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Gender and citation impact in management research

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ABSTRACT

This study investigates the extent to which a gender gap exists in the citation rates of management researchers. Based on a cross-sectional sample of 26,783 publications and 65,436 authorships, we illuminate possible differences in women's and men's average citation impact per paper, adjusting for covariation attributable to geographical setting, institutional reputation, self-citations, collaborative patterns and journal prestige. We find a marginal difference in citation impact in favor of women management scholars. Women are also slightly more likely than men to author articles among the top-10% most cited in their field. Yet given the sensitivity of our results to uncertainties in the data, these variations should not be overgeneralized. In the large picture, differences in citation rates appear to be a negligible factor in the reproduction of gender inequalities in management research.

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1. Introduction

Citation indicators have become increasingly influential as proxies for visibility, impact and success in the academy. Citation counts are used in tenure, hiring and funding decisions (Diamond, 1986; Nielsen 2017a; van den Brink, Fruytier, & Thunnissen, 2013; Weingart, 2005) and citations have been shown to heighten academic salary levels (Leahey, 2007). As such, citations can be seen as essential building blocks for success and status in the academy; but they also shape institutional patterns of stratification. Bourdieu (1990, p. 76), for instance, refers to citations as the "most objectified of the indices of symbolic capital", while Baldi (1998, p. 830) describes them as "critical micro-level stratifying mechanisms". Thus, given their potentially profound consequences as sieves for allocating opportunities and rewards, the question of whether a gender gap in citation impact exists in management research deserves careful attention.

Gender inequalities in management research are scarcely documented (Reilly, Jones, Rey, Vasquez, & Krisjanous, 2016), but existing evidence suggests that a disproportionate number of women advance to the upper echelons of the discipline. Consider recent developments in the United States as an example. From 1997 to 2007, women's share of doctoral degrees conferred in Business and Management increased from 31% to 41%, according to the U.S. Department of Education (cf. AACSB, 2010); but men are still dominating the faculty positions. A recent survey of 504 business and management schools in the United States, conducted by the Association to Advance Collegiate Schools of Business (AACSB), estimated that women comprise 21% of full professors, 33% of associate professors, 38% of assistant professors in 2015–2016 (Brown, 2016). As such, the scarcity of female faculty cannot be fully attributed to supply-side factors (i.e. the available pool of women in the education pipeline), meaning that demand-side factors (i.e. the ability of schools to recruit and retain female candidates) may be operating as well. But to what extent may gender differences in citation rates factor into the reproduction of such inequalities?

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In this study we investigate potential gender differences in management scholars' citation impact per paper. Based on a cross-sectional sample of 26,783 publications and 65,436 authorships, we illuminate differences in the average citation rates of women and men, adjusting for covariation attributable to geographical setting, institutional reputation, self-citations, collaborative patterns, the gender composition of author groups and journal prestige. We also examine national differences in women's citation rates relative to men's. To our knowledge, this study represents the hitherto most comprehensive examination of the link between author gender and citation impact in the social sciences.¹

2. Gendered patterns of citation

The literature addressing gender differences in citation impact is scarce and inconclusive. Results tend to vary depending on research design,² scientific discipline (Duch et al., 2012; Gonzalez-Brambila & Veloso, 2007; Larivière, Vignola-Gagné, Villeneuve, Gelinas, & Gingras, 2011; van Arensbergen, van der Weijden, & Van den Besselaar, 2012), geographic location (Elsevier, 2017; Sugimoto et al., 2015) and gender composition in the field (Ferber & Brün, 2011). Some studies find that men are cited more frequently than women (e.g. Aksnes, Rorstad, Piro, & Sivertsen, 2011; Larivière, Ni, Gingras, Cronin, & Sugimoto, 2013). Others find no notable gender difference (e.g. Nielsen, 2016; Slyder et al., 2011; Symonds, Gemmell, Braisher, Gorringe, & Elgar, 2006), while a third group of studies report higher citation rates for women than for men (e.g. Borrego, Barrios, Villarroya, & Ollé, 2010; Long, 1992). In this overview, we focus specific attention on evidence concerning gender and citation rates in the social sciences.

