metrics are considered components of the social structure approach. Additionally, a hybrid metric, including the combination of the journal impact factor via citations and a social network metric, JKDI, is developed.

Findings: The study's findings show that top or leading journals have a weaker position in some social structure approach metrics compared to other (or follower) journals. However, according to the JKDI, leading journals have remained constant with the other ranking studies.

Practical Implications: The ranking of academic journals is vital for the stakeholders of academia. Consequently, the findings of this study may help stakeholders to design an optimal ranking system and formulate and implement effective research strategies for knowledge creation and dissemination.

Originality/Value: As one of the first in the journal-ranking literature, this study has significant implications, as it introduces a new ranking approach.

Keywords: journal ranking; tourism; hospitality; social structure

Introduction

This study introduces a new approach for ranking academic journals by scoping hospitality and tourism (H&T) journals based on their social structure and a hybrid metric, including the combination of the journal impact factor via citations and a social network metric, called the journal knowledge domain index (JKDI). Academic journals play crucial roles in knowledge production, transfer, and dissemination. Academic journals are a vital component of competition at both the individual level, like researchers, and the institutional level, such as universities, government agencies, and publishers. Consequently, a line of research has emerged to address how journals should be ranked, the best method for ranking journals, and how such rankings should be used (Bohlin *et al.*, 2016; Borst *et al.*, 2017; Gibson *et al.*, 2014; Laband, 2013; Rost *et al.*, 2017; Sangster, 2015; Walters, 2017).

In the literature, several studies propose new or updated ranking methods either at specific discipline- or field levels, or across all academic journals (Bornmann *et al.*, 2016; Carraher and Paridon, 2015; Gursoy and Sandstrom, 2016; Horrace and Parmeter, 2017; Mahmood, 2017; Meese *et al.*, 2017; Okumus *et al.*, 2017; Tourish and Willmott, 2015; Tüselmann *et al.*, 2015). These studies have primarily relied on either the basic or advanced formulations, including the citation count of journals or the stated preferences or expertise obtained via surveys. Although these studies consider the intellectual structure of journals in their rankings, they omit social structure as an invisible college, which is important for identifying progress in the scientific domain (Gherardini and Nucciotti, 2017; Zupic and Čater, 2015). As the social structure (formal or informal) of journals deals with the levels of collaboration, the patterns of authorship, the productivity of authors, and relationships among scholars, it both helps and hinders activities (Nordqvist and Melin, 2010), including the

publication process steps of knowledge creation and dissemination. Research collaborations generate networks that identify the underlying structure of a research community. Ties in the networks show the breadth and depth of the collaborations between contributors to journals, influencing the knowledge domain of the journal. In other words, the maturity level of the social structure or networks addresses journals' professionalism, which then influences their intellectual structure. Thus, for a balanced index, social structure should be considered as an approach and combined with other ranking models. Therefore, this study, complementary to previous studies, introduces the social structure approach for ranking journals by applying it to a sample of H&T journals.

Literature Review

Approaches for Ranking Academic Journals

Researchers have developed metrics to examine the maturity level progress in disciplines or fields by considering the bibliographic identity of published studies (Gingras, 2016; Glanzel, 2003; Pinto and Fernandes, 2017; Verbeek *et al.*, 2002). The main goal of these metrics is to increase objectivity in the measuring of progress related to the disciplines' knowledge domain (Zupic and Čater, 2015). These metrics identify the growth or evolution of the intellectual and social structures as components of the knowledge domain in a given discipline (Koseoglu *et al.*, 2016). While metrics exploring the intellectual structure of the disciplines use citation, co-citations, or co-word analysis (Batistič *et al.*, 2017; Martín-Peña *et al.*, 2017), metrics examining the social structure of a given discipline have been developed to measure the productivity of authors, institutions, and countries; collaboration among contributors of published studies; and co-authorship analysis (Ahmed *et al.*, 2017; Corrêa Jr. *et al.*, 2017; Dehdarirad and Nasini, 2017).

Bibliometric metrics, primarily related to the intellectual structure of disciplines, fields, or journals, help researchers rank both journals and experts' opinions obtained via survey methods (Gursoy and Sandstrom, 2016; Law and van der Ven, 2008). Consequently, several approaches for ranking journals include the elements of intellectual structure and experts' opinions. Bontis and Serenko (2009) consider two approaches for ranking journals: subjective and objective ratings and stated preference and revealed preference. Schrader and Hennig-Thurau (2009) assessed rating models under three approaches: survey-based, citation-based, and hybrid. Hall (2011) classified journal ranking systems as stated preference, citation-based, derived, hybrid, and expert panels. Moosa (2011) highlighted four approaches: survey-based ranking, citation-based ranking, market-based ranking, and download-frequency-based ranking. Lehmann and Wohlrabe (2017) introduced the Elo rating system, which considers the factor time and the history of a journal's ranking performance. Recently, Okumus *et al.* (2017) proposed a new approach, called the Balanced-Rating Index, to minimize the disadvantages (predominantly subjectivity and coverage of indicators) of all previously proposed models (Hall, 2011; McKercher *et al.*, 2006; Serenko, 2010; Serenko and Bontis, 2009). The approach includes five dimensions: article influence, journal reputation, publisher reputation, efficiency and effectiveness, and readership.

This article does not compare the advantages and disadvantages of the existing ranking methods or approaches, as they are complementary, rather than alternatives, to finding an optimal journal ranking system, as indicated by Okumus *et al.* (2017). Rather, this article adds the social structure approach, which was originally developed and used to identify the social structure of given disciplines or fields, as an approach further complementary to previous approaches. Based on this elaboration, two main dimensions for the ranking of models or

approaches exist, the journal domain and the method/approach. As seen in Figure 1, the journal domain has two spectrums, called the intellectual structure and social structure (y-axes), and the method/approach has two spectrums, including subjectivity and objectivity (x-axes). While a journal's intellectual structure identifies how the articles within it impacts knowledge creation and dissemination based on the quality and quantity of the articles, the social structure of a journal defines how authorship patterns; collaboration patterns; productivity based on authorship; and collaboration networks that consider the ownership of journals, authors, editorial boards, and reviewers grow and evolve.

An abundance of studies related to developing or using metrics (Chan *et al.*, 2009; Okumus *et al.*, 2017) exist at the upward right and left side of the coordinate system. On the downward left side, however, there are a few suggestions. For example, Okumus *et al.* (2017) proposed two metrics to determine the social structure of journals obtained via survey methods: familiarity with the editor and the credibility of the publisher. McKercher *et al.* (2006) suggested the average number of reviewers per article as a metric for the social structure of journals, via both objective and subjective approaches. However, the right side of the quadrant of social structure has been omitted when ranking journals.

Insert Figure 1 about here

In the literature, several studies use objective indicators to relate to journal rankings, including journals' social structure. For example, international authorship (Hall, 2011), author affiliation index (Agrawal *et al.*, 2011), productivity via Lotka's Law (Talukdar, 2011), and journal affinity and journal associativity (Coleman, 2007) fall in the right quadrant of social structure and have been used to rank journals. The findings of the previous studies have not provided any insights into how the social structure of journals can be used in journal ranking, as

they have considered only basic collaboration indicators. Based on the researchers' best knowledge, one study (Rost *et al.*, 2017) addresses how social structure is helpful for ranking management journals. However, this study utilized social network analysis on journal citations instead of journal contributors. Therefore, no study in the literature provides insights into journal rankings via social network analysis of journal contributors.

Why Do We Need Metrics Related to the Social Structures of Journals to Rank Journals?

Social structure includes two concepts: social and structure. In social structure, the social refers to "an organizational domain that emphasizes the practices discourses, and material expressions associated with the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities" (Daunorienė *et al.*, 2015, p. 839). In this study's context, structure refers to "relationships that determine the allocation of tasks, responsibilities and authority" (Stewart and Barrick, 2000, p. 135). Hence, social structure is defined as "a network of persons whose positions are rank-ordered according to certain normatively valued resources such as wealth, status, and power" (Lin and Dumin, 1986, p. 366). According to House (1981, p. 542), social structure is a "persisting and bounded pattern of social relationships (or pattern of behavioral interaction) among the units (that is, persons or positions) in a social system." Consequently, the core concepts in social structure are network, relationship, and ties. How these networks shape the components of business and management has been discussed broadly in the literature (Anderson *et al.*, 1994; Brüderl and Preisendörfer, 1998; Håkansson and Snehota, 1989; Lewis *et al.*, 2017; Ogasavara *et al.*, 2016; Tsai, 2001), since networks help players gain a competitive advantage by having a higher return on their investment ratio (Burt, 2009). Based on this logic, According to Serrat (2017, p. 41) social network analysis has been developed and used to:

- Identify the individuals, teams, and units that play central roles;
- Discern information breakdowns, bottlenecks, structural holes, and isolated individuals, teams, and units;
- Create opportunities to accelerate knowledge flows across functional and organizational boundaries;
- Strengthen the efficiency and effectiveness of existing formal communication channels;
- Raise awareness of and reflection on the importance of informal networks and ways to enhance their organizational performance;
- Leverage peer support;
- Improve innovation and learning; and
- Refine strategies.

Bibliometricians have adopted network analysis to analyze progress on the intellectual or social structure of the disciplines, fields, or journals; or to rank journals (Glanzel, 2003; Koseoglu *et al.*, 2016). Hence, the social structure of a given discipline or field has been investigated by examining authorship patterns, collaboration levels, and co-authorship networks in published studies (Zupic and Čater, 2015). Researchers have explained these terms via the new concept of the "invisible college," defined as "a set of interacting scholars or scientists who share similar research interests concerning a subject specialty, who often produce publications relevant to this subject and who communicate both formally and informally with one another to work towards important goals in the subject, even though they may belong to geographically distant research affiliates" (Zuccala, 2006, p. 155). How this invisible college influences progress on many issues, based primarily on disciplines or fields, has been vetted broadly (de Solla Price and Beaver, 1966; Gherardini and Nucciotti, 2017; Glanzel and Schubert, 2004; Koopman *et al.*, 2017). As a result, social structure is not a new concept in bibliometrics; however, its usage is limited within the assessment of discipline-oriented progress.

Looking at the logic from a journal's perspective, each journal has a specific business model and organizational structure. Since each journal has stakeholders and shareholders,

including the publisher, editor(s), author(s), reviewer(s), and reader(s), it is in an area of competition. This competition area creates social structure between or among those shareholders or stakeholders (Burt, 2009). Thus, the components of a journal's social structure play a crucial role related to the improvement of performance or ranking calculated by an objective, citation-based approach, such as the journal impact factor (Groesser, 2012). As mentioned earlier, the strength or weakness of the invisible college of a journal, including the objective measurements of authorship, collaboration, and networks, has been omitted in previous studies. To obtain an optimal ranking of journals, metrics related to the invisible college must be considered, and hybrid metrics, including the intellectual structure and social structure approaches of the journal domain, should be generated. This study proposes an invisible college or social structure approach, including collaboration-based metrics, productivity-based metrics, and network-based metrics for ranking journals by focusing on objective counts. Additionally, this study suggests a hybrid metric, utilizing a combination of the journal impact factor via citations and a network metric, called the journal knowledge domain index. Details about each metric are provided in the methodology section.

Methodology

Journal Selection

To conduct the new ranking approach, this study considered H&T journals indexed in the Social Science Citation Index (SSCI), Emerging Citation Index, and Google Scholar's journal metrics (h5-index). The selected journals and the scope of the data are indicated in Table 1.

Insert table 1 about here

Data Preparation and Analysis

Preparing the secondary data followed four steps. In the first, the researcher manually inserted all the author names and affiliations, including their institutions and countries, of the articles into a spreadsheet to minimize or eliminate possible spelling errors in the database. In the second step, the researcher identified authors with the same names or initials, detected misspellings that occurred during insertion, and checked for spelling differences between the authors' names or combinations of authors' names with different initials or initial variations (Kumar and Jan, 2013) by utilizing frequency analysis. To increase the study's validity and reliability, the researcher employed network analysis, visualizing the network as a pilot test covering all articles. This pilot test helped identify all errors, including misspellings, duplications of authors' names, and writing errors. Then, all errors were manually corrected in the data file. Finally, to calculate the related metrics for each journal, Microsoft Excel spreadsheets, SPSS, Bibexcel, Pajek, and Ucinet 6 network analysis software packages were used. While Microsoft Excel is used to calculate collaboration-based metrics and productivity-based metrics, SPSS, Bibexcel, Pajek, and Ucinet 6 are used to calculate network-based metrics and the journal knowledge domain index.

Research Findings and Discussion

Each component (collaboration-based metrics, productivity-based metrics, network-based metrics, and the journal knowledge domain index) of the social structure approach is discussed below (Table 2). As seen Table 2, while collaboration-based metrics and productivity-based metrics show basic factors related to the social structure of the journals, network-based metrics

and hybrid metrics provide advanced factors related to the social structure of the journals by considering contributors' positions in the network instead of merely counting contributors.

Insert Table 2 about here

Collaboration-Based Metrics

Collaboration-based metrics consider the collaboration level among authors by focusing on the multi-authorship structure in the articles and national/international collaboration. Hence, three collaboration-based metrics are proposed. First is the multi-authorship index, or the total number of multi-authored articles including at least two authors per paper/total single-authored articles, indicating authorship pattern level. The multi-authorship metric considers only papers with more than one author, which means that papers with two, three, four, and five or more authors are treated equally within this metric. *JDMM* had the highest value (4.391), followed by *TMP* (3.804), *JHMM* (3.664), *JTTM* (3.639), and *IJHTA* (3.313). *TS* has the lowest index value (0.384), followed by *CHQ* (0.748), *ATR* (0.996), and *TG* (1.188). The multi-authorship value shows the professionalism level in the field (Bandyopadhyay, 2001), as multi-authorship may indicate strong network ties resulting in high quality knowledge creation and dissemination. Surprisingly, this research indicates that leading journals, like *JTR*, *TM*, *IJCHM*, *ATR*, *IJHM*, *JHTR*, and *CHQ*, do not have the highest multi-authorship index based on the SSCI impact factors. In this study, the entire publication period was considered. As leading journals began publishing in the 1960s through the 1980s, as seen Table 1, collaboration opportunities were very limited, and they contain many single-authored studies. This may indicate a reason why these

journals have lower multi-authorship values. According to this ranking, however, the journals having the highest multi-authorship value may have strong positions in the future.

Insert Figure 2 about here

The second metric is the collaboration index, or the total authors of multi-authored articles/total multi-authored articles (Elango and Rajendran, 2012). This metric identifies the collaboration level and number of research teams included in the journal. Figure 3 presents the ranking based on this index. *TMP*'s index (2.582) is the highest, followed by *JDMM* (2.416), *IJCTHR* (2.345), *JHTM* (2.264), and *ANATOLIA* (2.250). Based on the range of the index, research teams in the journals usually include two or three authors. Again, surprisingly, based on the SSCI impact factors of some studies (Gursoy and Sandstrom, 2016; Koseoglu *et al.*, 2016; McKercher *et al.*, 2006; Yüksel, 2017), leading journals, such as *JTR*, *TM*, *IJCHM*, *ATR*, *IJHM*, *JHTR*, and *CHQ*, do not have the highest index. Research teams in those journals include two authors. Many studies (Bordons *et al.*, 1996; Didegah and Thelwall, 2013; Leimu and Koricheva, 2005) in the literature show that collaboration increases the impact of articles or journals. However, based on this ranking, a new research question emerges: How does collaboration in studies influence the impact of articles in the H&T field?

Insert Figure 3 about here

The final metric is the international collaboration index, or the total articles of two or more authors from two or more institutions and two or more countries, highlighting the international

collaboration level of journals. Based on this index, *JDMM* has the highest value (0.315 or 31.5% of total papers), followed by *APJTR* (0.268), *JTTM* (0.263), *TMP* (0.260), and *IJCHM* (0.224), as seen Figure 4. The international collaboration level indicates the broad recognition of journals, more readers and citations, and complicity and high quality within the articles (Ding, 2017; Ding and Wang, 2014). The international collaboration index of H&T journals is low (less than 40%); consequently, to create a broader impact as a field or journal, more studies should be conducted utilizing international collaborations.

Insert Figure 4 about here

Productivity-Based Metrics

Productivity-based metrics refer to the productivity of authors in a journal. Lotka's Law is used to measure a journal's authorship productivity of journals (Qiu *et al.*, 2017; Smolinsky, 2017). Lotka's Law says that "when a handful of researchers [are] responsible for most of the literature, … the contribution of the large majority of researchers is very low in terms of number of publications" (Barrios *et al.*, 2008, p. 458). In other words, only 6% of authors in a discipline or journal will produce more than 10 journal articles (Potter, 1988). This metric highlights the phenomenon of success-breeds-success, or cumulative advantages in the journals (Talukdar, 2011, 2015). Talukdar (2011) showed this by comparing the business ethics journals *Business Ethics Quarterly* and *Journal of Business Ethics.* To calculate the value of Lotka's Law for each journal, a software developed by Rousseau and Rousseau (2000) (see http://www.cybermetrics.info/articles/v4i1p4.html) was used. The β value calculated by the software must be between 1.27 and 3.29 (Kumar and Jan, 2013) to confirm Lotka's Law. For

journal rankings, the success-breeds-success or cumulative advantages phenomenon in the publication process is relatively stronger when the journals have lower β values (Talukdar, 2015). The β value for *IJCTHR*, *JDMM*, *JHTM*, *THR*, *TMP*, and *TS* is larger than the given range. Consequently, these journals do not fit with Lotka's Law. This indicates that scholars have a higher chance of publishing in those journals. However, as seen Figure 5, the rest of the journals confirm a fit with Lotka's Law. Thus, these journals support the phenomenon of success-breeds-success, or cumulative advantages in the journals (Talukdar, 2011). *ANATOLIA* has the highest β (3.20), followed by *TG* (3.15), *CIT* (3.075), and *IJTR* (3.05). The leading journals mentioned earlier have lower β. This indicates that scholars, particularly new scholars, have a higher relative difficulty publishing in those journals. This can also be seen in the acceptance rate of these journals, which, based on information from their websites, is very low.

Insert Figure 5 about here

Network-Based Metrics

To rank journals based on their co-authorship network, network analysis was conducted. Network-based metrics address how mature journal networks are, and how strong the ties are among authors. The strength of these ties influences the quality of knowledge creation and dissemination. To rank the journals, four common network metrics were considered. The first metric is *average distance*. This demonstrates the average geodesic distance between reachable pairs (Hanneman and Riddle, 2005), which depicts the maturity level of collaboration within a network by reflecting that the shorter distance a network has, the higher the maturity of the network (Koseoglu, 2016). Figure 6 presents the ranking based on the average distance metrics.

