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Publication bias in entrepreneurship research: An examination of dominant relations to performance

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ABSTRACT

Publication bias (PB) exists when the published literature is not representative of the population of studies. PB has largely been ignored or dismissed in entrepreneurship research as there is a general belief that only fields entrenched in dominant theoretical paradigms are capable of suffering from PB. We tested this presumption by re-analyzing the results of 15 systematic reviews (i.e., meta-analyses) of entrepreneurial antecedents and firm performance. Using three different tests, we found some degree of PB in all but three of these analyses. Our results belie the contention that entrepreneurship is immune to PB.

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1. Executive summary

Publication bias (PB) occurs when studies that support the current stance of the academic community are overrepresented in the published literature and counterintuitive or non-significant findings are underrepresented. While not uncommon, PB represents a non-ideal state for a base of literature. Its presence suggests that studies are being accepted for publication on criteria other than the quality and rigor. In addition, PB creates a rose-tinted picture of the academic literature; which makes it difficult for researchers and practitioners to ascertain whether the strength of a relationship is genuine or the result of systematic suppression of studies that challenge current thinking.

Notably, the presence of PB has not been assessed in the entrepreneurship literature. It was the goal of this work to undertake such an assessment. It is our stance that the field of entrepreneurship is at an interesting station on the epistemological development curve. That is, while the field may still lag behind its counterparts in the broader field of management, it has gained a base level of legitimacy and will likely continue these gains among scholars from all fields. With this increased level of legitimacy, comes a convergence of theory and an increased likelihood that lack of contested theory will breed a bias with regard to what ultimately gets published.

Our study re-analyzed the results of 15 meta-analyses published in the entrepreneurship literature. These meta-analyses each examined the relation between a prominent predictor and firm performance. Results indicate that a concern for bias has merit. Using multiple tests, we found that PB was present in all but three of these analyses. Overall, there was a general overestimation of effect sizes within this literature.

Importantly, there are a number of simple steps that can help to mitigate the prevalence of PB in the entrepreneurship literature. First, we encourage authors, reviewers, and editors to weigh a manuscript's merits on its rigor and relevance and not on its statistical

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significance. Second, we advise discontinuing the use of the Fail Safe N test and other suboptimal PB tests, and instead advocate the use of more robust and appropriate tests. In related fashion, we would suggest that editors of entrepreneurship journals require these valid PB tests for submitted meta-analyses. Finally, authors of meta-analyses should be encouraged to make their data available to maximize transparency in the field.

2. Introduction

Entrepreneurship is a young discipline with a relatively low level of paradigmatic development, and this fact has led to a lower level of legitimacy within the broader field of management (Crook et al., 2010; Katz, 2008; Kuskova et al., 2011). This statement is not an indictment of the field or of researchers in the field; instead it is reflective of the simple fact that legitimacy is primarily a function of time (Burrell and Morgan, 1979; Kuhn, 1996). Although agreement on this point would not be unanimous, it is likely the case that entrepreneurship lags somewhat behind the broader field with regard to theoretical development and/or methodological rigor (Kuskova et al., 2011; Short et al., 2010). However, it is certainly the case that the field is rapidly gaining legitimacy (Busenitz et al., 2003; Kuratko, 2005; Low, 2001), and there remains an intense interest among the fields' scholars to continue these gains (e.g., Wiklund et al., 2011).

Unfortunately, in an attempt to expedite maturity, the possibility exists that a young discipline might move too forcefully to establish dominant paradigms and exclude research that challenges earlier findings. Although often well-intentioned, systematic exclusion of studies for reasons other than rigor and relevance makes the costly trade of accuracy for perceived unity. To the extent that the cumulative body of published work is systematically skewed in one direction is the extent that it has the potential to mislead academics and practitioners alike. A major cause of this cumulative skew is publication bias (PB), and it is the goal of this work to assess the presence and magnitude of this bias in the extant entrepreneurship literature.

Sometimes referred to as the “file drawer problem,” PB is a persistent concern in all disciplines and sciences and occurs when studies that support the current *zeitgeist* of the academic community are overrepresented in the published literature and counterintuitive or non-significant findings are underrepresented (Bösch et al., 2006; McDaniel et al., 2006). Recent literature has emerged that points to PB as a serious threat to the robustness of conclusions necessary for guiding future research and evidence-based management (Banks and McDaniel, 2011; Ferguson and Brannick, 2012; Rothstein et al., 2005). This evidence creates concern that the increased convergence in our literature may be occurring at the expense of best practices. We pause to note that the traditional role of gatekeeping by editors and reviewers rightly serves to keep poorly designed studies, spurious results, and weak theory out of the published literature; and this in itself does not create PB. Similarly, gatekeepers judging papers that repudiate long-standing, well-established theories or relationships perhaps should pay special attention to why and how the manuscript contradicts the extant literature. However, if all things equal, contradictory or non-significant results have a lower probability of publication than their theory consistent, statistically significant counterparts, then PB may be present. To our knowledge, this paper is the first of its kind in the entrepreneurship discipline. This is somewhat surprising, as the presence of PB can have a substantial deleterious impact, especially on a young field seeking legitimacy.

To investigate our concerns, we endeavor to assess the extent to which PB influences the relations between firm performance and key predictors in the field of entrepreneurship. We accomplish this assessment by reexamining 15 meta-analytic reviews published in the entrepreneurship literature. Utilizing advanced techniques designed to detect PB, we are able to estimate how this bias affects the key antecedents of firm performance.

3. Publication bias in entrepreneurship

The dominant approach for legitimacy building in entrepreneurship is to utilize published research to signal—to the scientific community and particularly to the Academy of Management—theoretical convergence (Kuhn, 1996; Pfeffer, 1993). Indeed, a common criticism of the collective body of entrepreneurship research is a lack of proprietary theory, and it is similarly common for proponents in the field to issue calls for convergence (e.g. Shane and Venkataraman, 2000). It appears that these calls have been effective and conceptual convergence is occurring (Davidsson, 2005; Grégoire et al., 2001). It is also encouraging to note other evidence of enhanced legitimacy in the field. For example, the entrepreneurship division is among the largest in the Academy, the impact factors of leading entrepreneurship journals continue to escalate, and the presence of entrepreneurship research in mainstream management journals is increasing.

Another, more apparent, illustration of convergence is the notable increase in meta-analytic reviews being published in entrepreneurship journals. This increase suggests that the number of primary studies empirically testing key relations has reached a “critical mass,” thereby making meta-analytic reviews appropriate. When properly conducted, meta-analyses synthesize the extant literature and provide effect size direction and magnitude estimates, identify theoretical and methodological moderators, and in part, lay the foundation to which future researchers build theory and inform practice. In this way, meta-analytic reviews can signal the legitimacy of a given domain.

Based on the Kuhnian view (1996), it appears as though entrepreneurship is entering a period of “normal science.” This normal science stage is marked by relative stability with regard to epistemology. Researchers have reached a degree of consensus on the issue of dominant theories or paradigms and the majority of work is based on refinement, rather than on debating the merits of opposing views. Stated differently, a field in normal science has a relative lack of theory contests. While certainly a signal of legitimacy, reduced theory competition increases bias, particularly PB (Doucouliagos and Stanley, 2011; Gans and Shepherd, 1994).

In other areas of science, tests for PB have been more prominent (Banks et al., 2012b). For example, in medical research, Turner et al. (2008) found that studies of antidepressants in which results were deemed positive were published 97% of the time as

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