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Field Experiments in Managerial Accounting Research

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Field Experiments in Managerial Accounting Research

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ABSTRACT

The use of field experiments in managerial accounting research has increased substantially in the last couple of years. One reason for this upsurge is the call in the literature to address causality more confidently, which can be best accomplished with field experiments. This research method provides a clear mechanism for identifying causal effects in the field because the researcher introduces exogenous manipulations in different experimental conditions to which observational units (e.g., individuals, groups, or companies) are randomly assigned. Hence, field experiments are well suited to address managerial accounting phenomena that are plagued with endogeneity concerns when analyzed by using the results of retrospective (observational) studies. This manuscript provides an introduction to field experiments and is especially directed toward managerial accounting researchers who wish to consider adding this research method to their toolbox.

Keywords: managerial accounting research; field experiments; quasi-experiments; natural experiments; laboratory experiments.

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1

Introduction

Field experiments, also known as randomized controlled trials (Duflo and Banerjee, 2017) or natural field experiments (Harrison and List, 2004), are a research method that is gaining popularity and is now being used in accounting research (e.g., Floyd and List, 2016). This trend is similar to that in other fields of research, such as economics (e.g., Bandiera *et al.*, 2011; Harrison and List, 2004; Levitt and List, 2006, 2007, 2009), finance (e.g., Bernstein *et al.*, 2017; Cole *et al.*, 2011), strategy (e.g., Chatterji *et al.*, 2016), and information systems (e.g., Bapna *et al.*, 2017).

The recent upsurge of field experiments in accounting, and other fields, responds to calls in the literatures to more confidently address issues regarding causality. Examples of this call in the accounting literature were in (i) the *Accounting, Organizations and Society* special issue/section on causality (Balakrishnan and Penno, 2014; Gassen, 2014; Ittner, 2014; Luft and Shields, 2014; Lukka, 2014; Van der Stede, 2014), (ii) the *Journal of Accounting Research* issue of the fiftieth *JAR* Conference (Bloomfield *et al.*, 2016; Floyd and List, 2016; Gow *et al.*, 2016), and (iii) the *Foundations and Trends in Accounting* special issue on Causal Inferences in Capital Markets Research

(Bertomeu *et al.*, 2016; Cartwright, 2016; Chen and Schipper, 2016; Kahn and Whited, 2016; Manski, 2016; Marinovic, 2016; Reiss, 2016; Rust, 2016; Welch, 2016).

Similar to researchers in other fields, researchers in accounting aim to discover causal relationships, i.e., that (a change in) A leads (to a change in) B. For example, does the introduction of a certain type of incentive (or management control system), or (A), lead to an increase in performance, (B)? The discovery of causal relationships not only contributes to theory development (Gow *et al.*, 2016), but also to the relevance and impact of academic research in the practitioners' world (Van der Stede, 2014). Hence, causal inferences are an aspirational standard that most non-experimental studies claim (Gow *et al.*, 2016). To support researchers in these causal claims, significant progress has been made in econometric analysis (e.g., propensity score matching, entropy balancing, instrumental variables, regression discontinuity, structural modeling). However, even when grounded in theory or field-qualitative evidence (Ittner, 2014), these causal claims are not indisputable due to the absence of a true counterfactual in observational (retrospective) studies. Experiments—that is, studies that use random assignment of individuals/groups/companies to different conditions—provide, by design, the necessary counterfactual. Therefore, causal inferences can be made.

Field experiments are experiments designed by the researcher with random assignment of the observational units to treatment conditions that are done in naturally occurring environments (i.e., not created by the researcher) and where, in general, the participants do not know that they are part of an experiment. As such, field experiments are substantially different from (1) quasi-experiments, (2) natural experiments, and (3) laboratory experiments.¹ The first two lack random assignment to treatment conditions (Shadish *et al.*, 2002) and, thus, face internal validity concerns related to selection bias and endogeneity. The third faces external validity concerns related to the pool of subjects used—usually students who have pre-agreed (i.e., given their informed consent) to

¹I will discuss thoroughly the nature of these experiments in Section 3.2, “Types of experiments.”

participate in a set of experiments—and the artificial environment/task created by the researcher, which may poorly mimic the real world.²

Aside from providing the necessary counterfactual for making a causal claim, field experiments occur in real-world environments in which participants face real-world consequences, such as financial, reputational, image, and social effects. These types of high stakes cannot credibly be replicated in the lab and, as such, evidence collected in the lab may not generalize to the field (Levitt and List, 2006, 2007, 2009; List, 2006). Therefore, field experiments may be the only method that allows the researcher to document causal relationships when participants face real-world stakes.