IJCHM has the highest average distance (9.69), followed by *ATR* (7.68), *JHTR* (7.42), *JHMM* (7.36), *TM* (7.34), and *JST* (7.15). As seen in this figure, the networks of leading journals are not close and are of low maturity. These results may be because the scope of many leading journals is very broad. This metric also shows how information flows in the network (Ye *et al.*, 2013). For example, as seen Figure 6, *IJCHM* has the highest average distance (9.69), indicating that information only needs to flow an average distance of nine people to transfer from one author to another (Ye *et al.*, 2013, p. 58). This can also be seen in the visualization of the co-authorship networks of each journal in the appendix. This may be important for the recognition and citation of the articles published in these journals(*JTR*, *TM*, *IJCHM*, *JTR*, *JST*, *CHQ*, and *IJHM*), as they have a higher impact factor based on the Journal of Citation reports published in 2017.

Insert Figure 6 about here

The second common metric is the *clustering coefficient* (C), which "quantifies how close one node's neighbors are to being a clique. Put simply, it describes the probability that one's friend's friend is also a friend of oneself. C = 0 means that all the nodes are isolated, whereas C = 1 means that all the nodes are directly connected" (Ye *et al.*, 2013, p. 58). Figure 7 shows the ranking based on the weighted clustering coefficient calculated utilizing the Ucinet 6 software program. *TMP* had the highest value (0.89), followed by *TS* (0.88), *THR* (0.84), *IJCTHR* (0.80), and *JDMM* (0.78). The clustering coefficient of the leading journals, such as *CHQ*, *JTR*, *JTTM*, *ATR*, *IJHM*, *IJCHM*, and *TM* networks, is low, which highlights that the networks of these journals are not highly clustered and the relationship between the authors in each of the journals is not close.

Insert Figure 7 about here

The third metric is the *size of the largest component,* which points out how extensive and intimate the collaboration within the network is (Ye *et al.*, 2013). This metric usually includes the most productive authors (Kretschmer, 2004). In other words, most researchers who belong to the largest component are connected by linked research efforts (Newman, 2004). Figure 8 presents the ranking based on the size of the largest component. Leading journals have more researchers in the largest component of the network.

Insert Figure 8 about here

The last metric is *betweenness centrality*. Betweenness centrality identifies the extent to which a point lies "between" the various other points in a network. A higher score highlights a hierarchical network structure, where a single or a small number of nodes in the network tend to be more central than other nodes (Ying and Xiao, 2012, p. 460). As seen in Figure 9, *IJHM* has the highest value (9.955), followed by *JHTR* (8.026), *CHQ* (6.514), *JTTM* (5.765), and *JTR* (5.464). The scores show that *IJHM* has the highest diversity in the network (Ying and Xiao, 2012).

Insert Figure 9 about here

Journal Knowledge Domain Metrics

To rank the journals based on the knowledge domain, a hybrid metric, called the journal knowledge domain index (JKDI), is proposed. To generate this index, the correlation between the network-based metrics and citation-based journal impact factors for 2016, released by Scopus (SJR) and Thomson Reuters (JIF) in 2017, were examined. In this analysis, 17 journals having an impact factor in both SCR and JIF were considered. As seen in Table 3, strong relationships between network-based metrics and citation-based journal impact factors exist. After the journal selection, one of the network-based metrics was selected to calculate the knowledge domain indexes of journals. For this purpose, the *average distance* metric was selected, as it has the strongest relationship with the impact factors and is related to how effective a journal's knowledge creation and knowledge dissemination is. Finally, the average distance values for the journals were multiplied by the journals' impact factors to rank the journals based on the JKDI.

Insert Table 3 about here

Figure 10 presents the ranking of the journals based on the JKDI. A higher JKDI indicates journals with a higher impact on knowledge creation and dissemination. *TM* has the highest JKDI value (34.55) based on the JIF, followed by *IJCHM* (30.97), *JTR* (28.47), *ATR* (24.53), and *JST* (21.28). This figure also shows the JKDI values of journals based on SJR.

Insert Figure 10 about here

Conclusion

This study introduced a new approach for ranking academic journals, called the social structure approach. This study focused on H&T journals. The social structure approach is not new, as previously it has been used to examine the knowledge domain of given disciplines. However, this is the first time the social structure approach has been used to rank journals. Twenty-five H&T journals were selected to test this approach. As data for this study, authors' affiliations were obtained from articles published in these journals. This study is one of the first in the journal-ranking literature to provide significant implications by introducing a new ranking approach and a new hybrid metric. These implications are discussed below.

The primary contribution of this study is introducing a new approach for journal ranking. Academic journal-ranking literature has examined how journals can be ranked by offering new methods, providing updated rankings by focusing on existing methods, or extending these methods to obtain new information (Gursoy and Sandstrom, 2016; Okumus *et al.*, 2017). Therefore, citation-based or survey-based methods for journal ranking dominate the literature (Serenko and Bontis, 2017). To survive in a competitive environment, however, academic journals have both formal and informal social structures shaping their culture, norms, rules, and values (Hall, 2011). These social structures have mainly been omitted in journal ranking. This paper aims to kindle a discussion on journal ranking based on journals' social structure.

The findings of this study demonstrate that top or leading journals have a weaker position in some of the metrics compared to other (or follower) journals. This may be explained by acknowledging that the competition in the academic journal market has been established based on citation metrics. Hence, many journals formulate strategies based on encouraging increased citations, either by looking at what articles or topics invite more citations, or whose papers

provide more citations. Therefore, gatekeepers or brokers related to the journals are critical for paper selection. Many researchers first submit their manuscripts to those leading journals, seeking to join the favored clique. However, since the acceptance rate of these journals is very low, researchers must also submit their studies to other journals. This may bring about a stronger social structure for other journals based on the social structure perspective.

In this research, a new hybrid metric, the JDKI, was developed by considering citation-based metrics and co-authorship network-based metrics. According to the index, leading journals have remained constant with the other rankings (Chang and McAleer, 2012; Gursoy and Sandstrom, 2016; Helen and Jackie Brander, 2001; Law and van der Ven, 2008; McKercher, 2012; McKercher *et al.*, 2006; Pechlaner *et al.*, 2004). McKercher (2005) and Gursoy and Sandstrom (2016) claim this has occurred due to the natural selection of journals, which creates the ranking of journals by providing an "environment where a multitude of publications exist" (McKercher, 2005, p. 649). However, these results occurred not only due to the environment but also the environment created by these journals as organizations (Cardinale, 2017). While this result may allow researchers to clarify the antecedents of the success of journals, this study may also encourage researchers, students, and policymakers to consider more metrics for ranking or evaluating journals, creating a more balanced rating index (Okumus *et al.*, 2017).

Academic journal ranking is vital for the stakeholders of academia (universities, government agencies, academic researchers, doctoral students, and librarians), since it is used in many critical decisions, like promotion; recruitment; funding; appointment; subscriptions for libraries; and ranking schools, countries, and scholars (Gursoy and Sandstrom, 2016; McKercher, 2005; McKercher *et al.*, 2006; Okumus *et al.*, 2017; Serenko and Bontis, 2009, 2017). The academic field of H&T has significantly contributed to the literature (McKercher and

Tung, 2016), playing a critical role in knowledge creation and dissemination in the social sciences because of its interdisciplinary and multidisciplinary characteristics (Tribe, 1997; Tribe *et al.*, 2015; Tribe and Liburd, 2016). Therefore, as innovators (Rivera and Pizam, 2015), H&T researchers should generate or use more optimal ranking systems by integrating the social structure approach into the balanced rating index offered by Okumus *et al.* (2017). This approach may help stakeholders (re)design optimal ranking systems and formulate and implement effective research strategies for knowledge creation and dissemination.

Practical implications

While the results of this study provide guidance to journal-ranking scholars, they also indicate clear implications for practices. For example, researchers looking to submit their papers may use the results of this study to create a high impact on the scholarly domain of H&T. Editors of journals may develop new guidelines or policies for their journals by focusing on ranking(s). Universities or institutions benefit from the results of this study during the promotion, recruitment, appointment processes. Government agencies consider the social structure of academic journals in grant funding. Librarians may use this approach to decide which subscriptions of journals to renew. Finally, institutions that release journals' rankings may (re)formulate new ranking metrics by considering the social structure of journals.

Limitations and Future Studies

The study has a few limitations. First, the study considered only 25 H&T tourism journals. However, because the sample included only the selected journals, the generalization of this study may be questioned. This study highlights opportunities for researchers to conduct new studies by targeting more journals. Second, only a few basic metrics were considered. Since social structure is a broad topic, deeper and more comprehensive metrics may be developed to

rank the journals. Third, the rankings in this study utilized only the objective metrics of the social-structure-based approach. Researchers may develop new metrics combining the subjective and objective metrics of social structures. Fourth, in the multi-authorship metric, articles with two, three, four, and five or more authors are treated equally. Consequently, bias in the ranking may emerge. The multi-authorship metric does not account for authors' contribution levels to the articles. In multi-authorship articles, individual authors may provide an unequal contribution, which hinders professionalism related to knowledge creation and dissemination. Thus, to eliminate bias in the approach, a metric dealing with single authorship or the number of authors contributing to multi-authorship papers is needed. Fifth, when calculating the metrics, journals' ages and productivity were not considered, which may have skewed the results. Finally, when ranking journals based on the journal knowledge domain, only two metrics from the social and intellectual structures were considered. However, many more components related to the knowledge domain may exist. Consequently, further components of the knowledge domain should be identified.

These limitations provide new research questions and potential areas of study. First, this study can be repeated to rank the journals of other disciplines or fields. Second, new objective hybrid metrics, including the co-authorship and co-citation networks metrics of journals, may be developed. Third, new metrics, including gender and gender collaboration within journals and the interdisciplinary or multidisciplinary levels in the collaboration or co-authorship network, may be formulated in further studies. Finally, to find a balanced or optimal ranking system, new studies may consider using combinations of this approach and the index recommended by Okumus *et al.* (2017).

References

Agrawal, V.K., Agrawal, V. and Rungtusanatham, M. (2011), "Theoretical and Interpretation Challenges to Using the Author Affiliation Index Method to Rank Journals", *Production and Operations Management*, Vol. 20 No. 2, pp. 280-300.

Ahmed, T., Ahmed, A., Ali, M. and Kamran, M. (2017), "Analysis of co-authorship in computer networks using centrality measures", *Communication, Computing and Digital Systems (C-CODE), International Conference on*, IEEE, pp. 54-57.

Anderson, J.C., Håkansson, H. and Johanson, J. (1994), "Dyadic business relationships within a business network context", *The Journal of Marketing*, Vol. 58 No. 4, pp. 1-15.

Bandyopadhyay, A.K. (2001), "Authorship patterns in different disciplines", *Annals of Library and Information Studies*, Vol. 48 No. 4, pp. 139-147.

Batistič, S., Černe, M. and Vogel, B. (2017), "Just how multi-level is leadership research? A document co-citation analysis 1980–2013 on leadership constructs and outcomes", *The Leadership Quarterly*, Vol. 28 No. 1, pp. 86-103.

Bohlin, L., Viamontes Esquivel, A., Lancichinetti, A. and Rosvall, M. (2016), "Robustness of journal rankings by network flows with different amounts of memory", *Journal of the Association for Information Science and Technology*, Vol. 67 No. 10, pp. 2527-2535.

Bontis, N. and Serenko, A. (2009), "A follow-up ranking of academic journals", *Journal of Knowledge Management*, Vol. 13 No. 1, pp. 16-26.

Bordons, M., Gómez, I., Fernández, M.T., Zulueta, M.A. and Méndez, A. (1996), "Local, Domestic and International Scientific Collaboration in Biomedical Research", *Scientometrics*, Vol. 37 No. 2, pp. 279-295.

Bornmann, L., Marx, W. and Haunschild, R. (2016), "Calculating journal rankings", *Publishing and the Academic World: Passion, Purpose and Possible Futures*, p. 42.

Borst, T., Langer, C. and Schäfers, S. (2017), "Journal rankings as a means for structuring bibliographic databases: a case study in Economics and Business Studies", *Qualitative and Quantitative Methods in Libraries*, Vol. 2 No. 1, pp. 9-16.

Brüderl, J. and Preisendörfer, P. (1998), "Network Support and the Success of Newly Founded Business", *Small Business Economics*, Vol. 10 No. 3, pp. 213-225.

Burt, R.S. (2009), *Structural Holes: The Social Structure of Competition*, Harvard University Press.

Cardinale, I. (2017), "Beyond Constraining and Enabling: Towards New Microfoundations for Institutional Theory", *Academy of Management Review*, doi:10.5465/amr.2015.0020

Carraher, S.M. and Paridon, T.J. (2015), "Entrepreneurship journal rankings across the discipline", *Journal of Small Business Strategy*, Vol. 19 No. 2, pp. 89-98.

Chan, K.C., Seow, G.S. and Tam, K. (2009), "Ranking accounting journals using dissertation citation analysis: A research note", *Accounting, Organizations and Society*, Vol. 34 No. 6, pp. 875-885.

Chang, C.-L. and McAleer, M. (2012), "Citations and impact of ISI tourism and hospitality journals", *Tourism Management Perspectives*, Vol. 1, pp. 2-8.

Coleman, A. (2007), "Assessing the value of a journal beyond the impact factor", *Journal of the American Society for Information Science and Technology*, Vol. 58 No. 8, pp. 1148-1161.

Corrêa Jr, E.A., Silva, F.N., da F. Costa, L. and Amancio, D.R. (2017), "Patterns of authors contribution in scientific manuscripts", *Journal of Informetrics*, Vol. 11 No. 2, pp. 498-510.

Daunorienė, A., Drakšaitė, A., Snieška, V. and Valodkienė, G. (2015), "Evaluating Sustainability of Sharing Economy Business Models", *Procedia - Social and Behavioral Sciences*, Vol. 213, pp. 836-841.

de Solla Price, D.J. and Beaver, D. (1966), "Collaboration in an invisible college", *American Psychologist*, Vol. 21 No. 11, pp. 1011-1018.

Dehdarirad, T. and Nasini, S. (2017), "Research impact in co-authorship networks: a two-mode analysis", *Journal of Informetrics*, Vol. 11 No. 2, pp. 371-388.

Didegah, F. and Thelwall, M. (2013), "Which factors help authors produce the highest impact research? Collaboration, journal and document properties", *Journal of Informetrics*, Vol. 7 No. 4, pp. 861-873.

Ding, Z.Q. (2017), "Bibliometrics Analysis of Typical SCI Journals in Natural Medicines by Use of WoS", *Serials Review*, Vol. 43 No. 2, pp. 130-136.

Ding, Z.Q. and Wang, M.H. (2014), "Analysis of hot papers published in plant and animal science based on ESI and its enlightenment for soliciting contributions", *Chinese Journal of Scientific Technical Periodicals*, Vol. 25 No. 11, pp. 1358-1363.

Elango, B. and Rajendran, P. (2012), "Authorship Trends and Collaboration Pattern in the Marine Sciences Literature : A Scientometric Study", *International Journal of Information Dissemination and Technology*, Vol. 2 No. 3, pp. 166-169.

Gherardini, A. and Nucciotti, A. (2017), "Yesterday's giants and invisible colleges of today. A study on the 'knowledge transfer' scientific domain", *Scientometrics*, Vol. 112 No. 1, pp. 255-271.

Gibson, J., Anderson, D.L. and Tressler, J. (2014), "Which journal rankings best explain academic salaries? Evidence from the University of California", *Economic Inquiry*, Vol. 52 No. 4, pp. 1322-1340.

Gingras, Y. (2016), *Bibliometrics and research evaluation: Uses and abuses*, MIT Press.

Glanzel, W. (2003), *Bibliometric as a research field: A course on theory and application of bibliometric indicators*, <http://nsdl.niscair.res.in/jspui/bitstream/123456789/968/1/Bib_Module_KUL.pdf >.

Glanzel, W. and Schubert, A. (2004), "Analysing scientific networks through co-authorship", *Handbook of quantitative science and technology research*, Vol. 11, pp. 257-279.

Groesser, S.N. (2012), "Dynamics of Journal Impact Factors", *Systems Research and Behavioral Science*, Vol. 29 No. 6, pp. 624-644.

Gursoy, D. and Sandstrom, J.K. (2016), "An Updated Ranking of Hospitality and Tourism Journals", *Journal of Hospitality & Tourism Research*, Vol. 40 No. 1, pp. 3-18.

Håkansson, H. and Snehota, I. (1989), "No business is an island: The network concept of business strategy", *Scandinavian Journal of Management*, Vol. 5 No. 3, pp. 187-200.

Hall, M.C. (2011), "Publish and perish? Bibliometric analysis, journal ranking and the assessment of research quality in tourism", *Tourism Management*, Vol. 32 No. 1, pp. 16-27.

Hanneman, R.A. and Riddle, M. (2005), *Introduction to social network methods*, Riverside, CA: University of California, Riverside (published in digital form at http://faculty.ucr.edu/~hanneman/)

Helen, A. and Jackie Brander, B. (2001), "Rethinking performance measures: assessing progress in UK hotels", *International Journal of Contemporary Hospitality Management*, Vol. 13 No. 3, pp. 128-136.

Horrace, W.C. and Parmeter, C.F. (2017), "Accounting for Multiplicity in Inference on Economics Journal Rankings", *Southern Economic Journal*, Vol. 84 No. 1, pp. 337-347.

House, J.S. (1981), Social Structure and Personality, in M. Rosenberg & R.H. Turner (eds), *Social Psychology*, Basic Books, Inc., New York, pp. 525–561.

Koopman, R., Wang, S. and Scharnhorst, A. (2017), "Contextualization of topics: browsing through the universe of bibliographic information", *Scientometrics*, Vol. 111 No. 2, pp. 1119-1139.

Koseoglu, M.A. (2016), "Growth and structure of authorship and co-authorship network in the strategic management realm: Evidence from the Strategic Management Journal", *BRQ Business Research Quarterly*, Vol. 19 No. 3, pp. 153-70.

Koseoglu, M.A., Rahimi, R., Okumus, F. and Liu, J. (2016), "Bibliometric studies in tourism", *Annals of Tourism Research*, Vol. 61, pp. 180-98.

Kretschmer, H. (2004), "Author productivity and geodesic distance in bibliographic co-authorship networks, and visibility on the Web", *Scientometrics*, Vol. 60 No. 3, pp. 409-20.

Kumar, S. and Jan, J.M. (2013), "Mapping research collaborations in the business and management field in Malaysia, 1980–2010", *Scientometrics*, Vol. 97 No. 3, pp. 491-517.

Laband, D.N. (2013), "On the use and abuse of economics journal rankings", *The Economic Journal*, Vol. 123 No. 570, pp. F223-F254

Law, R. and van der Ven, R. (2008), "The popularity of prestigious hospitality journals: a Google Scholar approach", *International Journal of Contemporary Hospitality Management*, Vol. 20 No. 2, pp. 113-125.

Lehmann, R. and Wohlrabe, K. (2017), "Who is the 'Journal Grand Master'? A new ranking based on the Elo rating system", *Journal of Informetrics*, Vol. 11 No. 3, pp. 800-809.

Leimu, R. and Koricheva, J. (2005), "Does Scientific Collaboration Increase the Impact of Ecological Articles?", *BioScience*, Vol. 55 No. 5, pp. 438-443.

Lewis, M.O., Hayward, S.D., Baxter, R.J. and Coffey, B.S. (2017), "Stakeholder enrolment and business network formation: a process perspective on technology innovation", *International Journal of Technoentrepreneurship*, Vol. 3 No. 3, pp. 203-227.

