



Initial Thoughts and Guidance on Publishing Replications in BRIA

S. Salterio September 14, 2017 Version 1.0

In response to calls to explain BRIA's policy on replication and to help identify what a replication is, I am providing the following thoughts. These thoughts are not a policy nor a promise to follow them literally but merely suggestions of an editor as to how one might approach replication research. The key message is contained in the last two sentences: "it is important to consider *ex ante* exactly what you as a researcher hope to contribute by carrying out a replication study or a replication with an extension. Further, as an author you need to be able to justify the importance of the replication and justify departures from an exact replication based on theory."

The "gold standard" of experimental scientific endeavor is replication of prior research (Jasny, Chin, Chong and Vignieri 2011). The goal of replication is to increase confidence in reported results if other researchers are able to find similar results. This ability to replicate research is emphasized in methodological texts (e.g. Campbell and Stanley 1963) and in philosophy of science writings that embrace the "scientific method" (e.g. Popper 1959).¹

Neulip and Crandall (1990/91) who edited an early set of studies on the lack of replication in social psychology (1990/1991) recanted that assertion with the observation that "Many more replications are being published than originally thought. They are simply not labelled as such." (Neulip and Crandall 1993 p. 1). The authors identified a host of replication work being done – mainly of the variety of re-establishing prior results before extending the research in new directions (i.e. replicate and extend). However, my casual empiricism to date (in the process of undergoing detailed investigation as a research project by myself and co-authors) suggests replication and extension is relatively more common in archival studies in accounting and auditing, that is not the case in experimental, survey and field research. Yes, there are significant exceptions to this observations but the ability to enumerate them is suggestive of

¹ My thoughts about replication and its importance were initially crystalized in Salterio (2014) in response to a controversy about a pair of studies that I published in CAR when I was Editor (in-chief). See that paper for a discussion of replication.

overall paucity of such replications.²

Some may argue that only “significant” findings should be replicated in accounting research, but is that not really where replication should be done? Certainly not every article published, even in a top tier journal, has such an impact on practice or research that it needs to be replicated. Nevertheless, what determines whether articles have findings that are “significant” enough to call for replication? Based on my nearly two decades of editing experience at *CAR*, and AAA association and section journals among others my observation is significance is judged by one or more of:

- where the article was originally published (i.e. journal brand name like being on the FT 50 list);
- whether the article challenges other’s research or accepted beliefs about how the accounting world works in significant manner;
- whether the article is highly cited or leading to a stream of research in accounting;
- whether assumptions made about theories imported from other disciplines need replication in an accounting context (i.e. is “transfer and apply” to accounting always a bad idea as some accounting researchers have suggested);
- whether the article attracts regulator/standard setter attention (e.g. contends a standard is not being followed, followed with great difficulty); and
- whether the article attracts practitioner attention from those who tried to use the findings “to make money” in capital markets or to manage their business.

Note this is not a prescriptive list but just an indication that given scarce replication resources and journal space there needs to be some focus on replication of “significant” published papers. Authors carrying out replication studies need to be able to justify that they are replicating a study that should be replicated for a clear reason.

There are several resources that those planning to carry out a replication study might want to consult before doing so (see Table 1). Lindsey and Ehrenberg (1993) make useful distinctions about types of replications:

- *Close replication* attempts to keep almost all the known conditions of the study much the same or at least very similar (for example, the population or populations in question, the sampling procedure, the measuring techniques, the background conditions, and the methods of analysis).
- *Differentiated replication* involves deliberate, or at least known, variations in fairly major

² Examples include my work with Marlys Lipe (Lipe and Salterio (2000, 2002)) on the balanced scorecard that has been extensively replicated in this century (Salterio 2012); and reliance on accounting performance measures was subject to much replication in the last century (Otely and Fakiolas, 2000).

aspects of the conditions of the study. The aim is to extend the range of conditions under which the result . . . still hold.

R. Murray Lindsay and A. S. C. Ehrenberg. 1993. The Design of Replicated Studies. *The American Statistician*, Vol. 47, No. 3 pp. 217-228

They suggest the following criteria for choosing what factors to vary.

1. Conditions or factors that are thought might affect the hypothesis under study.
2. So-called "confounding variables," that is, conditions or factors that are known or thought to be related to just one or other of the separate variables under study.