Field experiments are especially suited to study managerial accounting phenomena because empirical retrospective studies in this stream of research face many identification threats (e.g., omitted correlated variables and self-selection) and lab environments lack many of the real-world consequences that employees and organizations have to deal with. Hence, field experiments are a powerful method for managerial accounting research because they provide (i) clean tests of causality; (ii) the possibility of disentangling alternative mechanisms of that causality; (iii) the external validity of a field setting; (iv) estimates of effect sizes in the field; (v) estimates of heterogeneous treatment effects, and (vi) relevant results for both academics and practitioners. Field experiments represent an excellent opportunity to establish win–win relationships between academia and the corporate world—a gap that many scholars and practitioners advocate to eliminate (Kaplan, 2011; Van der Stede, 2015).

Examples of recently published field experiments in managerial accounting research deal mainly with the implementation of strategic performance measurement systems (Aranda and Arellano, 2010) and

²In field experiments, participants do not usually know that they are taking part in a study and, as such, there is no self-selection by participants. However, and to the extent that in some field experiments the organizations choose to take (or not to take) part in a study, there is self-selection of the partner. This is a limitation of field experiments that is discussed in Section 7, “Limitations of Field Experiments.” This drawback is common to the majority of field studies.

the performance effects of different types of incentives (Kelly *et al.*, 2017; Lourenço, 2016), feedback (Casas-Arce *et al.*, 2017; Eyring and Narayanan, 2018; Lourenço *et al.*, 2018), and information sharing systems (Li and Sandino, 2018).³ In general, these field experiments use individuals (employees or managers) as the unit of analysis.⁴ However, other fields of research are now using organizations themselves as the unit of analysis. This is the case of financial accounting (e.g., Duin *et al.*, 2018) and economics (e.g., Bloom *et al.*, 2013). Even though the hurdle to do field experiments in which the organization is the experimental unit is much higher as it may require the access to multiple sites, the advantages in terms of generalizability and impact (relevance) are undisputable. Managerial accounting researchers who use field experiments can also explore the advantages of using several sources of data in their study (e.g., questionnaires, archival) and thus, strengthen their claims about the mechanism by which an effect occurs. Researchers can also take advantage of long timeframes to identify how effects evolve over time. By using the natural heterogeneity in the field, researchers can also analyze different conditions (i.e., heterogeneous treatment effects) in which these effects arise. This is most relevant to decision-makers in organizations, who can be very different not only among themselves, but also in their pool of managers and employees.

Overall, field experiments promise to be a fruitful method in managerial accounting research, not only because they allow making causal claims with confidence, but also because they permit researchers to answer a set of research questions in the field that were not possible before.

The remainder of this manuscript is as follows. Section 2 discusses causal inference and Section 3 describes the experimental method.

³Presslee *et al.* (2013) use an experimental study in the field that deals with different types of incentives but, in the typology presented in this manuscript, this study is a quasi-experiment and not a field experiment, as it does not have random assignment of the experimental units to the treatment conditions. The allocation to the treatment conditions was decided by the company in which the quasi-experiment was implemented.

⁴The exceptions are Kelly *et al.* (2017), who use independent retailer companies as experimental units in their field experiment, and Li and Sandino (2018), who use stores.

Section 4 discusses the promise of field experiments for managerial accounting research and Section 5 provides examples of field experiments in this stream of the literature. Section 6 presents some guidelines for running field experiments and Section 7 presents the limitations of this method. Finally, Section 8 concludes.

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