Lin, N. and Dumin, M. (1986), "Access to occupations through social ties", *Social Networks*, Vol. 8 No. 4, pp. 365-385.

Mahmood, K. (2017), "Correlation Between Perception-Based Journal Rankings and the Journal Impact Factor (JIF): A Systematic Review and Meta-Analysis", *Serials Review*, Vol. 43 No. 2, pp. 120-129.

Martín-Peña, M.L., Pinillos, M.-J. and Reyes, L.-E. (2017), "The intellectual basis of servitization: A bibliometric analysis", *Journal of Engineering and Technology Management*, Vol. 43, pp. 83-97.

McKercher, B. (2005), "A case for ranking tourism journals", *Tourism Management*, Vol. 26 No. 5, pp. 649-651.

McKercher, B. (2012), "Influence ratio: An alternate means to assess the relative influence of hospitality and tourism journals on research", *International Journal of Hospitality Management*, Vol. 31 No. 3, pp. 962-971.

McKercher, B., Law, R. and Lam, T. (2006), "Rating tourism and hospitality journals", *Tourism Management*, Vol. 27 No. 6, pp. 1235-1252.

McKercher, B. and Tung, V. (2016), "The rise of fractional authors", *Annals of Tourism Research*, Vol. 61, pp. 213-215.

Meese, K.A., O'Connor, S.J., Borkowski, N. and Hernandez, S.R. (2017), "Journal rankings and directions for future research in health care management: A global perspective", *Health Services Management Research*, Vol. 30 No. 2, pp. 129-137.

Moosa, I. (2011), "The demise of the ARC journal ranking scheme: an ex post analysis of the accounting and finance journals", *Accounting & Finance*, Vol. 51 No. 3, pp. 809-836.
Newman, M.E. (2004), "Coauthorship networks and patterns of scientific collaboration", *Proceedings of the national academy of sciences*, Vol. 101, pp. 5200-5205.
Nordqvist, M. and Melin, L. (2010), "Entrepreneurial families and family firms", *Entrepreneurship and Regional Development*, Vol. 22 No. 3-4, pp. 211-239.
Ogasavara, M.H., Ogasavara, M.H., Boehe, D.M., Boehe, D.M., Barin Cruz, L. and Barin Cruz, L. (2016), "Experience, resources and export market performance: The pivotal role of international business network ties", *International Marketing Review*, Vol. 33 No. 6, pp. 867-893.
Okumus, F., Zhao, X.R., Niekerk, M.V. and Law, R. (2017), "The Importance of Having a Balanced Rating Index for Ranking Academic Journals", *Journal of Hospitality & Tourism Research*, doi: 10.1177/1096348017709499.
Pechlaner, H., Zehrer, A., Matzler, K. and Abfalter, D. (2004), "A Ranking of International Tourism and Hospitality Journals", *Journal of Travel Research*, Vol. 42 No. 4, pp. 328-332.
Pinto, M.J. and Fernandes, S. (2017), "New questions arise: are bibliometric indicators adequate for evaluating the scientific production of the Social Sciences and Humanities?", *Qualitative and Quantitative Methods in Libraries (QQML)*, SI, pp. 161-169.
Potter, W. G. (1988). "Of making many books there is no end: Bibliometrics and libraries", *The Journal of Academic Librarianship*, Vol. 14, pp. 238–239.
Qiu, J., Zhao, R., Yang, S. and Dong, K. (2017), *Author Distribution of Literature Information: Lotka's Law*, Informetrics: Theory, Methods and Applications, Springer Singapore, Singapore, pp. 145-83.
Rivera, M.A. and Pizam, A. (2015), "Advances in hospitality research: 'from Rodney Dangerfield to Aretha Franklin'", *International Journal of Contemporary Hospitality Management*, Vol. 27 No. 3, pp. 362-78.
Rost, K., Teichert, T. and Pilkington, A. (2017), "Social network analytics for advanced bibliometrics: referring to actor roles of management journals instead of journal rankings", *Scientometrics*, Vol. 112 No. 3, pp. 1631-1657.
Sangster, A. (2015), "You Cannot Judge a Book by Its Cover: The Problems with Journal Rankings", *Accounting Education*, Vol. 24 No. 3, pp. 175-186.
Schrader, U. and Hennig-Thurau, T. (2009), "VHB-JOURQUAL2: Method, Results, and Implications of the German Academic Association for Business Research's Journal Ranking", *Business Research*, Vol. 2 No. 2, pp. 180-204.
Serenko, A. (2010), "The development of an AI journal ranking based on the revealed preference approach", *Journal of Informetrics*, Vol. 4 No. 4, pp. 447-459.
Serenko, A. and Bontis, N. (2009), "A citation-based ranking of the business ethics scholarly journals", *International Journal of Business Governance and Ethics*, Vol. 4, No. 4, pp. 390-399.
Serenko, A. and Bontis, N. (2017), "Global ranking of knowledge management and intellectual capital academic journals: 2017 update", *Journal of Knowledge Management*, Vol. 21 No. 3, pp. 675-692.
Serrat, O. (2017), *Social Network Analysis, Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance*, Springer Singapore, Singapore, pp. 39-43.

Smolinsky, L. (2017), "Discrete power law with exponential cutoff and Lotka's law", *Journal of the Association for Information Science and Technology*, Vol. 68 No. 7, pp. 1792-1795.
Stewart, G.L. and Barrick, M.R. (2000), "Team Structure and Performance: Assessing the Mediating Role of Intrateam Process and the Moderating Role of Task Type", *The Academy of Management Journal*, Vol. 43 No. 2, pp. 135-148.
Talukdar, D. (2011), "Patterns of Research Productivity in the Business Ethics Literature: Insights from Analyses of Bibliometric Distributions", *Journal of Business Ethics*, Vol. 98 No. 1, pp. 137-51.
Talukdar, D. (2015), "Research productivity patterns in the organizational behavior and human resource management literature", *The International Journal of Human Resource Management*, Vol. 26 No. 4, pp. 467-484.
Tourish, D. and Willmott, H. (2015), "In Defiance of Folly: Journal rankings, mindless measures and the ABS Guide", *Critical Perspectives on Accounting*, Vol. 26, pp. 37-46.
Tribe, J. (1997), "The indiscipline of tourism", *Annals of Tourism Research*, Vol. 24 No. 3, pp. 638-657.
Tribe, J., Dann, G. and Jamal, T. (2015), "Paradigms in tourism research: a trialogue", *Tourism Recreation Research*, Vol. 40 No. 1, pp. 28-47.
Tribe, J. and Liburd, J.J. (2016), "The tourism knowledge system", *Annals of Tourism Research*, Vol. 57, pp. 44-61.
Tsai, W. (2001), "Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance", *Academy of management journal*, Vol. 44 No. 5, pp. 996-1004.
Tüselmann, H., Sinkovics, R.R. and Pishchulov, G. (2015), "Towards a consolidation of worldwide journal rankings–a classification using random forests and aggregate rating via data envelopment analysis", *Omega*, Vol. 51, pp. 11-23.
Verbeek, A., Debackere, K., Luwel, M. and Zimmermann, E. (2002), "Measuring progress and evolution in science and technology – I: The multiple uses of bibliometric indicators", *International Journal of Management Reviews*, Vol. 4 No. 2, pp. 179-211.
Walters, W.H. (2017), "Key questions in the development and use of survey-based journal rankings", *The Journal of Academic Librarianship*, Vol. 43 No. 4, pp. 305-311.
Ye, Q., Li, T. and Law, R. (2013), "A Coauthorship Network Analysis of Tourism and Hospitality Research Collaboration", *Journal of Hospitality & Tourism Research*, Vol. 37 No. 1, pp. 51-76.
Ying, T. and Xiao, H. (2012), "Knowledge Linkage: a social network analysis of tourism dissertation subjects", *Journal of Hospitality & Tourism Research*, Vol. 36 No. 4, pp. 450-477.
Yüksel, A. (2017), "A critique of "Response Bias" in the tourism, travel and hospitality research", *Tourism Management*, Vol. 59, pp. 376-384.
Zuccala, A. (2006), "Modeling the invisible college", *Journal of the American Society for Information Science and Technology*, Vol. 57 No. 2, pp. 152-168.
Zupic, I. and Čater, T. (2015), "Bibliometric Methods in Management and Organization", *Organizational Research Methods*, Vol. 18 No. 3, pp. 429-472.

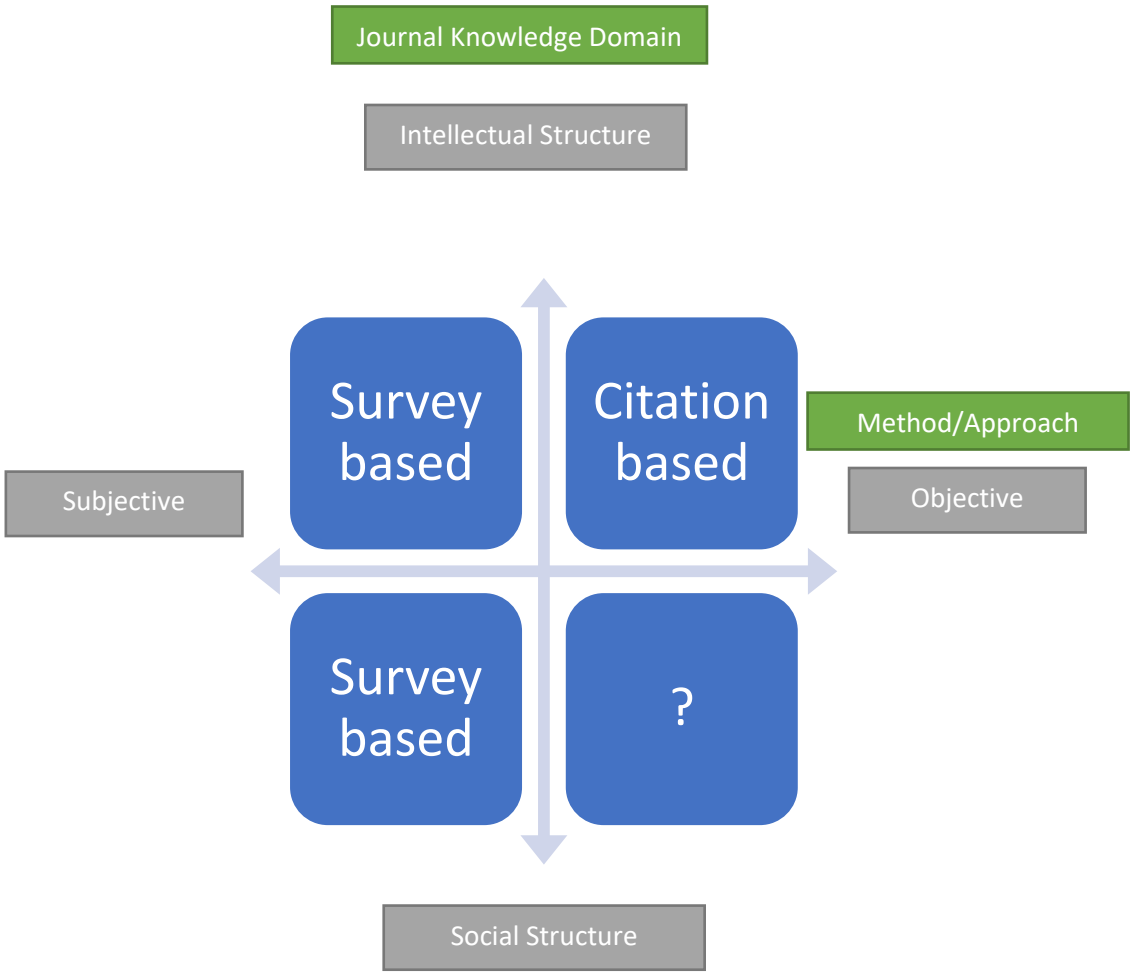


Figure 1. Journal ranking approaches

Source: Authors contribution by considering the following studies (Hall, 2011; Koseoglu *et al.*, 2016; Lehmann and Wohlrabe, 2017; McKercher, 2005; McKercher *et al.,* 2006; Moosa, 2011; Okumus *et al.,* 2017; Schrader and Hennig-Thurau, 2009; Serenko, 2010; Serenko and Bontis, 2009, 2017; Zupic and Čater, 2015)

