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CITATIONS TO MANAGEMENT ARTICLES: CAUTIONS FOR THE SCIENCE ABOUT ADVICE FOR THE SCIENTIST

DANIEL R. ILGEN
Michigan State University

The title of this forum's keynote article by Judge, Cable, Colbert, and Rynes focuses attention on factors that influence the extent to which articles in the field of management are cited. Although the title beats the causation drum a little too loudly and implies a little too strongly a winner-take-all resolution to the question of what article dimensions, person characteristics, and journal attributes are causes of citations, the work is very well done; The authors' data are good, the analyses appropriate, and the conclusions consistent with their data and the existing literature. The work speaks clearly to factors affecting article citations expressed in the title.

By the second paragraph of the article, it is clear that the authors have a second purpose far broader than that of describing predictors of citations to articles in the field of management. Part of this purpose speaks to qualities and limits of citations as criteria—criteria for evaluating not only scholarly articles but also the scientific work of management scholars and the departments and institutions with which they are affiliated. Part also goes beyond the limits of citations as criteria per se, to potential unintended consequences of their use, particularly through institutional level actions designed to influence citation counts.

Both the length of the causal chain from articles through individual scholars to aggregates of individuals (departments of management or business schools) and the general expectation of similar effects on citation counts across levels severely limit the extent to which the data of Judge and his coauthors can speak to their second purpose. To their credit, they recognize the risks of generalizing too far. Yet risks and potential payoffs are not independent. Although the confidence that can be placed in the authors' conclusions about the evaluation and conduct of a science of management are far less free of alternative explanations than their conclusions about predictors of citations to articles, I concur with the authors that the importance of the second purpose justifies raising it along with appropriate cautions. In what follows, I will first briefly comment on Judge et al.'s data as they speak to causes of citations to articles. Then I will turn attention to broader issues related to the conduct and evaluation of management scholarship raised by their data. By necessity, the latter discussion rests less firmly in the data, but I, like the authors, feel the potential consequences are worth the speculation. In the response that follows, I first address conclusions from the data at the article level and then comment on some scholar- and unit-level issues.

Causal Influences on Citations to Management Journals

Sampling 614 publications appearing in print from January 1990 through December 1994 in a set of top management journals (Gomez-Mejia & Balkin, 1992), Judge and his colleagues obtained citation counts over 16 years—1990 through July 2006—and related these to article, author, and journal characteristics. The data are used to model causes of citations to management articles in later articles. The domain of causes is well articulated not only for identifying predictors of citation variance but also for guiding authors to improve their work's citation rates. The Judge et al. (2007) data clearly support the conclusion that the technical nature of a particular work (e.g., literature review) and basic qualities of scientific authoring matter. Furthermore, although particularistic author characteristics do matter, their influence is limited. Reputational characteristics of the journal in which an article was published matter most. Judge et al.'s advice to authors concerned about the impact of their work is clear: Take into account the type of work, do technically sound scientific work, and attempt to place the work in a journal with high impact.

This advice to authors is consistent with the data, but it is also not unique. Others have reported similar findings for many of the variables in the Judge et al. variable list (see, for example, the works of Newman and Cooper [1993] and Starbuck [2005]). The value of the current paper by Judge and his colleagues is in their conceptual framework for partitioning the predictor domain in ways that provide guidance to authors wanting to impact the numbers of citations to their work and in their findings about the relative strength of journal characteristics as predictors compared to other predic-

tors in models including all their variables. The latter allowed for inferences about relative and unique contributions to variance lacking in much of the earlier work. With respect to their findings on journal impact, if anything, the strength of the effects is likely underestimated. Articles were drawn from 21 journals rated by subject matter experts (Gomez-Mejia & Balkin, 1992) as the top management journals at the time the articles in the Judge et al. sample were published. Restricting the pool of journals to the top of the distribution in the management field is likely to have reduced the effect of subjective evaluations of reputation in their sample.

Citations, Reputations, and Management Scholarship

The use of knowledge about citations to articles to speak to the evaluation of the scholarly output both of management scholars and the institutions with which they are affiliated implies an underlying causal chain transversing multilayered, nested systems beginning with articles nested under scholars and continuing through scholars nested in academic units. Attempts to directly "apply" what is known about causes of article citations to influence on individual and unit citation counts rely on an assumption that a link between lower-level causes and citations functions similarly across levels. If one manipulates first-level (journal-level) causes that increase or decrease citations to journals, the manipulation of the lowest-level factors will similarly influence scholars' citation rates and those of the units that employ them. More importantly, the implicit assumption is that inferences about the construct of scholarship at each level change in parallel with those about it in the level below it.

Judge et al.'s observation that citations to specific articles are strongly influenced by the impact level/reputation of the journal in which they appear illustrates the potential risks of such cross-level interpretations of the meaning of citations as reflections of individual and unit-level scholarship. This finding leads to advice to management scholars to publish in high-impact journals and to management departments (and business schools) to stress publications in high-impact management journals. Judge (2003) reported unit-level actions consistent with such advice in which management departments compiled lists of top-tier journals as guides for judging individual (and, presumably, unit-level) scholarship. One can only assume that the logic of creating such a list is to influence scholarly activity so as to produce publications with greater impact. There are, however, dangers in reaching back to article-level predictors to influence unit-level citations and in assuming that the latent construct, scholarship, is similarly captured in citations at all levels. Let me illustrate with two of Judge et al.'s findings.

