



Common method bias in hospitality research: A critical review of literature and an empirical study

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ARTICLE INFO

Article history:

Received 6 April 2015

Received in revised form 1 March 2016

Accepted 19 April 2016

Available online 17 May 2016

Keywords:

Common method bias

Method variance

Cross-sectional research design

Two-wave survey design

Temporal separation

Unmeasured method factor

ABSTRACT

Common method variance has received much attention in the behavioral sciences. Nonetheless, scant scholarly effort has been invested in handling common method variance in hospitality research. This study investigates the current status of controlling for common method variance in hospitality research and assists researchers in taking appropriate actions. Study 1 shows hospitality researchers' endeavors to control for common method bias through a critical review of literature published in four leading hospitality journals in the ten years from 2006 to 2015: *International Journal of Hospitality Management*, *Journal of Hospitality & Tourism Research*, *Cornell Hospitality Quarterly* and *International Journal of Contemporary Hospitality Management*. In Study 2, empirical investigations examine the effectiveness of a procedural remedy (temporal separation) and a statistical control (an unmeasured method factor approach) with two independent samples. The results of Study 1 reveal that most survey-related publications in the four journals fail to address or acknowledge common method variance. Moreover, only a limited number of techniques is found to be used to control for method variance. The findings of Study 2 suggest that temporal separation with a time lag of one day leads to a weak control for method variance; however, the use of an unmeasured method factor significantly helps control for method variance in the model.

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1. Introduction

As a relatively young discipline, hospitality research has evolved significantly over the past decades (Lugosi et al., 2009). In recent years, hospitality (along with tourism, leisure, and sport) has been identified as an independent academic category in the Social Science Citation Index (SSCI), reflecting the progression of the hospitality discipline. Hospitality programs are ranked based on their research productivity, and their faculty members are expected to conduct more sophisticated research (Park et al., 2011; Severt et al., 2009). Several commentators have highlighted the growing complexity of academic papers and have urged further efforts to be made in various aspects including methodological issues (Lugosi et al., 2009; Mohammed et al., 2015; Taylor and Edgar, 1996). One of the rising methodological issues pertains to common method variance (Bagozzi and Yi, 1990; MacKenzie and Podsakoff, 2012;

Podsakoff et al., 2003). Although hospitality scholars have made meaningful endeavors to enhance the understanding of methodological issues such as scales (e.g., Khalilzadeh et al., 2013) and analyses of mediated moderation and moderated mediation (e.g., Ro, 2012), the issue of common method variance has not received serious attention.

Common method variance is defined as variance that is attributable to the systematic measurement error rather than study constructs that the measures represent (Bagozzi and Yi, 1991). The bias caused by common method variance is referred to as common method or monomethod bias (Podsakoff et al., 2003). Although discussions of the impact of common method variance are ongoing, the general consensus is that common method variance is a potential threat to behavioral research (Podsakoff et al., 2003; Richardson et al., 2009; Spector, 2006; Williams et al., 2010). MacKenzie and Podsakoff (2012) contend that method variance “biases” the estimates of reliability and validity of underlying constructs. Also, researchers in various disciplines agree on the deleterious effect of common method variance on parameter estimates of the relationships among constructs by inflating or deflating the correlations between variables (MacKenzie and Podsakoff, 2012; Podsakoff et al., 2012, 2003; Richardson et al., 2009). Because of these effects

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of common method variance, prior articles argue that method variance should be controlled whenever possible (Bagozzi and Yi, 1990; Cote and Buckley, 1987; MacKenzie and Podsakoff, 2012).

Evidence suggests that common method variance is likely to be a problem in studies where a self-administered survey is a method of data collection (Conway and Lance, 2010; Lindell and Whitney, 2001). Particularly, when the participant responds to items in a single questionnaire at a single point of time, data are susceptible to method variance. Since a self-administered survey is the common form of data collection in behavioral research, method variance and techniques to control for it have been of interest to researchers across disciplines (Bodner, 2006; Woszczyński and Whitman, 2004).

Self-administered surveys are also commonly used by hospitality researchers. Law et al. (2012) reviewed articles published in *Cornell Hospitality Quarterly* from 2008 to 2011 and reported that surveys are most often used for data collection (35.1%). Line and Runyan (2012) revealed that the field survey is the dominant research design in hospitality marketing studies. The prevalent use of self-reports raises an important question for hospitality scholars because of the problematic nature of common method variance: Is common method variance sufficiently controlled for in hospitality research?

Another important question to ask is the effectiveness of techniques (if any) adopted by hospitality scholars. A wide range of techniques exist to control for method variance, and the techniques have been discussed theoretically (MacKenzie and Podsakoff, 2012; Malhotra et al., 2006; Podsakoff et al., 2003; Spector, 2006; Williams et al., 2003). However, the effectiveness of these techniques has not been sufficiently supported by empirical evidence (Schmitt, 1994).