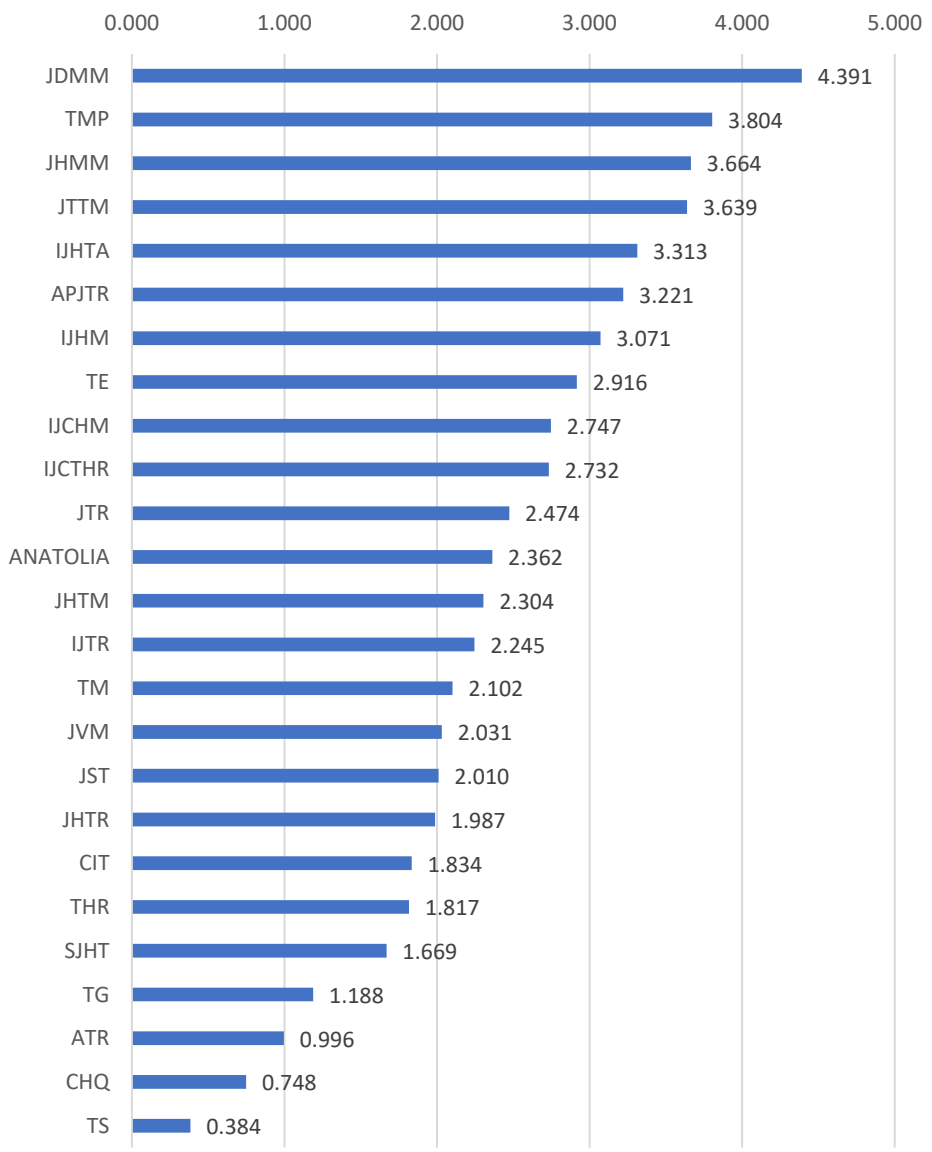


Figure 2. Journal ranking based on multi- authorship index

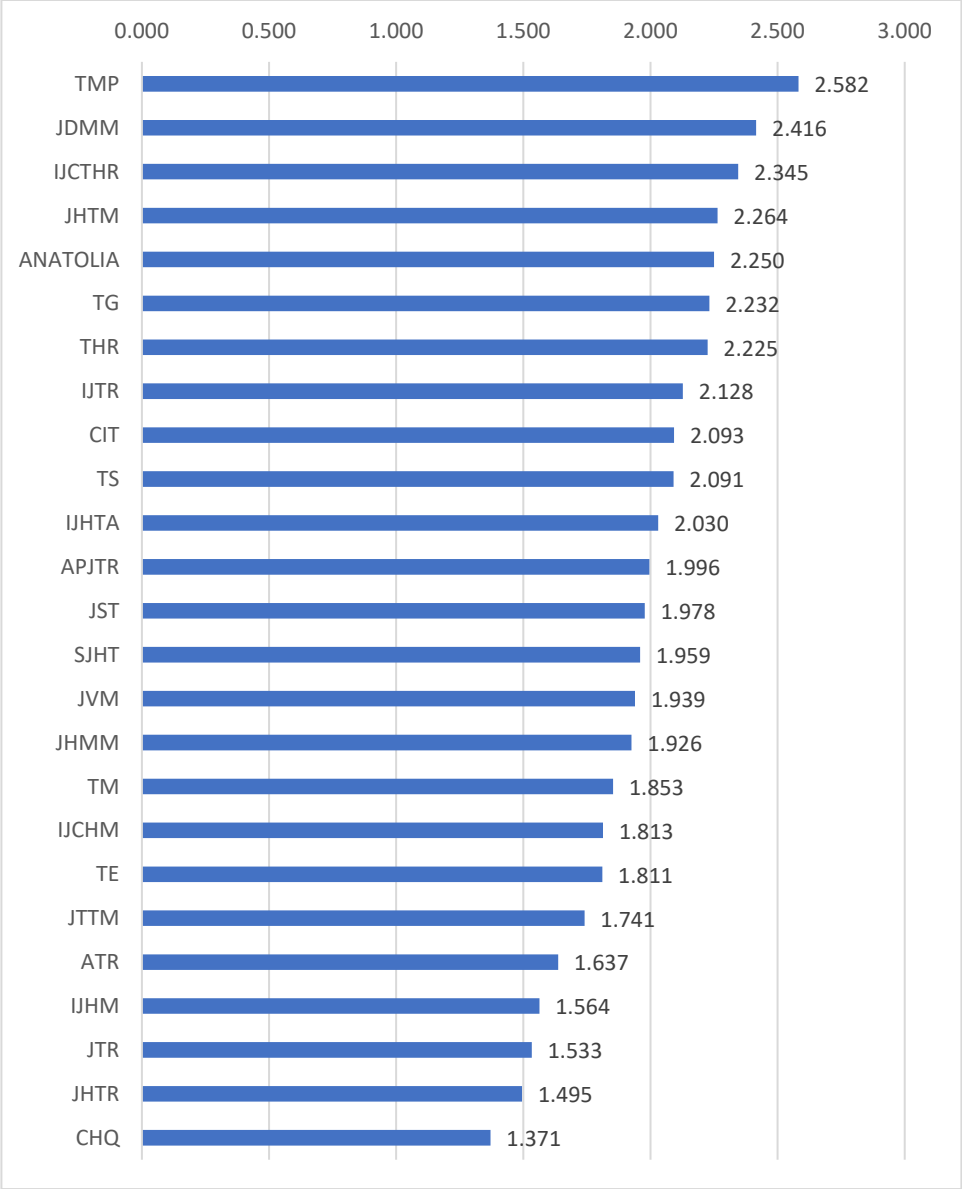


Figure 3. Journal ranking based on collaboration index

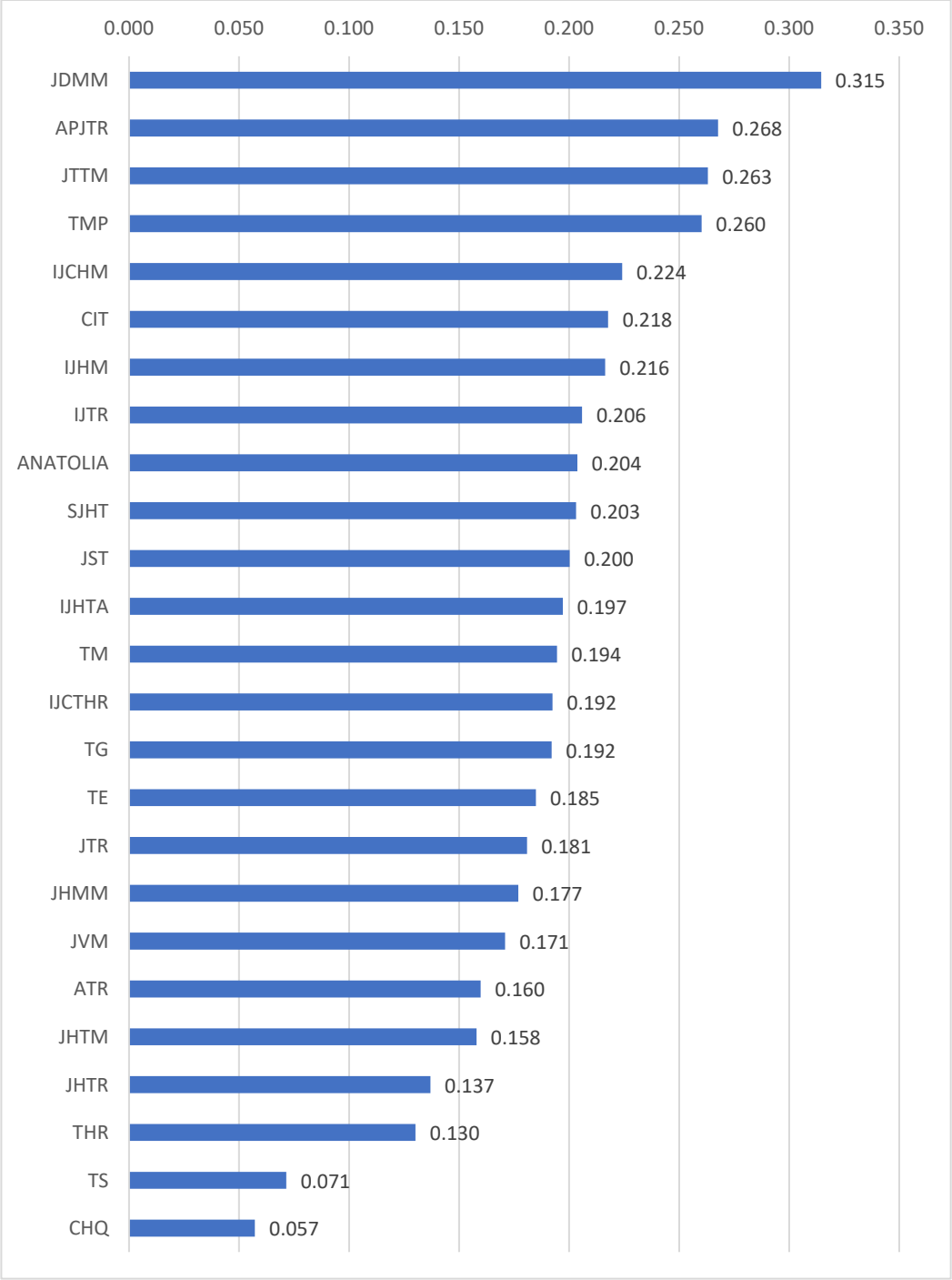


Figure 4. Journal ranking based on international collaboration index

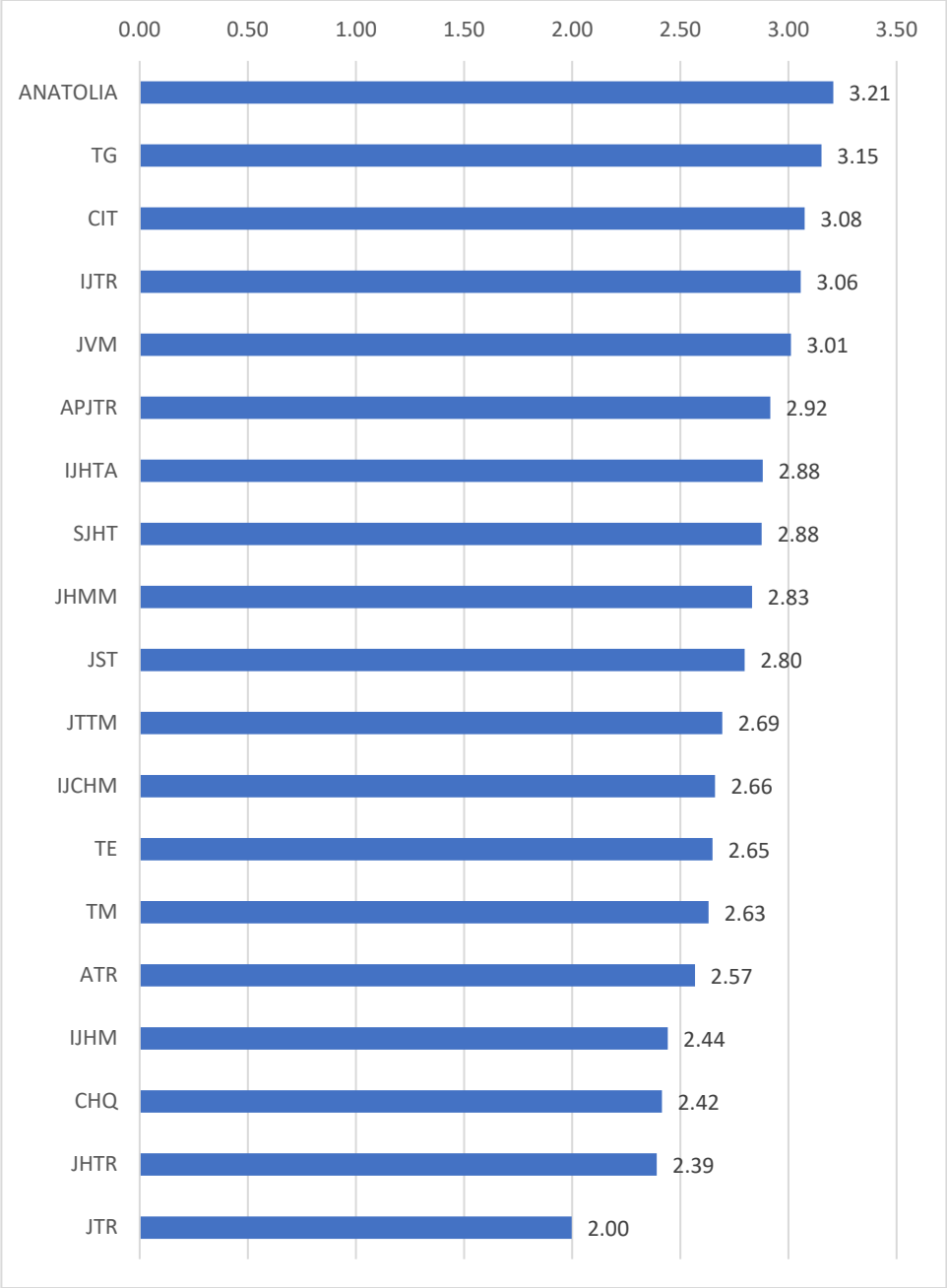


Figure 5. Journal ranking based on productivity of the journals (Lotka's Law)

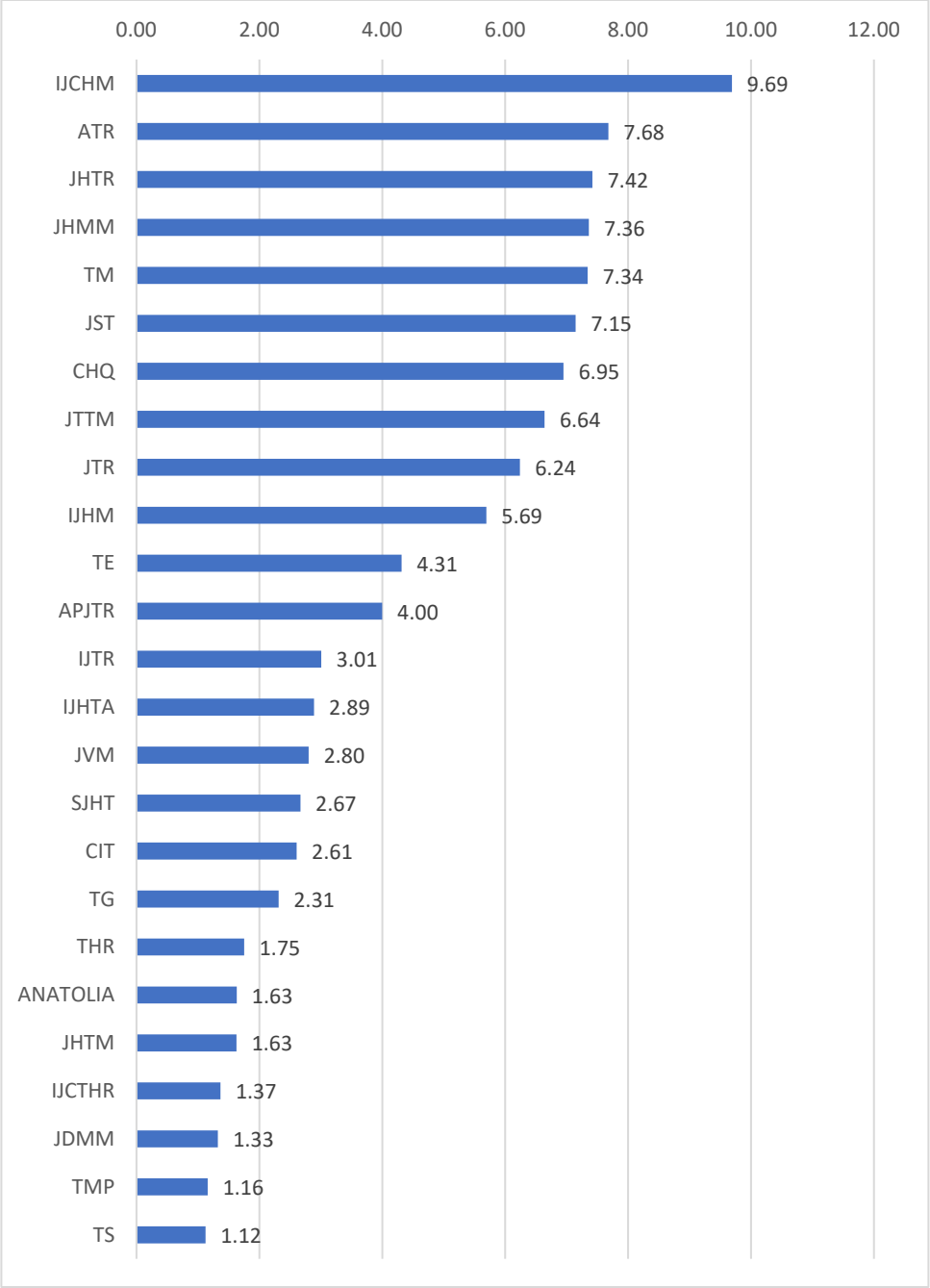


Figure 6. Journal ranking based on average distance of co-authorship network of journals

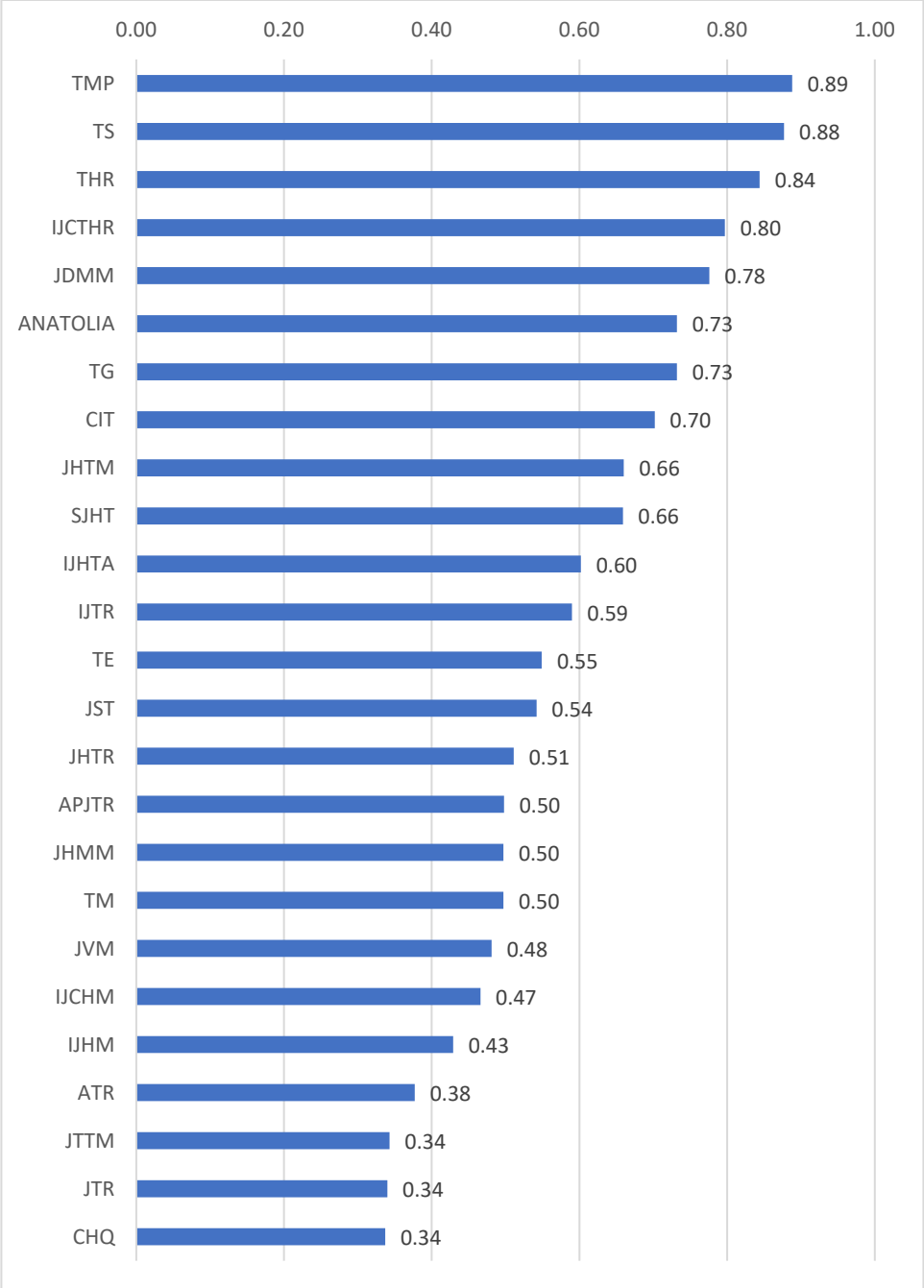


Figure 7. Journal ranking based on cluster coefficient of co-authorship network of journals

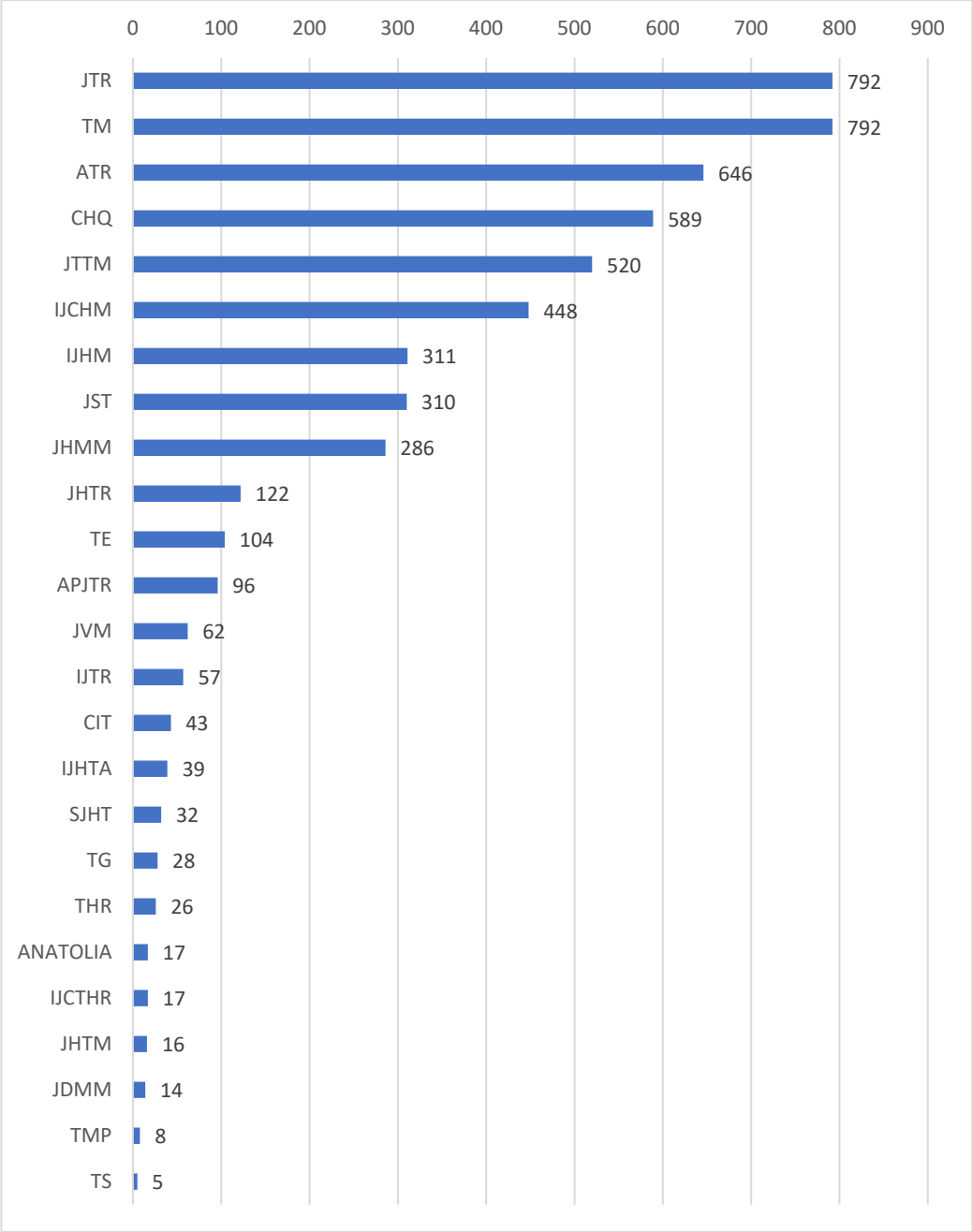


Figure 8. Journal ranking based on size of the largest component of co-authorship network of journals