The literature survey was carried out using title-focused searches in Web of Science and JSTOR.³ We limited our scope to papers published from 2000 through 2016, focusing on gender and citation impact in social science disciplines. We read through 122 titles and abstracts and used snowballing techniques to identify additional sources in the reference lists of relevant articles. We included all studies in English reporting quantitative evidence on the role played by gender in predicting the citation impact of social-science researchers. We identified 17 relevant studies, summarized in Table 1.

Like the broader literature, research concerning gender and citation impact in the social sciences is characterized by mixed results. Six out of 17 articles reviewed for this study report a citation bias in favor of men, three articles find women to be cited more frequently, while seven articles show no notable gender differences. One article reports a citation bias in favor of men in the established generation of social scientists, whereas no difference is reported for the young generation.

A closer look at variations across research areas demonstrate a citation bias in favor of men in the following disciplines: International Relations (Maliniak, Powers, & Walter, 2013; Mitchell, Lange, & Brus, 2013), Information Science (Håkanson, 2005), Linguistics (Leahey, 2007; McElhinny, Hols, Holtzkener, Unger, & Hicks, 2003); Sociology (Leahey, 2007) and Social Psychology (Nosek et al., 2010). No notable gender differences are reported for Management (Judge, Cable, Colbert, & Rynes, 2007; Podsakoff, MacKenzie, Podsakoff, & Bachrach, 2008), Criminal Justice (Stack, 2002) and Peace Research (Østby, Strand, Nordås, & Gleditsch, 2013), while citation biases in favor of women are reported in Construction Research (Powell, Hassan, Dainty, & Carter, 2009) and Political Science (Montpetit, Blais, & Foucault, 2008). Finally, research focusing on Law finds that women either outperform (Merritt, 2000) or are cited at similar rates as men (Ayres & Vars, 2000).

The inconsistencies in the literature refrain us from formulating any prior conjectures concerning the link between author gender and citation impact in management research. Existing studies focusing on management do not to report any notable differences (Judge et al., 2007; Podsakoff et al., 2008); but these studies, like most studies in our review, target articles (or authors) in selected core journals, which complicates generalizability beyond these journals (Ayres & Vars, 2000; Håkanson, 2005; Maliniak et al., 2013; Mitchell et al., 2013; McElhinny et al., 2003; Østby et al., 2013; Powell et al., 2009; Stack, 2002). The remaining studies are based on restricted samples of top-ranked university departments in North America (Nosek et al., 2010), research intensive universities and accredited law schools in the United States (Leahey, 2007; Merritt, 2000), Canadian social scientists (Larivière et al., 2011; Montpetit et al., 2008), grant applicants in the Netherlands (van Arensbergen et al., 2012) and researchers at a Danish University (Nielsen, 2016). These studies have similar limitations with respect to external validity beyond the selected contexts.

Our study offers a more comprehensive analysis of the current gender disparities (or similarities) in citation impact. We use a large-scale global sample of management articles from 185 management journals indexed in Web of Science's Social Citation Index to sketch variations in women's and men's scholarly impact per paper. Our large sample size mitigates the exposure to variance characterizing existing studies with smaller sample sizes, thereby making our results more robust.

3. Data and methods

Basically, citation analysis builds on the assumption that authors primarily cite papers that they consider important to the development of their own work. Following this logic, highly cited papers represent contributions with a greater influence on a given literature than less frequently cited papers (Podsakoff et al., 2008; Ramos-Rodríguez & Ruíz-Navarro,

¹ An article by Podsakoff and colleagues (2008) represents an exception in this regard, but their study devotes very limited attention to gender-related variations.

² Selection criteria, sample-sizes and measurement techniques vary considerably in the literature

³ For specifications on search strings, see Table S1 in the online supplementary material

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