To fill this gap, this study examines the current status of common method bias in hospitality research and provides remedies for those who wish to minimize method variance. Specifically, in Study 1, we show hospitality researchers' endeavors to control for common method variance through a critical review of literature published in four leading hospitality journals in the ten years from 2006 to 2015: *International Journal of Hospitality Management* (IJHM), *Journal of Hospitality & Tourism Research* (JHTR), *Cornell Hospitality Quarterly* (CQ), and *International Journal of Contemporary Hospitality Management* (IJCHM). We examine the extent to which scholarly efforts have been made to control for common method variance on the basis of statistical and procedural remedies recommended by Podsakoff et al. (2003) and Williams et al. (2003). In Study 2, we empirically demonstrate the impact of common method variance on the proposed model and the effectiveness of procedural and statistical remedies using two independent samples.

2. Literature review

2.1. Common method variance and its impact on behavioral research

Researchers have long recognized the threat of common method variance, one of the most prevalent sources of measurement error. Campbell and Fiske (1959) first acknowledged this problem in the psychology literature while highlighting correlated errors caused by monomethod designs. More than 50 years later, common method variance is still a topic of discussion across disciplines including marketing, psychology, management, and information systems among others (MacKenzie and Podsakoff, 2012; Malhotra et al., 2006; Podsakoff et al., 2003; Spector, 2006).

In behavioral research, scholars often rely on the survey instrument when testing a theorized relationship (Conway and Lance, 2010). Variables in question are seldom measured directly. Researchers measure variables using the items that reflect the con-

cept. Thus, measurements are never perfect, creating measurement error. Measurement error is defined as “the degree to which the observed values are not representative of the true values” (Hair et al., 2010, p. 7). There are two types of measurement error: random and systematic. Random error is caused by chance, and can be addressed by incorporating multiple items to capture the variable (Hair et al., 2010). On the other hand, systematic error is not caused by chance. Systematic error inflates or deflates the measured relationships systematically, and threatens the validity of the measurement (Craighead et al., 2011). Common method variance is defined as “systematic error variance shared among variables, introduced as a function of the same method and/or source” (Richardson et al., 2009).

The detrimental effect of common method variance has been well documented in previous studies. First and foremost, the presence of common method variance harms estimates of reliability and validity of a scale. If not controlled for, common method variance is included in the trait variance of a variable, which in turn misleads conclusions about the adequacy of reliability and validity of a scale and even the estimation of corrected correlations in meta-analyses (Baumeister et al., 2001; MacKenzie and Podsakoff, 2012; Podsakoff et al., 2003). The second prominent detrimental effect of common method variance is that it can bias parameter estimates of relationships among constructs (MacKenzie and Podsakoff, 2012). Type I or Type II errors occur because the relationship between two constructs is inflated or deflated by underlying method variance. Consequently, the influenced parameters lead to erroneous conclusions regarding the proportion of variance accounted for by a predictor variable in a criterion variable and further affect the estimate of causality (Cote and Buckley, 1987; MacKenzie and Podsakoff, 2012; Podsakoff et al., 2012). Podsakoff et al. (2012) reviewed articles that had examined the effect of common method variance empirically and concluded that if not controlled for, method variance could account for an average of 18%–32% of the variance in scale items and inflate estimates of the covariation between constructs by an average of 27%–34%. These recent findings confirm the seriously detrimental effect of method variance on academic research, and unfortunately, this problem is widely encountered in self-reported surveys (Lindell and Whitney, 2001; Podsakoff et al., 2003; Schmitt, 1994).

However, it is fair to note that some scholars contend that common method variance is not a serious measurement error but rather an “urban legend” (e.g., Spector, 2006). They claim that the existence of common method variance is exaggerated with little evidence demonstrating that the method itself is responsible for variance in scales (Spector, 1987, 2006). Spector and Brannick (1995) argue that the extraneous variance in measures is not caused solely by method variance but caused by a function of method and trait variance. Therefore, they suggest that the bigger concerns should be shared variance among variables (e.g., social desirability) rather than method variance (Brannick et al., 2010; Spector, 2006). These disputes show that the issue of common method variance is complex. While the notion of common method variance as an “urban legend” is recognized, the more widespread view is that common method variance is problematic and researchers should control for it (e.g., Keeping and Levy, 2000; Pace, 2010; Podsakoff et al., 2003; Viswanathan and Kayande, 2012; Williams et al., 2010).

2.2. Potential sources of common method variance

Because common method variance may distort research findings, it is important to understand potential sources of the error and conditions under which it is likely to occur. Literature shows a list of four potential sources of common method bias: (1) common rater effects, (2) item characteristic and context effects, (3) mea-

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