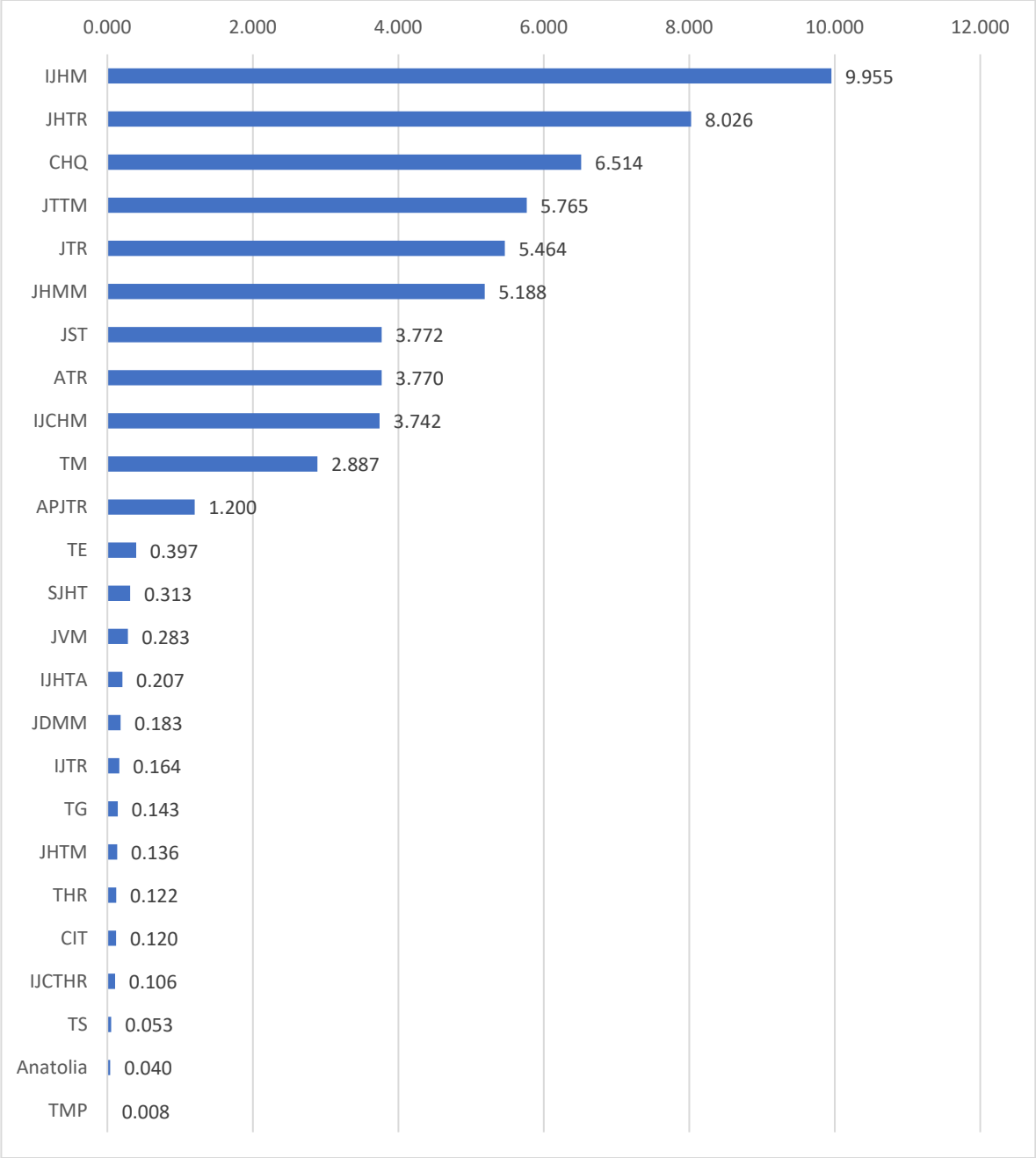
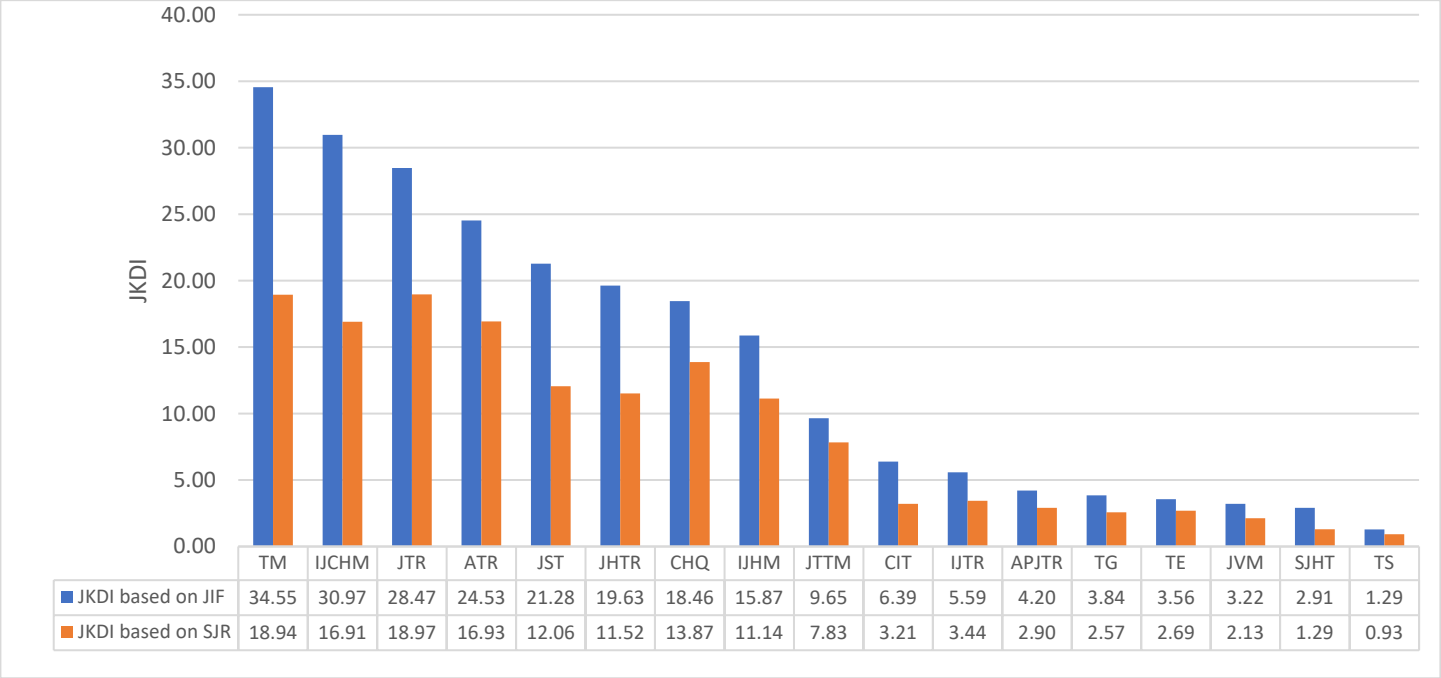


Figure 9. Journal ranking based on betweenness centrality (x100) of co-authorship network of journals



	TM	IJCHM	JTR	ATR	JST	JHTR	CHQ	IJHM	JTTM	CIT	IJTR	APJTR	TG	TE	JVM	SJHT	TS
JKDI based on JIF	34.55	30.97	28.47	24.53	21.28	19.63	18.46	15.87	9.65	6.39	5.59	4.20	3.84	3.56	3.22	2.91	1.29
JKDI based on SJR	18.94	16.91	18.97	16.93	12.06	11.52	13.87	11.14	7.83	3.21	3.44	2.90	2.57	2.69	2.13	1.29	0.93

Figure 10. Journal ranking based on JKDI

Table 1. Scope of Data used

Selected Journals	Earliest issue	Latest issue	# of articles	Impact Factor by SSCI	SCR Scopus
Anatolia: An International Journal of Tourism and Hospitality Research (Anatolia)	1997- v8(3)	2016-v27(4)	427	-	-
Asia Pacific Journal of Tourism Research (APJTR)	1996-v1(1)	2016-v21(12)	650	1.051	0.726
Annals of Tourism Research (ATR)	1973-v1(1)	2016-6-v61	2297	3.194	2.205
Cornell Hospitality Quarterly (CHQ)	1960-v1(1)	2016-v57(4)	2430	2.657	1.996
Current Issues in Tourism (CIT)	1998-v1(1)	2016-v19(14)	666	2.451	1.232
International Journal of Contemporary Hospitality Management (IJCHM)	1989-v1(1)	2016-v28(12)	1199	3.196	1.745
International Journal of Culture, Tourism and Hospitality Research (IJCTHR)	2007-v1(1)	2016-v10(4)	265	-	0.501
International Journal of Hospitality Management (IJHM)	1997-v1(1)	2016-v59	1710	2.787	1.956
International Journal of Hospitality and Tourism Administration (IJHTA)	1997-v1(1)	2016-v17(4)	345	-	0.422
International Journal of Tourism Research (IJTR)	1999-v1(1)	2016-v18(6)	714	1.857	1.144
Journal of Destination Marketing & Management (JDMM)	2013-v1(1)	2016-v5(4)	124	1.556	-
Journal of Hospitality Marketing & Management (JHMM)	1992-v1(1)	2016-v25(8)	667	-	1.556
Journal of Hospitality and Tourism Management (JHTM)	2006-v13(1)	2016-v29	228	-	0.723
Journal of Hospitality and Tourism Research (JHTR)	1976-v1(1)	2016-v40(6)	920	2.646	1.553
Journal of Sustainable Tourism (JST)	1993-v1(1)	2016-v24(12)	879	2.978	1.687
Journal of Travel and Tourism Marketing (JTTM)	1992-v1(1)	2016-v33(9)	1598	4.564	3.04
Journal of Travel Research (JTR)	1968-v7(1)	2016-v55(8)	1053	1.453	1.179
Journal of Vacation Marketing (JVM)	1994-v1(1)	2016-v22(4)	591	1.148	0.76
Scandinavian Journal of Hospitality and Tourism (SJHT)	2001-v1(1)	2016-v16(4)	315	1.091	0.484
Tourism Economics (TE)	1995-v1(1)	2016-v22(6)	979	0.826	0.624
Tourism Geographies (TG)	1999-v1(1)	2016-v18(5)	453	1.663	1.112
Tourism Hospitality Research (THR)	1999-v1(2)	2016-v16(4)	338	-	0.311
Tourism Management (TM)	1999-v3(1)	2016-v57	2463	4.707	2.580
Tourism Management Perspectives (TMP)	2012-v1	2016-v20	269	-	0.851
Tourist Studies (TS)	2001-v1(1)	2016-v16(4)	238	1.147	0.827

Table 2. Metrics of social structure approach for journal rankings

Components of Social Structure Approach	Name of the Metrics	Explanation
Collaboration-Based Metrics	Multi-Authorship Index	The total articles of multi-authored articles including at least two authors per paper/total single-authored articles
	Collaboration Index	The total authors of multi-authored articles / total multi-authored articles (Elango & Rajendran 2012)
	International Collaboration Index	The total articles of two or more authors from two or more institutions and two or more countries / total articles highlighting the international collaboration level of journals
Productivity-Based Metric	Lotka's Law	Productivity of authors
Network-Based Metrics	Average Distance	The average geodesic distance between reachable pairs (Hanneman & Riddle 2005)
	Clustering Coefficient	The density of its open neighborhood (http://www.analytictech.com/ucinet/help/idx.htm)
	Size of the Largest Component	Most researchers who belong to the largest component are connected by linked research efforts (Newman 2004)
	Betweenness Centrality.	The extent to which a particular point lies "between" the various other points in a network.
Hybrid Metrics- Journal Knowledge Domain Metrics	Journal Knowledge Domain Index	The average distance values of social structure network for the journals X the journals' impact factors

Table 3. Correlation between network-based metrics and impact factors based on Spearman's rho

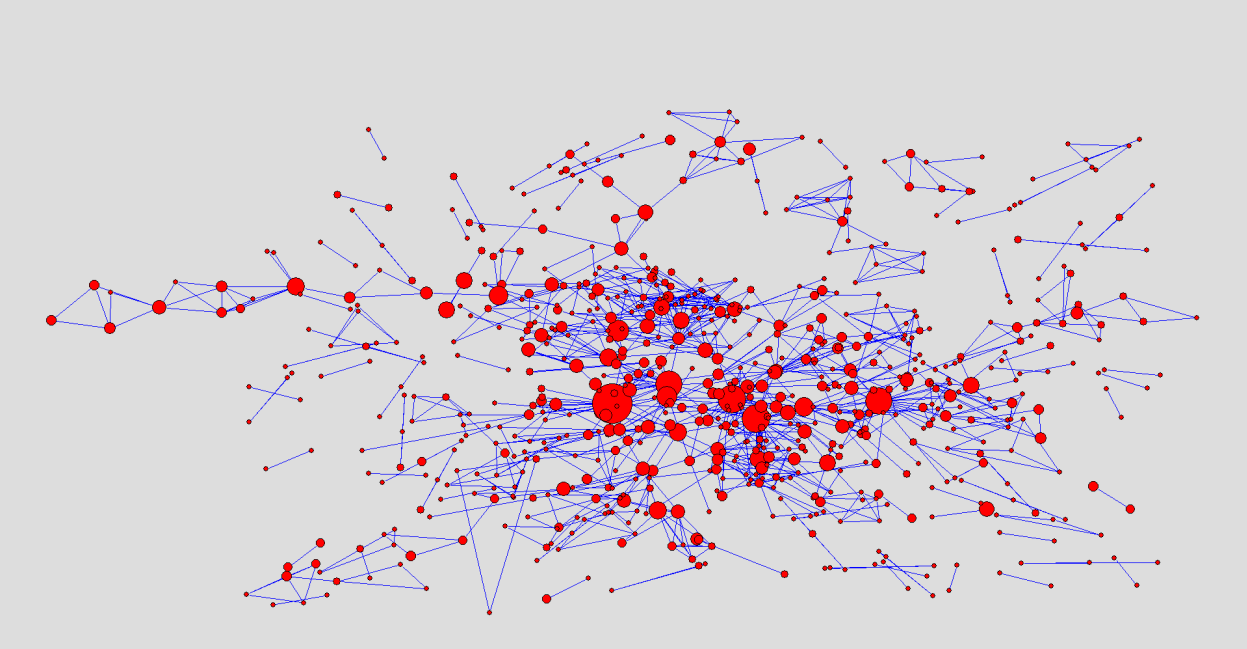
Metrics	SJR Scopus	JIF Thomson Reuters
Betweennness	.591*	.485*
Average distance	.672**	.679**
Weighted cluster coefficient	-.635**	-.502*

**. Correlation is significant at the 0.01 level (2-tailed).

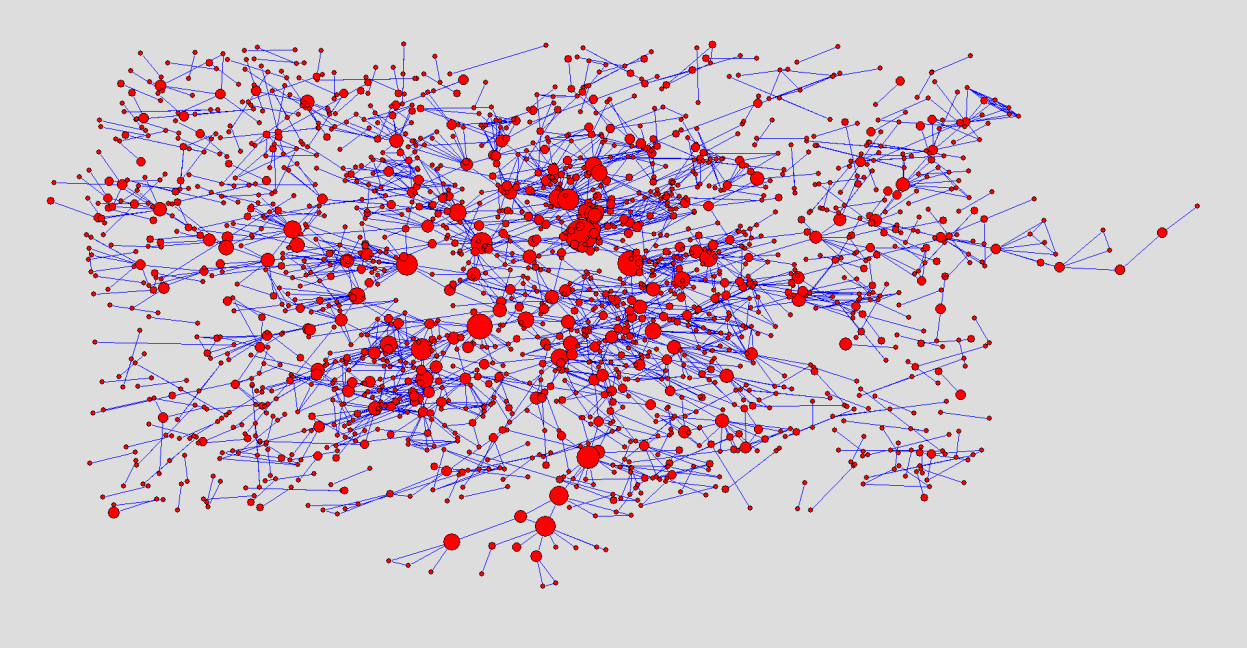
*. Correlation is significant at the 0.05 level (2-tailed).