I accessed the ISI impact ratings (impact factors) for the 21 journals used by Judge et al. and identified by Gomez-Mejia and Balkin's (1992) subject matter experts as the 21 top-tier journals for management scholars at the time of their survey. The impact ratings ranged from 0 (two were, to my knowledge, unrated by ISI as of March 15, 2007) to 9.75. The mean of the skewed distribution was 1.97, with 19 of the 21 below 2.89, one at 4.25, and one at 9.75. A reasonable strategy for management scholars wishing to raise the citation counts of their published works and management departments seeking higher citation counts would be to target higher-impact journals. In this top tier, the prime targets would be the *Academy of Management Review* (impact factor = 4.25) and *Psychological Bulletin* (impact factor = 9.75). The unintended effect of following the advice generated from the journal data would be to push management scholars and departments toward nonempirical reviews and a journal whose primary audience is not management scholars. The advice would lead to even greater misfits to the field of management when it is recognized that the citation levels of management journals (or journals focused on most any particular domain) pale in comparison to those of high-prestige journals that serve multiple fields. *Science*, for example, has an impact factor of 30.93.

A myopic focus on article citations driven by the strongest predictor of citations to journals is consistent with advice to publish in journals outside the domain of management to boost the scholastic productivity of the field. Such a misguided result from trying to influence scholarship through causes of citations to articles is extremely unlikely to go undetected and would probably be corrected. However, more subtle, unobtrusive consequences might not. Often the latter are a result of the need for multiple forms of scholarly publications and to differences within units among scholars with respect to their disciplines. Judge et al. found that review and theoretical articles were cited more than other forms. This article-level empirical fact in the data, when translated to the individual scholar level, implies that highly recognized management scholars should devote their efforts primarily to producing reviews and theoretical works, and that, at the school or discipline level, the focus of the science should be on reviews and theoretical articles. Although some scholars do concentrate their pub-

lished work in reviews, meta-analyses, and theory development, to do that to the exclusion of empirical work is rarely considered the profile of an outstanding management scholar. Schmidt (1992) suggested a two-tiered science, with those doing empirical studies providing inputs for others who do meta-analyses. Such a division of labor would depend on sustained interest on the part of those supplying individual empirical studies in creating inputs for the meta-analysts. There is little evidence that psychology has or should have shifted toward a two-tiered science. Thus, advice to authors to focus their work primarily on reviews and on theoretical articles is not consistent with the model of good scholarship in management disciplines.

At higher levels of aggregation, the wisdom of such advice is even more problematic. A foundation in empirical data is necessary in management. The long-run viability of the field cannot be maintained on theoretical models and reviews not accompanied by empirical works. At any given time, more theory or more reviews may be needed. But this decision must be based on scholars' understanding of the domain of evidence. Suggesting that the total domain of articles in management should contain a greater proportion of theoretical and review articles to advance its scholarship is ill-advised if the suggestion is driven by a desire to increase the frequency of citations to manuscripts of a particular kind. To tip that balance toward theoretical and review articles on the basis of citation data is likely to negatively impact scholarship in the field and, ironically, to do so under the illusion of improving scholarly output.

At the unit level, departments of management are not homogeneous as to the disciplines that comprise them and the proportions of people in these disciplines. Disciplines, in turn, publish in different journals and also vary in the extent to which books and other sources play a role in the dissemination of scholarly information. Yet citation indexes often do not reflect many of these other sources. For example, the ISI citation data typically do not include books and book chapters. Aggregated citation data used to index the scholarly output of units with several subunits are strongly influenced by the publication outlets of the subunits comprising them. To my knowledge, rarely are rankings of departments and business schools that use citations as part of an index of scholarship corrected in some fashion for the composition of the faculty with respect to the publication outlets of the disciplines represented.

Finally, homogeneity among people is likely to cause even greater problems in the future. Trends toward multidiscipline work are present in all fields. Teams of researchers composed of management scholars, engineers, cognitive scientists, and mathematicians are not uncommon. Scholarly outputs from interdisciplinary teams are unlikely to fit neatly into the traditional journals of management. Where these outputs will fit—or even whether they will fit—in the journals of today is not clear. But what is clear is that to create systems that pressure management scholars to publish in a particular subset of journals is not likely to be helpful. It would be particularly detrimental if it were to discourage management scholars from active participation in interdisciplinary work at a time when the emphasis is on problem-centered work and the breakdown of disciplinary/departmental structures of the past for organizing work and the conduct of science.

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Daniel R. Ilgen is the John A. Hannah Distinguished Professor of Industrial-Organizational Psychology and Management at Michigan State University. He is a former editor of *Organizational Behavior and Human Decision Processes* and past president of the Society of Industrial and Organizational Psychology. His research interests include work motivation and the behavior of teams and their members.