Ibid.

Uncles and Kwok (2013) offer the following way of visualizing the potential for different types of replication that builds on the Lindsay and Ehrenberg conceptual distinctions. The figure shows a continuum of replication studies that have different contributions to the literature.

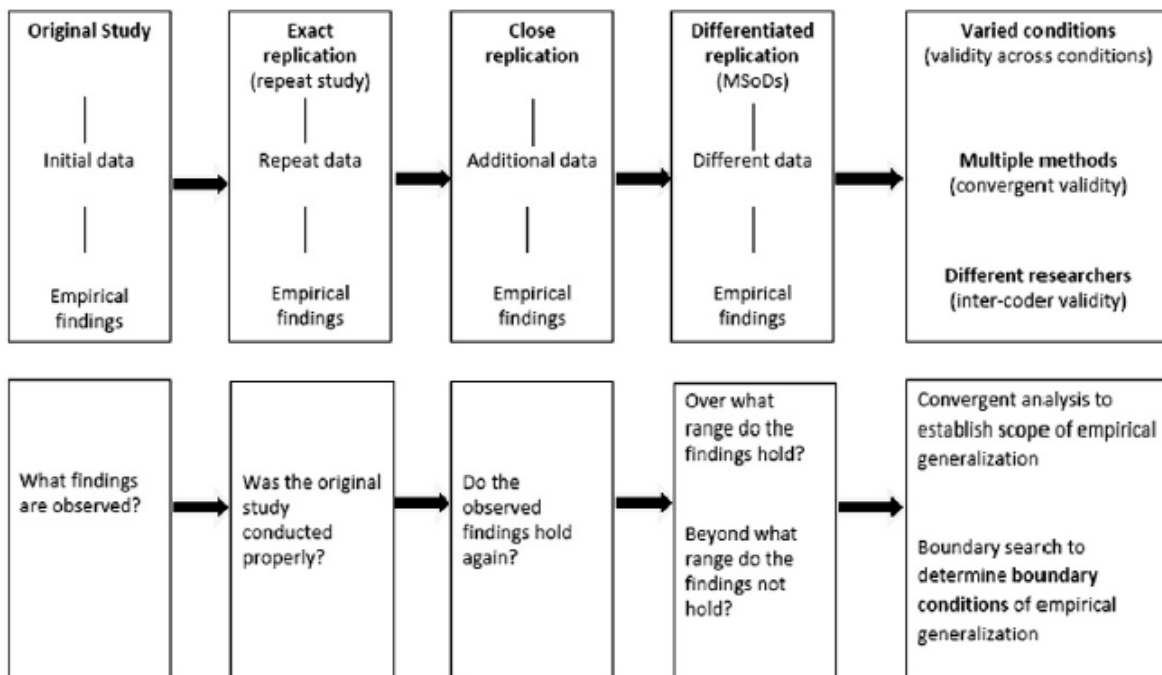


Fig. 1. The process of undertaking replication.
Adapted from Uncles and Wright (2004) and Brinberg and McGrath (1985, p 23).

Mark D. Uncles and Simon Kwok. 2013. Designing research with in-built differentiated replication, *Journal of Business Research*, Volume 66, Issue 9, pp. 1398-1405. Figure 1.

Tsang and Kwang (1998) offer a larger typology that is, in principle, similar to that of Lindsey and Ehrenberg (1993). They suggest replications types can be classified as follows:

Types of Replication*

	Same measurement and analysis	Different measurement and/or analysis
Same data set	Checking of analysis	Reanalysis of data
Same population	Exact replication	Conceptual extension
Different population	Empirical generalization	Generalization and extension

*Eric W. K. Tsang and Kai-Man Kwan. 1999. Replication and Theory Development in Organizational Science: A Critical Realist Perspective. *The Academy of Management Review*, Vol. 24, No. 4 pp. 759-78. Table 2.

With the exception of the first cell, *checking of analysis*, under the right conditions each of the other five cells can be justified as being a contribution to accounting research. In essence, replication can vary from attempts at exactly replicating the original study with different populations or analytical techniques to conceptually replicating the results in a manner that broader support for the theory. The latter can be done by employing different populations with different types of measurement procedures, different instruments and different analysis. Indeed, one can replicate as part of identifying the boundary conditions where a theory applies. However, it is important to consider *ex ante* exactly what you as a researcher hope to contribute by carrying out a replication study or a replication with an extension. Further, as an author you need to be able to justify the importance of the replication and justify departures from an exact replication based on theory.