Appendix Visualization of co-authorship networks of each journals

IJCHM



ATR



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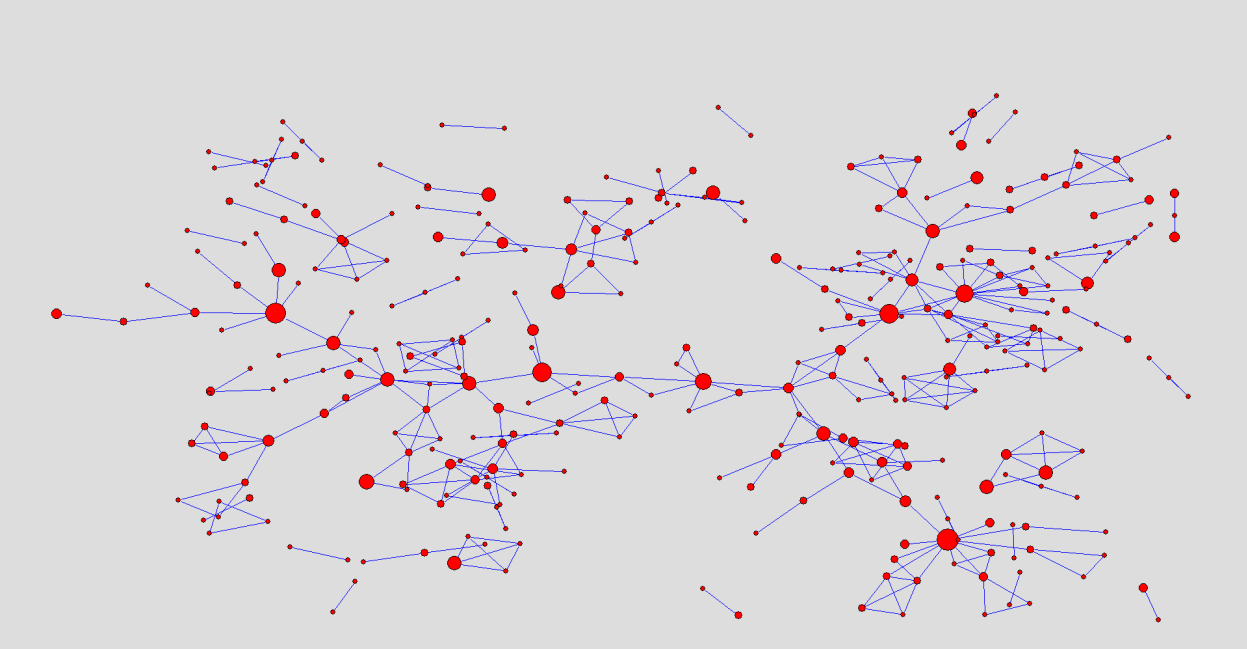

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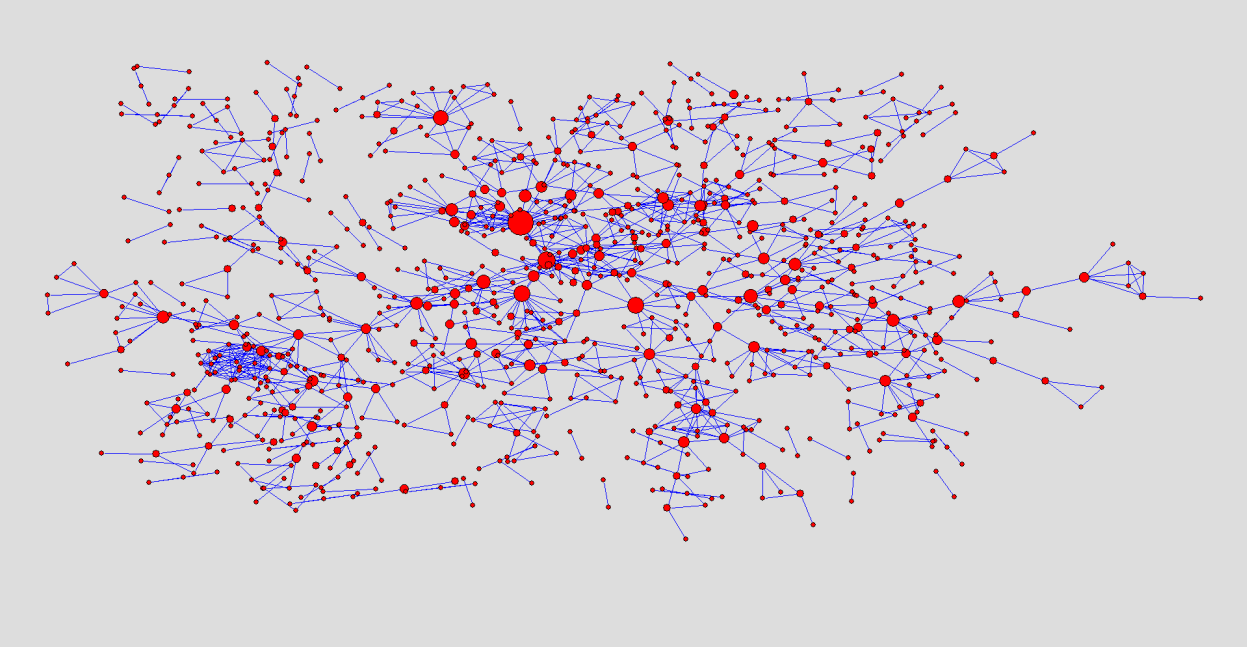

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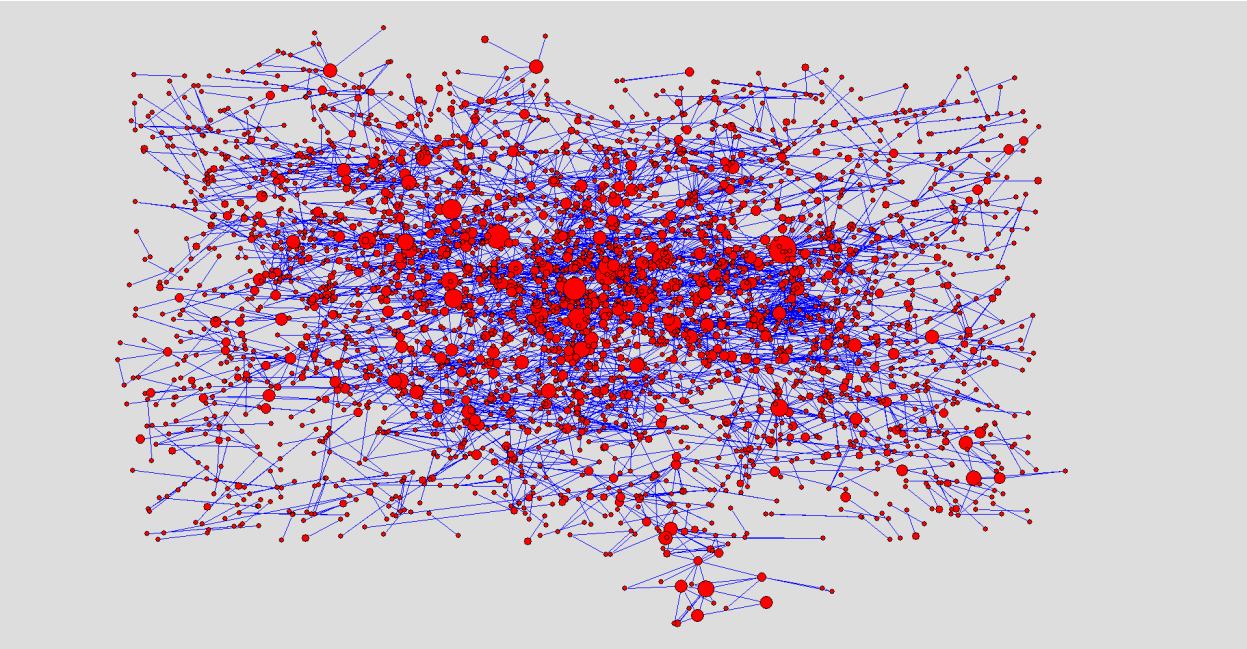

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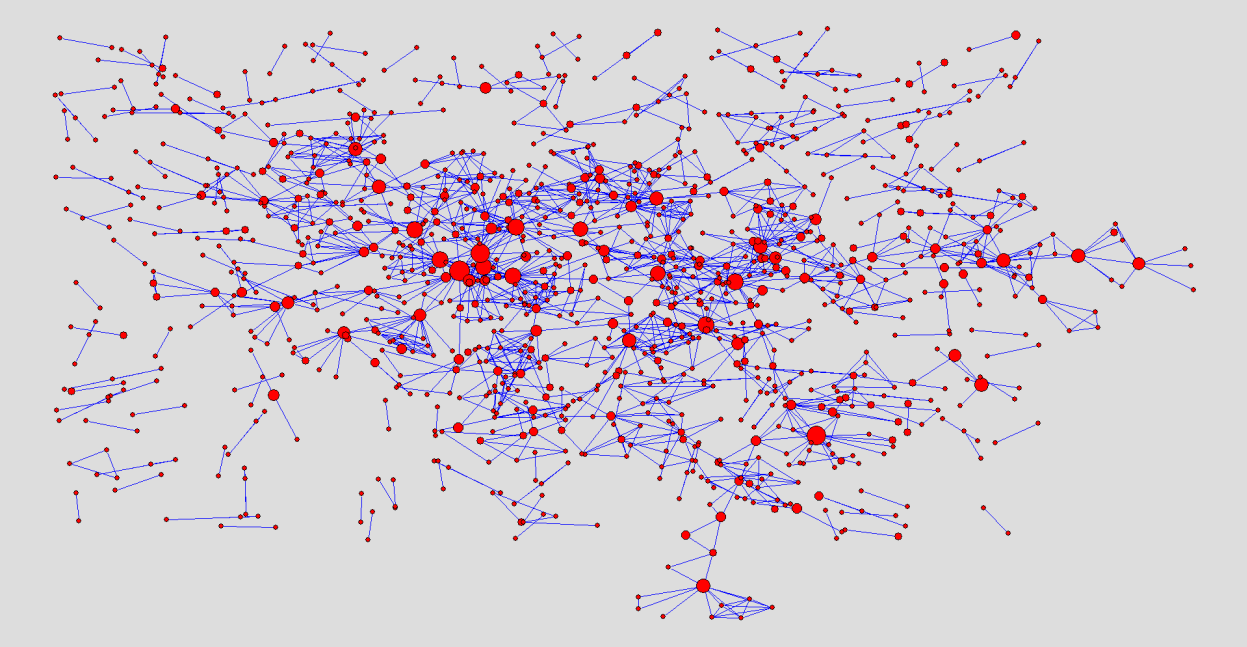

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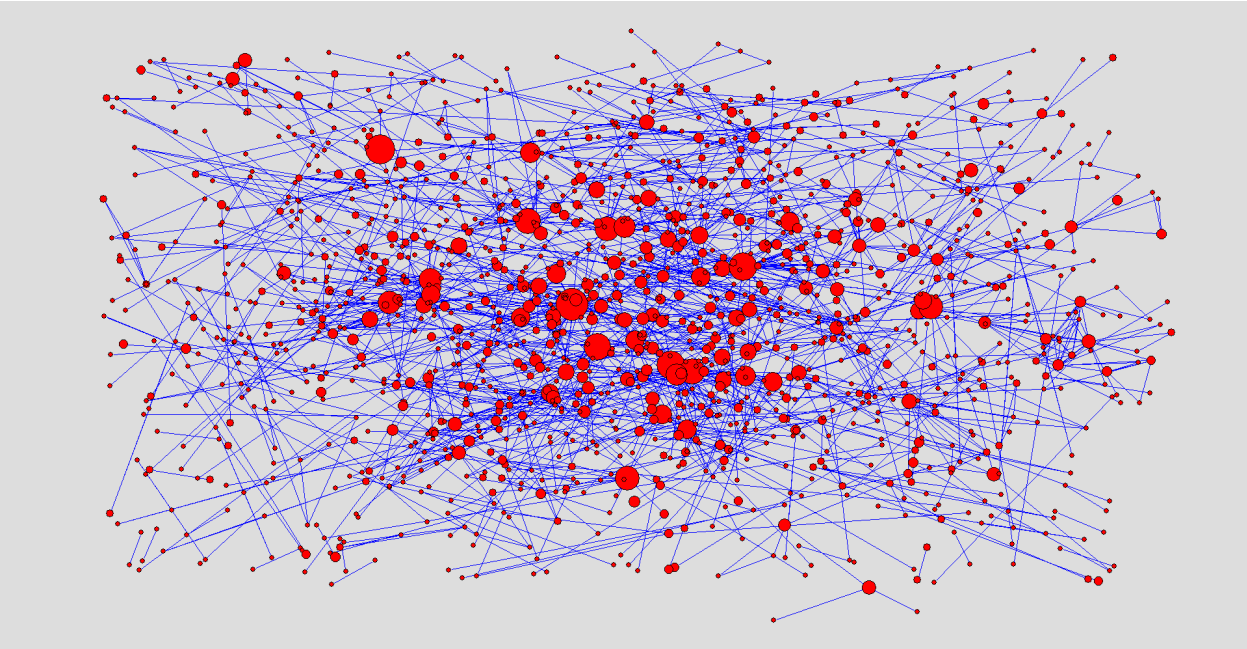

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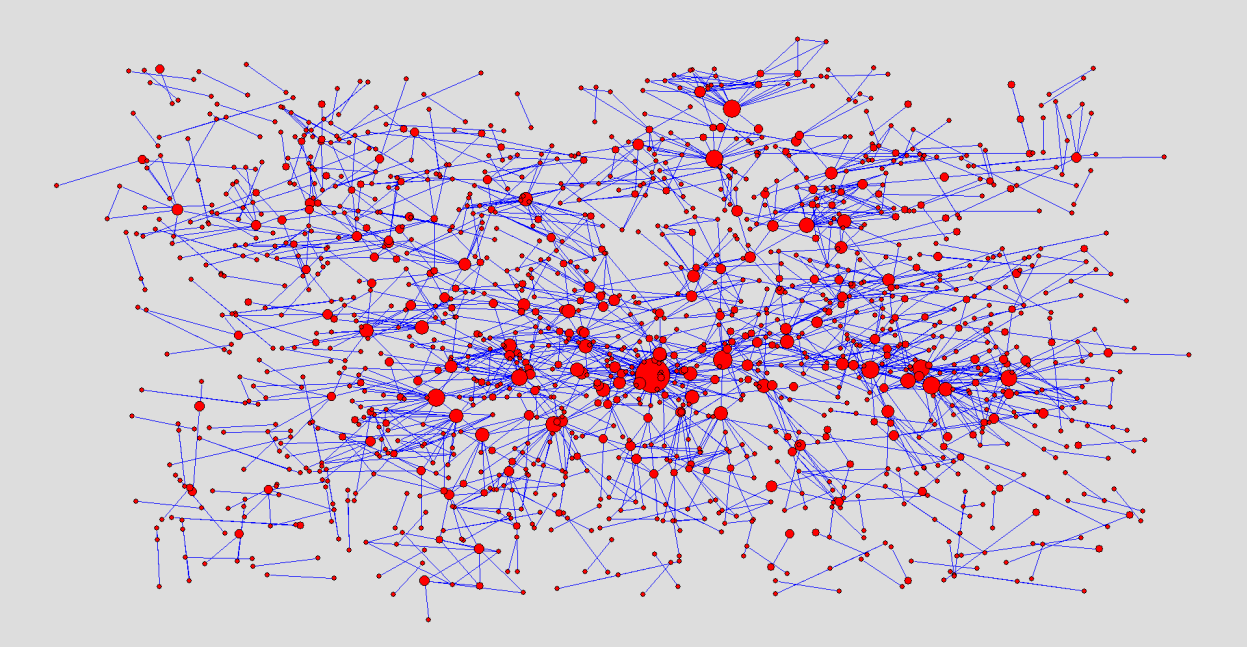

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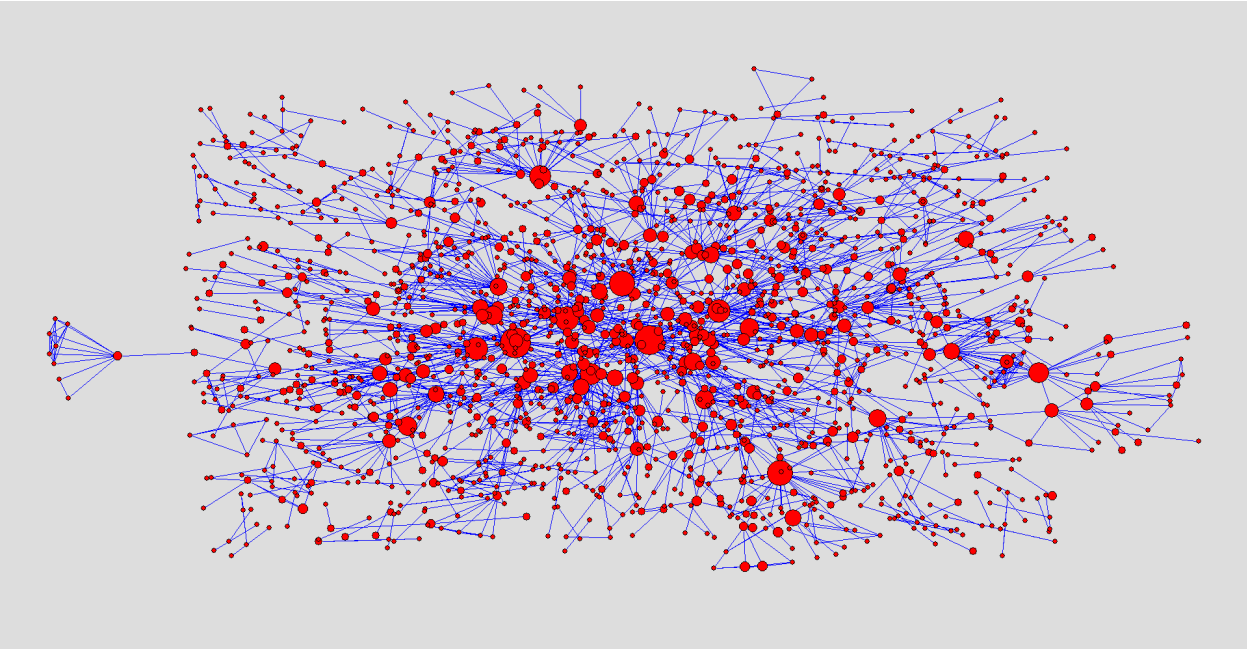

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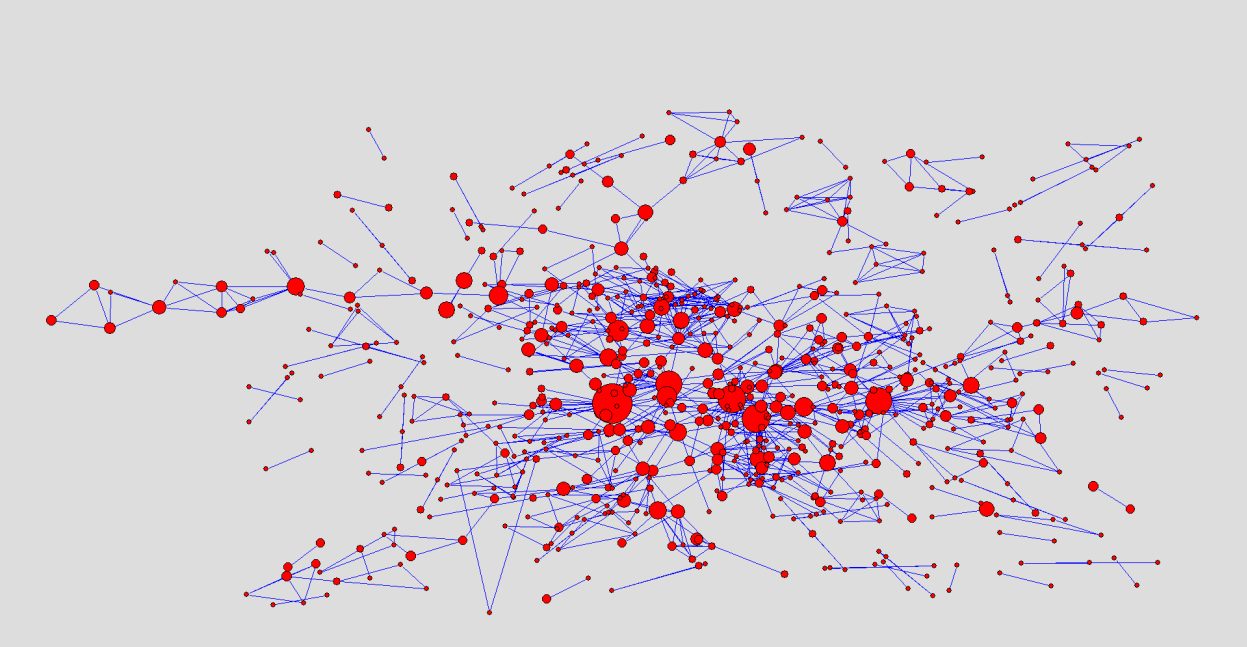

