Contents lists available at ScienceDirect

Journal of Informetrics

Regular article

Disciplinary knowledge diffusion in business research

Chaojiang Wu [a,*], Erjia Yan [b], Chelsey Hill [a]

[a] Department of Decision Sciences and MIS, LeBow College of Business, Drexel University,3 141 Chestnut Street, Philadelphia, PA 19104, United States
[b] Department of Informatics, College of Computing and Informatics, Drexel University, 3141 Chestnut Street, Philadelphia, PA 19104, United States

ARTICLE INFO

ABSTRACT

Business research has established itself in largely six disciplines: Accounting, Marketing, Organizational Behavior and Management, Finance, Management Science and Operations Research, and Management Information Systems. The knowledge flows among these six disciplines and the factors that drive knowledge diffusion are important considerations. The quantitative analyses on a large dataset containing over 400,000 journal-to-journal citations for business journals published between 1997 and 2009 reveal important patterns of knowledge diffusion in business research. The cross-disciplinary knowledge diffusion is discipline-dependent and converging to a similar level in terms of the diversity. Aside from other factors such as articles published in the journal and the number of classifications, we find that journal quality, as measured by inclusion in the UT Dallas top journal list, has a significant effect on cross-disciplinary knowledge flows. We also offer some potential explanations for the effect of this formalized measure of quality.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

Business research has largely established itself in recent decades in six disciplines, namely Accounting, Marketing, Organizational Behavior and Management (OB/M), Finance, Management Science and Operations Research (MS/OR), and Management Information Systems (MIS). The status quo of the knowledge diffusion among the six disciplines is of interests to many researchers in business schools. Indeed, considerable research interests exist in the interdisciplinary scholarly exchange and academic knowledge diffusion (e.g., Biehl, Kim, & Wade, 2006; Linderman and Chandrasekaran, 2010). The current studies are limited in scope for the limited journals (e.g., Biehl et al., 2006) or disciplines (e.g., Linderman and Chandrasekaran, 2010). To get a full picture of the six disciplines, this study investigates the knowledge diffusion of the six disciplines of business research using a large dataset containing over 400,000 journal-to-journal citations for business journals published during 1997–2009. We first study discipline-level knowledge flow dynamics, such as dependency and diversity among the six business disciplines. We then study factors influencing knowledge exchange in these disciplines using econometric methods. Besides the contextual contributions in providing a more complete picture of the interdisciplinary knowledge diffusion in business research, this study also applies some state of the art econometric techniques to the citation networks of the six disciplines.

---

* Corresponding author.
   E-mail addresses: cw578@drexel.edu (C. Wu), ey86@drexel.edu (E. Yan), chh35@drexel.edu (C. Hill).
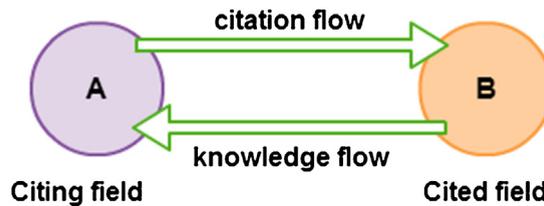
Fig. 1. Citation flow and knowledge flow.

The use of citations as a research instrument allows for a view of the impact of knowledge exchange on the dynamic formulation and development of the field of business. Despite the potential limitations in reproducing the intellectual connections of the citing and cited work,[1] citations are the most widely used measure of knowledge flows, due to the objectivity of the measurement, which is independent from personal perceptions (e.g., Lockett & McWilliams, 2005). According to Bhupatiraju, Nomaler, Triulzi, and Verspagen, (2012, p.1206), citations "are indications of intellectual influence (from the cited paper to the citing paper), and therefore can be used as 'paper trails' of the flow of ideas between and within" disciplines. Existing studies have used citations to reveal macro-level knowledge diffusion patterns among various science and social science domains (Yan, Ding, Cronin, & Leydesdorff, 2013; Yan & Yu, 2016; Yan, 2016) and it is among our goals to further this area of research by conducting analyses that examines several closely-related fields of business research. We use citation flows to quantitatively study knowledge exchange. Knowledge flows into a field via outgoing citation links and a field's own knowledge is disseminated via incoming citations links (Fig. 1).

In addition to the consideration of knowledge exchange, existing research has attempted to obtain an objective measure of disciplinarity and interdisciplinarity (Leydesdorff & Rafols, 2011; Rodriguez, 2017; Rafols & Meyer, 2010). Rafols and Meyer (2010) suggested the use of diversity and network coherence to evaluate interdisciplinarity. Rodriguez (2017) proposed a measure of disciplinarity based on entropy. Leydesdorff and Rafols (2011) considered three types of indicators in an attempt to identify a robust measure of interdisciplinarity. While they did not find a single measure, they found that Shannon entropy, as a measure of diversity, is a better measure than the Gini coefficient, despite its sensitivity to size. Our use of Shannon entropy is the first in studying interdisciplinarity and diversity among these six business disciplines. Our results reveal that pairs of disciplines vary greatly in their interdependency and diversity. The overall trend, however, seems to suggest that all disciplines are converging to similar diversity in their knowledge exchange based on the Shannon entropy.

To further understand the drivers of interdisciplinary knowledge flow, we study the journal level factors associated with knowledge diffusion in the six business disciplines. The journal level factors include the number of publications, number of journals inside and outside of the field, journal classification, and an indicator of journal status—top-tier designation by the University of Texas at Dallas. The UT Dallas Top 100 Business School Research Rankings[2] is a ranking list of top higher-education academic institutions, based on a widely-accepted list of "top-tier" business journals, created by UT Dallas. They also include a database of publications and institution rankings based on the number of publications in these journals by faculty at that institution. This list has become increasingly popular and is well-known throughout the business research community, especially in the United States.

This paper joins the stream of empirical studies examining factors associated with knowledge exchange in business research (e.g, Judge, Cable, Colbert, & Rynes, 2007; Mingers & Xu, 2010; Stremersch, Verniers, & Verhoef, 2007). Stremersch et al., (2007) used a sample of five journals in marketing to investigate article-level citations and found that the number of citations depends on the "who, what and how" elements of a particular article. Mingers and Xu (2010) investigated the drivers of citations in a small sample of management science journals and found that citations are related to the journal itself, status of the first author's institution, length of the paper and number of references. Judge et al. (2007) found that besides other article and author level factors, the single most important factor is the prestige of the journal as measured by the average citation rate. Our paper emphasizes the journal level factors in affecting citations and the findings enrich our understanding in this stream of research.

Moreover, by using the difference in difference identification strategy and the state of the art synthetic controls, we find that the quality proxy—the top-tier journal status, had little impact on infield citations but positively affected the outfield citations. This is likely due to the fact that the infield audience can more easily assess the quality of the cited work without referring to a formal journal ranking system, whereas outfield scholars have a harder time assessing the quality of a journal or article outside of their field and may rely more on the publicized journal list. The results of this research contribute to the conversations on the fundamental question of why scholars cite other publications. The seminal article by Baldi (1998) argued that scholars cite articles because of their relevance rather than a signal of their social status, which sparked a multitude of research and discussions in this field. Contrary to Baldi's observations, some argued that citing is not purely

---

[1] For example, it is common for scholars inside a discipline to translate ideas from outside the discipline, and then scholars within the discipline cite the translated work, rather than citing the original source of the idea.

[2] See the website http://jindal.utdallas.edu/the-utd-top-100-business-school-research-rankings/. We use UT Dallas ranking and UT Dallas top-tier designation interchangeably.