References (not cited in Tables)

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- Salterio, S. E. 2012. Balancing the Scorecard through Academic Accounting Research: Opportunity Lost? *Journal of Accounting and Organizational Change*. 8 (4): 458 – 474.

Table 1

Examples of Replication Theory Papers

- Pierre Berthon, Leyland Pitt, Michael Ewing, and Christopher L. Carr. 2002. Potential research space in MIS: A framework for envisioning and evaluating research replication, extension and generalization. *Information Systems Research*; Vol. 13, No. 4; pp. 416-427.
- John P. A. Ioannidis. 2014. How to Make More Published Research True. *PLOS Medicine*, Vol. 11, No. 10, pp. 1-6.
- R. Murray Lindsay and A. S. C. Ehrenberg. 1993. The Design of Replicated Studies. *The American Statistician*, Vol. 47, No. 3 pp. 217-228.
- Ramal Moonesinghe, Muin J. Khoury, A. Cecile and J. W. Janssens. 2007. Most Published Research Findings Are False— But a little replication goes a long way. *PLOS Medicine*, Vol. 4, No. 2, pp. 218-221.
- Kulwant Singh, Siah Hwee Ang, and Siew Meng Leong. 2003. Increasing Replication for Knowledge Accumulation in Strategy Research. *Journal of Management*, Vol 29, No. 4, pp. 533 - 549
- Eric W. K. Tsang and Kai-Man Kwan. 1999. Replication and Theory Development in Organizational Science: A Critical Realist Perspective. *The Academy of Management Review*, Vol. 24, No. 4 pp. 759-78.
- Mark D. Uncles and Simon Kwok. 2013. Designing research with in-built differentiated replication, *Journal of Business Research*, Vol. 66, No. 9, pp. 1398-1405.

Table 2

Accounting replication examples

A. In *Behavioral Research in Accounting*

Nathan H. Cannon and David N. Herda. 2016. Auditors' Organizational Commitment, Burnout, and Turnover Intention: A Replication. 28 (2): 69-74.

Theodore J. Mock and Hironori Fukukawa. 2016 Auditors' Risk Assessments: The Effects of Elicitation Approach and Assertion Framing. 28 (2) 75-84.

Nicholas Seybert. 2016. Experienced Executives' Views of the Effects of R&D Capitalization on Reputation-Driven Real Earnings Management: A Replication of Survey Data from Seybert (2010). 28 (2): 85-96.

B. In other accounting journals (not exhaustive, indicative of the breath of approaches replication can take)

Chow, C. W., Harrison, P., Lindquist, T., & Wu, A. (1997). Escalating commitment to unprofitable projects: Replication and cross-cultural extension. *Management Accounting Research*, 8(3), 347-361.

Cotton, W. D. J., Jackman, S. M., & Brown, R. A. (2003). Note on a New Zealand replication of the Innes et al. UK activity-based costing survey. *Management Accounting Research*, 14(1), 67-72.

Emby, C., & Finley, D. (1997). Debiasing framing effects in auditors' internal control judgements and testing decisions. *Contemporary Accounting Research*, 14(2), 55-77.

Glover, S. M., Prawitt, D. F., Schultz, Joseph J., Jr, & Zimbelman, M. F. (2003). A test of changes in auditors' fraud-related planning judgments since the issuance of SAS no. 82. *Auditing: A Journal of Practice & Theory*, 22(2), 237-251.

Jansen, E. P., Merchant, K. A., & Van der Stede, W.,A. (2009). National differences in incentive compensation practices: The differing roles of financial performance measurement in the United States and the Netherlands. *Accounting, Organizations and Society*, 34(1), 58.

Merchant, K. A., Wim A Van, d. S., Lin, T. W., & Yu, Z. (2011). Performance measurement and incentive compensation: An empirical analysis and comparison of Chinese and Western firms' practices. *European Accounting Review*, 20(4), 639-667.

Shafer, W. E., Margaret C.C. Poon, & Tjosvold, D. (2013). An investigation of ethical climate in a Singaporean accounting firm. *Accounting, Auditing & Accountability Journal*, 26(2), 312-343.