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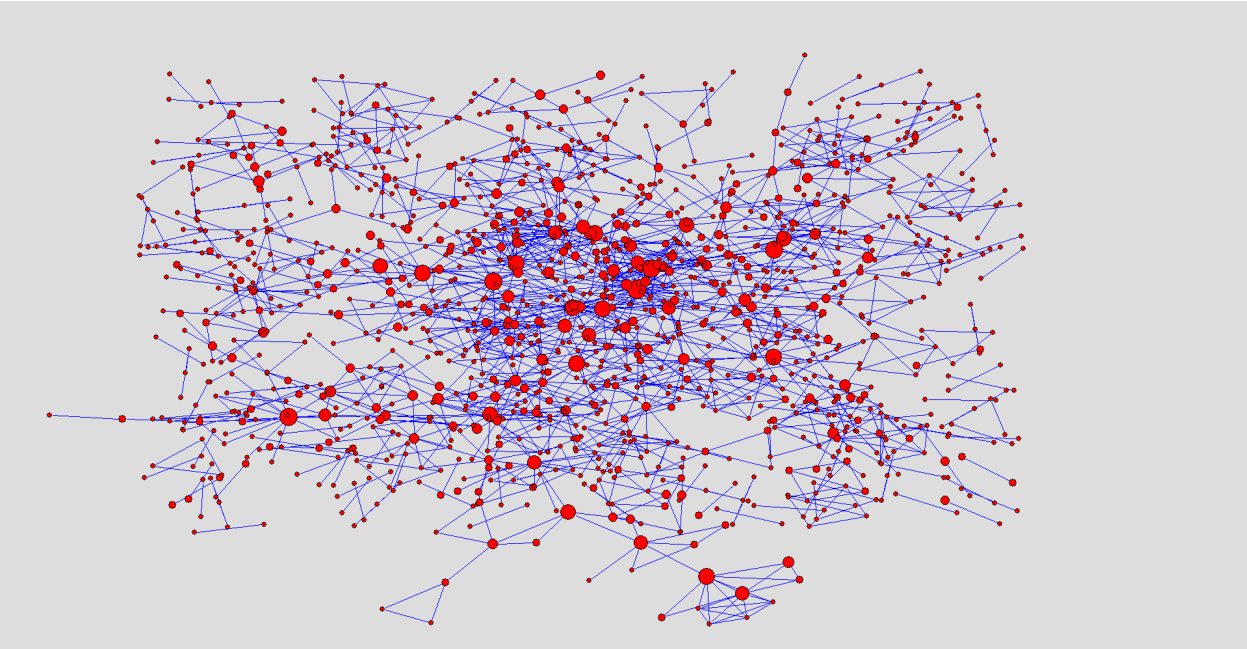

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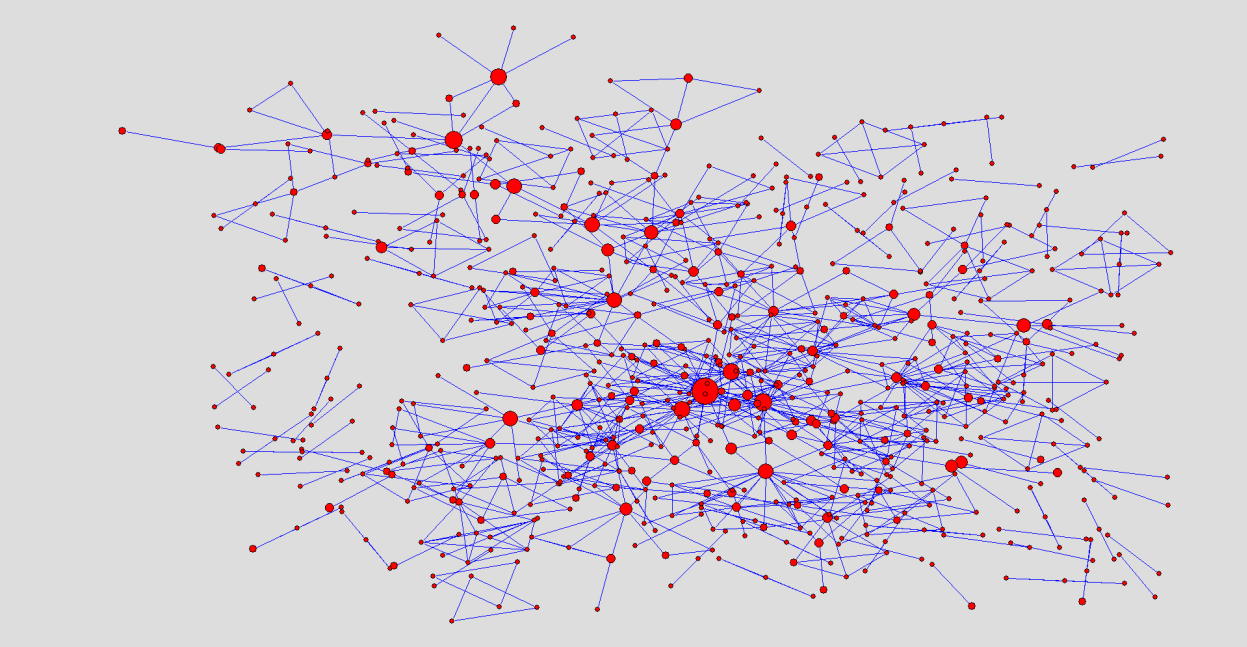

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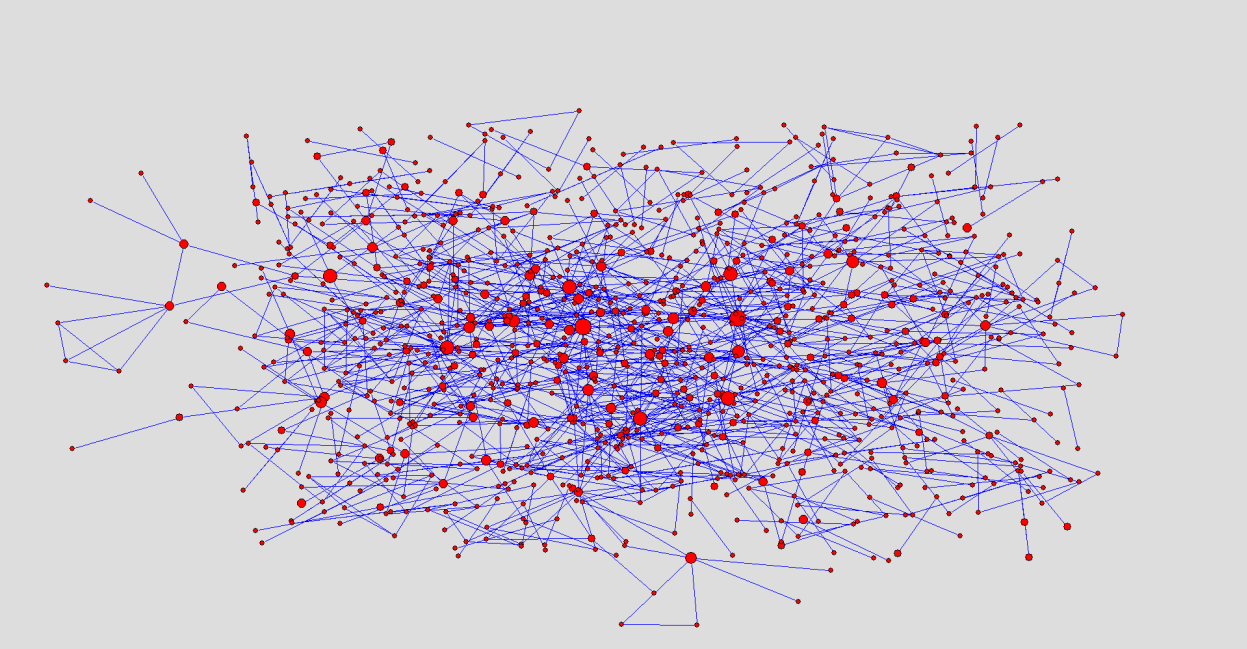

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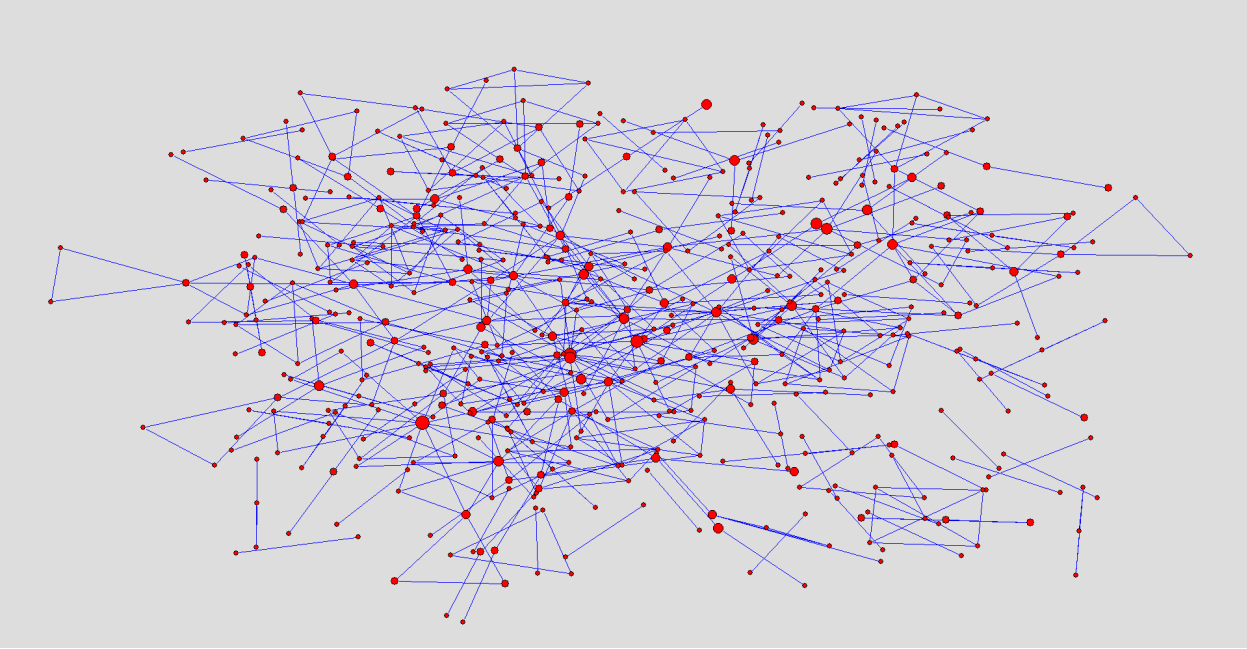

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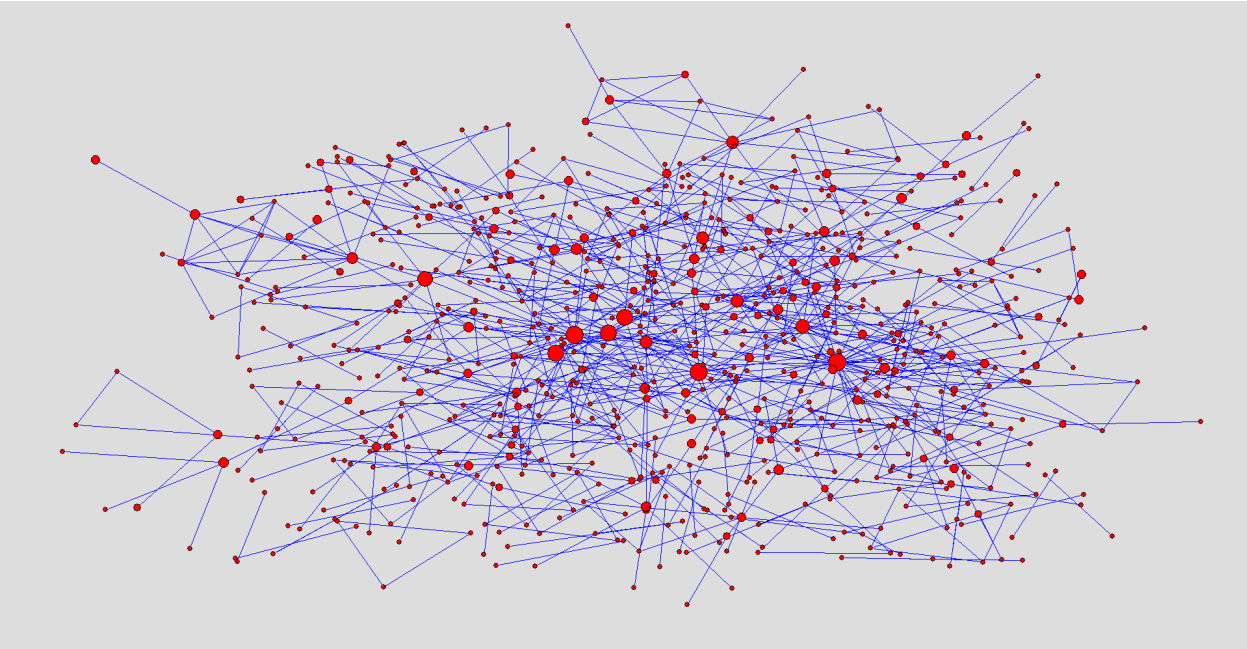

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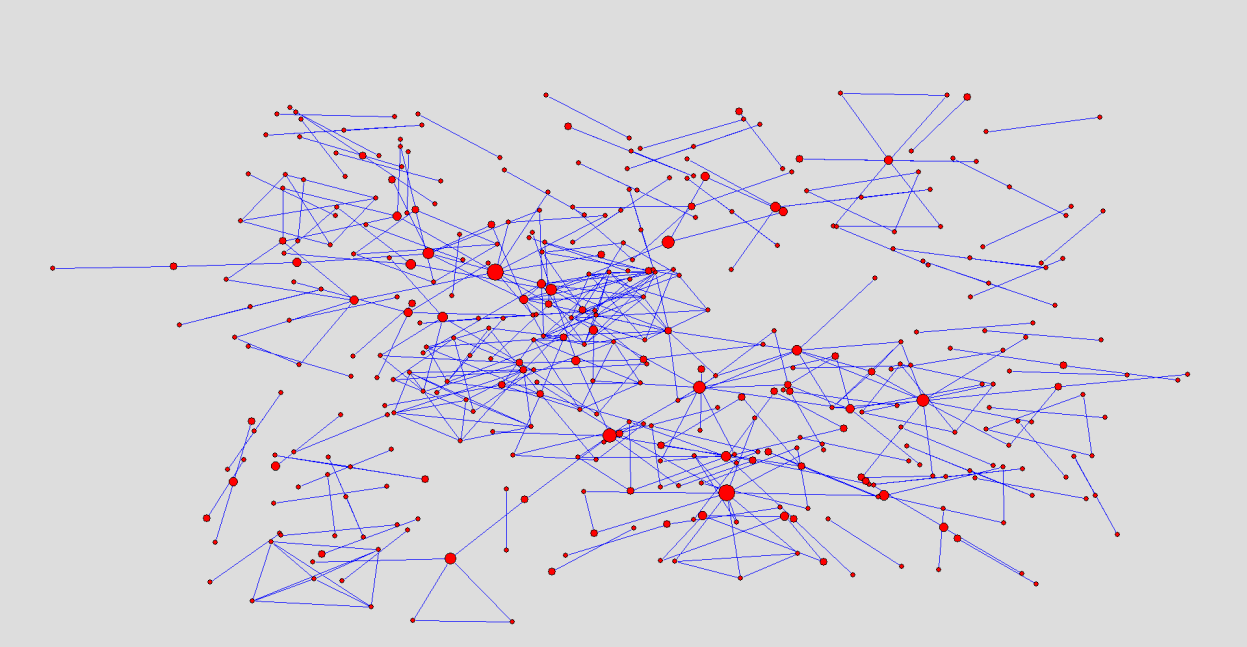

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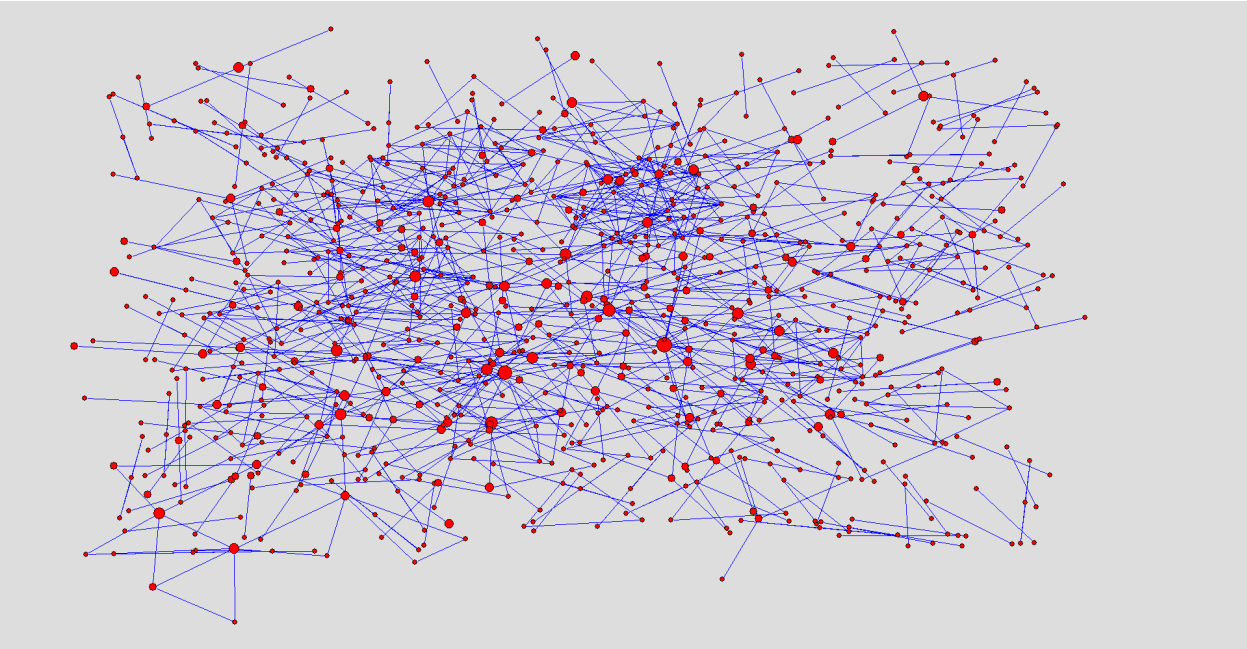

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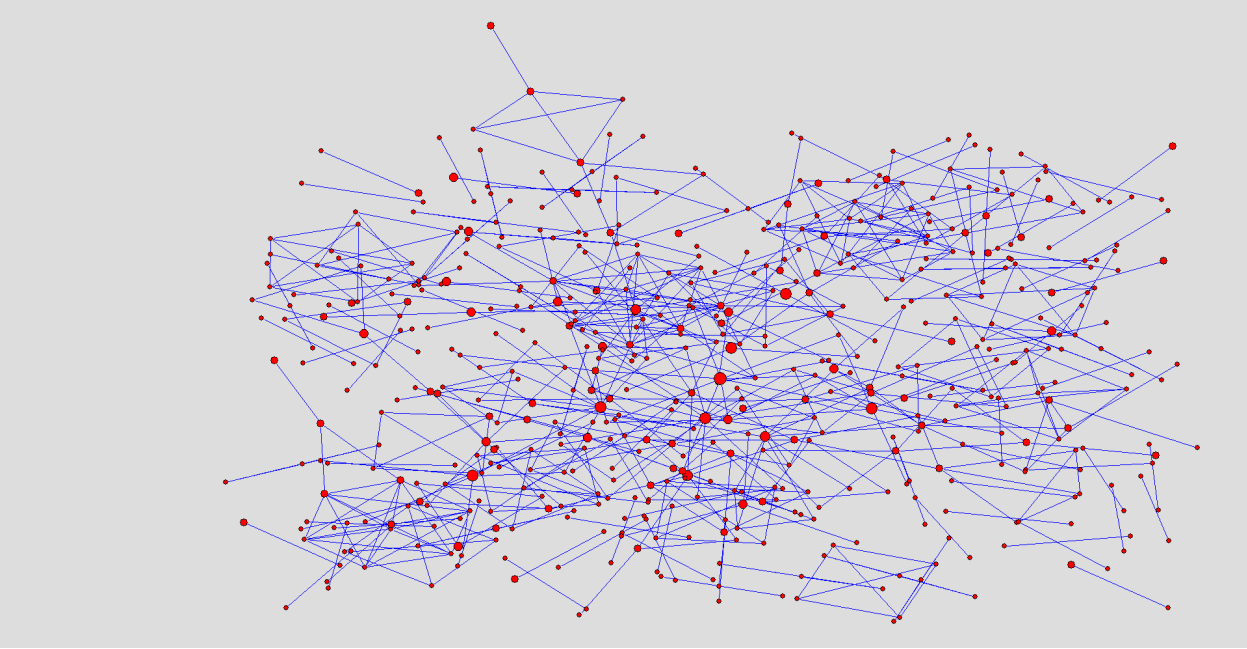

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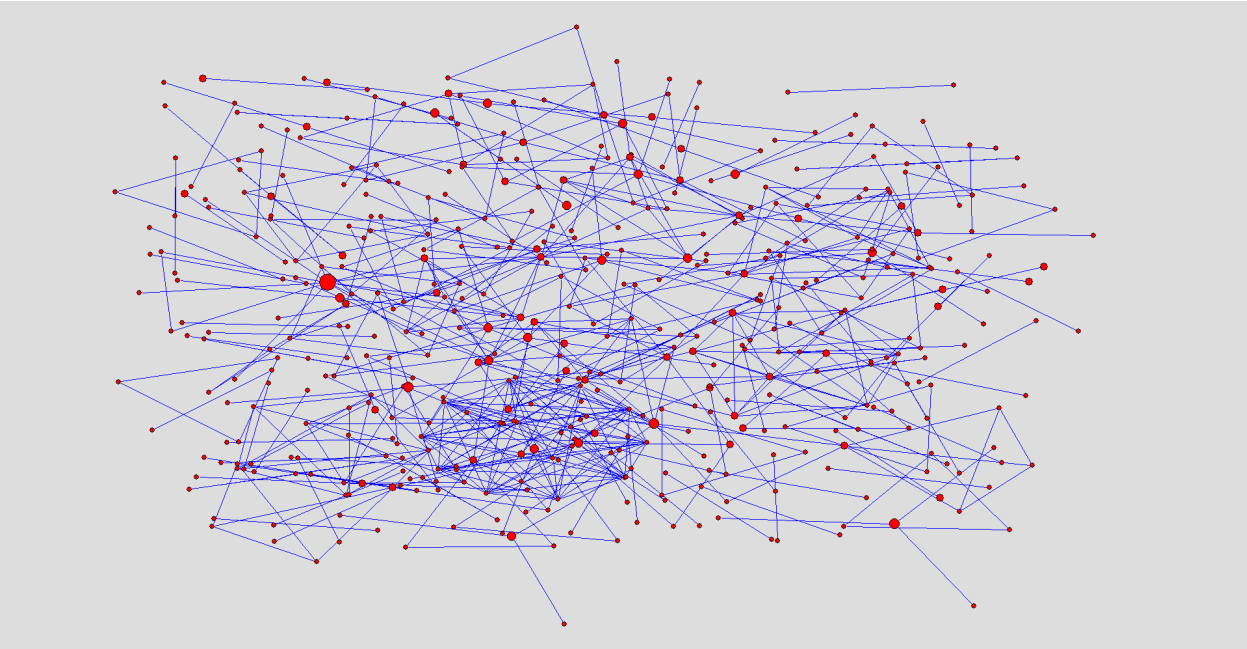

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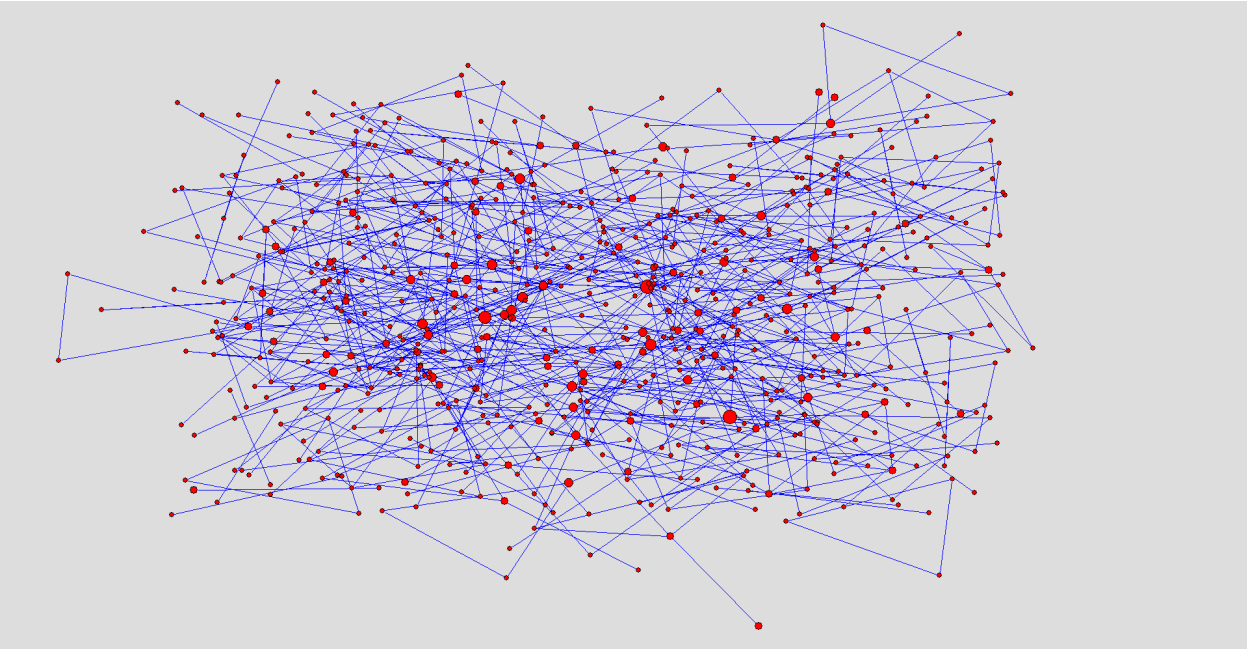

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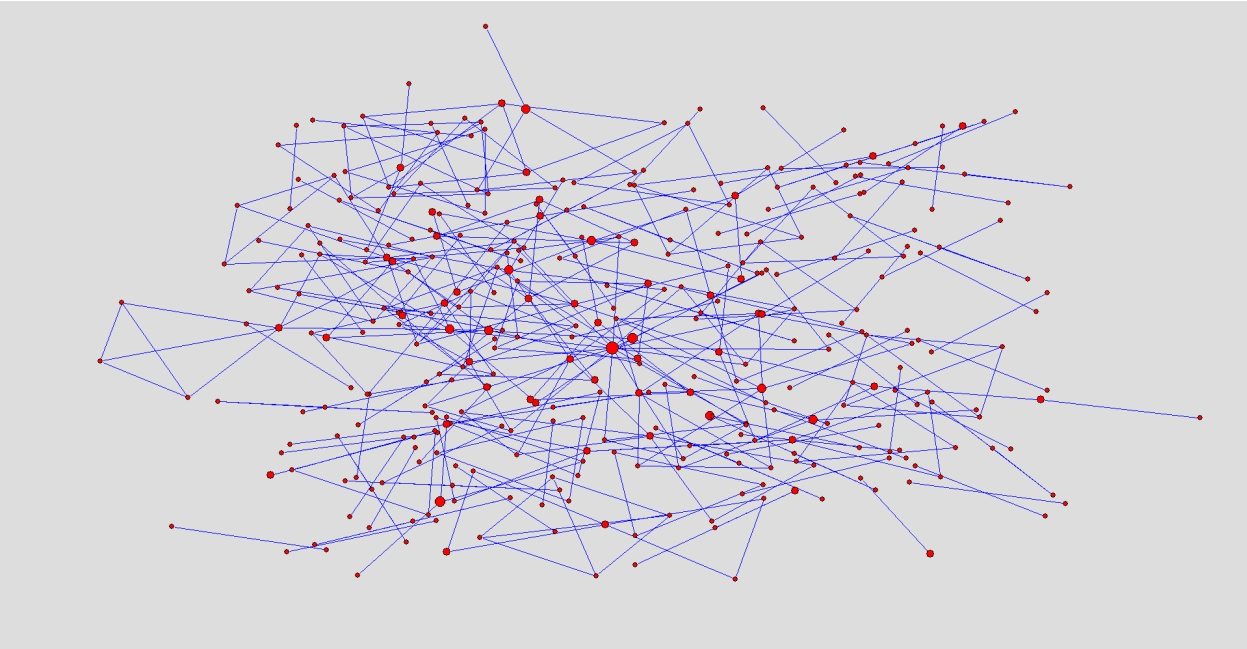

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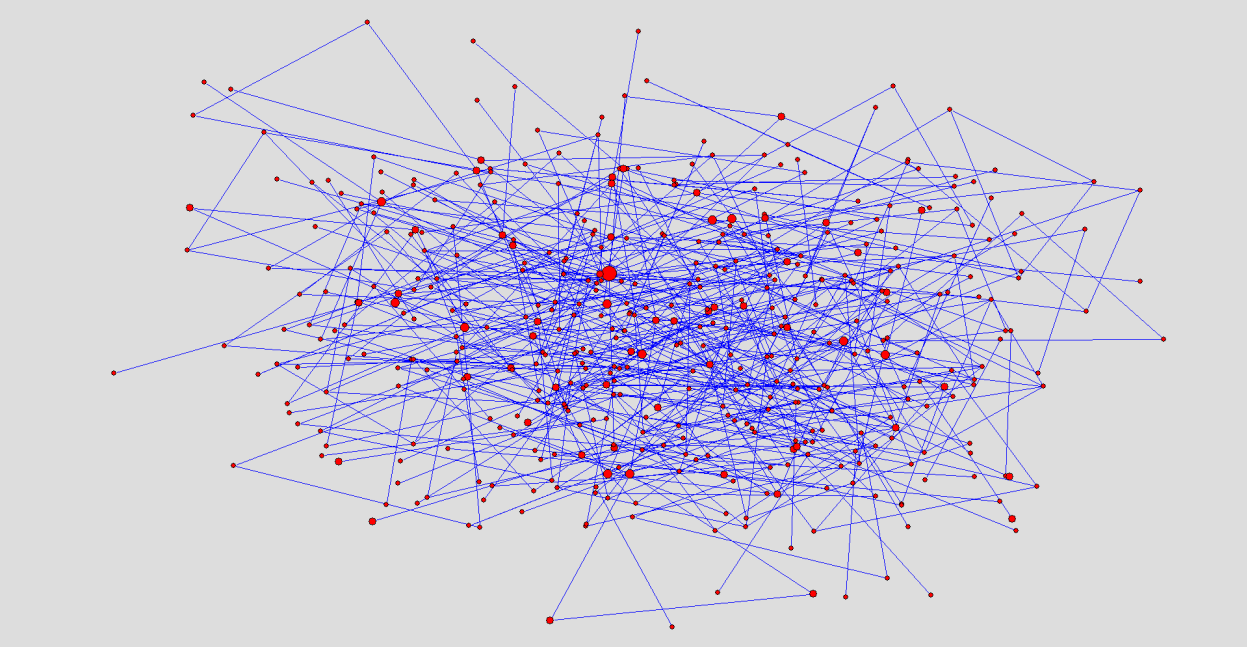

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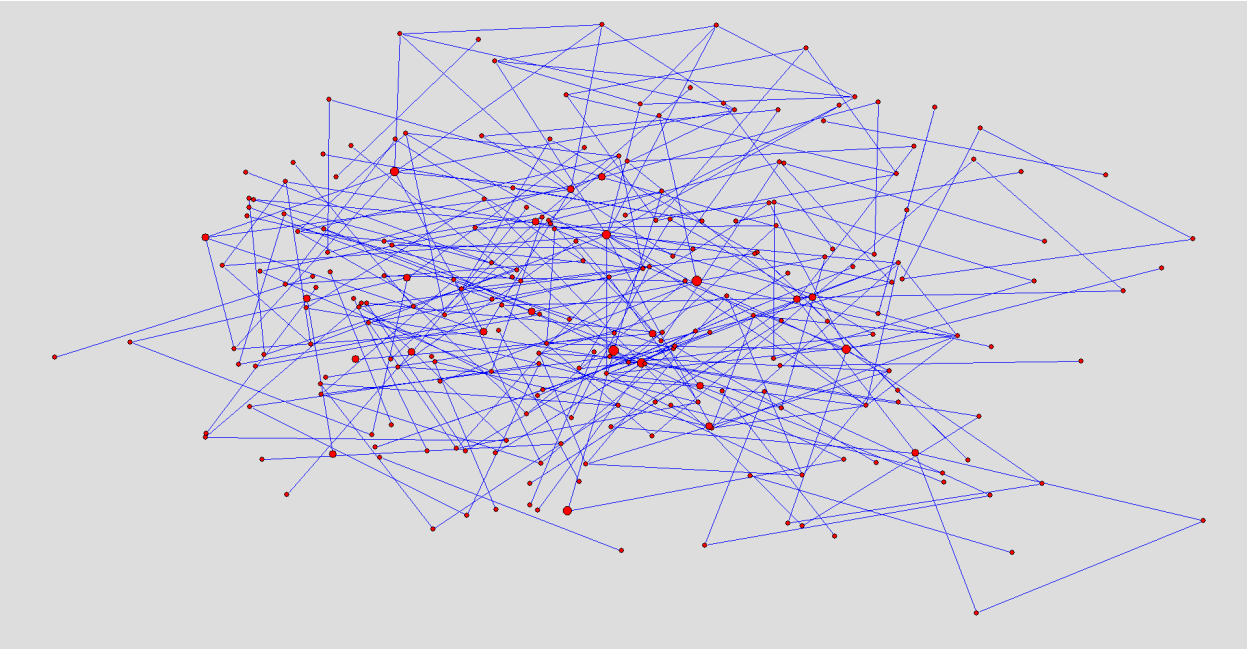

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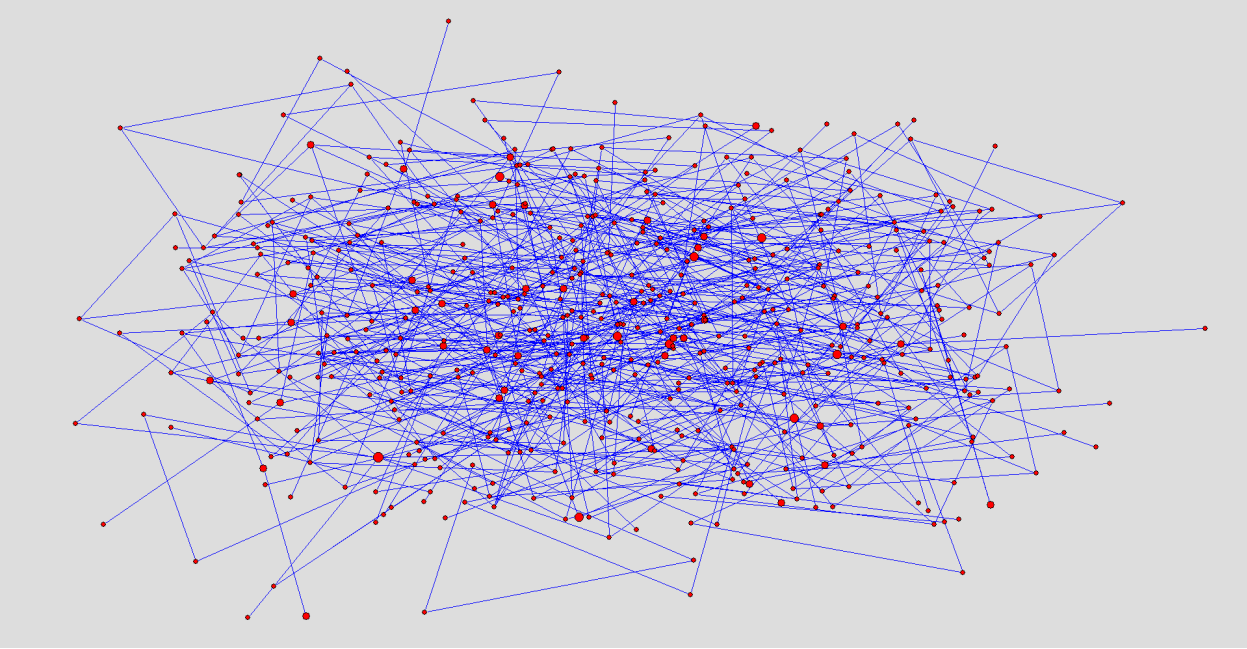

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