

Bias of Structural Equation Modeling

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Abstract

This paper is in format of LTE (letter to the editor) and discusses the confirmatory bias of structural equation modeling (SEM). The concern of the paper is avoiding common mistakes in SEM research publications.

Keywords: Structural equation modeling (SEM), confirmatory analysis

1 Letter

I was pleased when I received your reply to my question that your Journals accept papers in format of letter to editor. In the field of management and applied economics which many journals are publishing, modeling is broadly used to find structural relationship between exogenous and endogenous.

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Structural equation modeling (SEM) enjoys widespread use in different recent papers and researches in field of management and econometrics studies, etc. It is visionary that structured equations are formed on the basis of knowledge of current theories but not unexpectedly, models that were initially tested was rejected; however, the difference between other multivariate techniques compared to SEM is the specification of basic model with lack of values for statistical programs occupying the major issues for estimation. In SEM, the sections that make up the structured model for measurement must be clearly defined by the researcher [1-3]. This paper considers that scholar's need to avoid the potential of slipping into a wrong mode where the final results may be unduly influenced by the vagaries of the data at hand. We drive scholar's attention to the concerns before turning to problems involving bias of SEM.

Hair et al [4] however, disclosed SEM, "as a confirmatory method guided theory, than empirical results"; Review results of researchers using SEM therefore, suggested bias in confirmation impressionability [5]. According to Reichardt [6], discussion of model fallibility judgment however, emphasized the need for easy data explanation and suitability for acceptance. Furthermore, researchers then are less motivated for alternate choice consideration. This however, is the case with SEM, where model specific support that matches data existence is regularly obtained. Researchers therefore need to take into account all these strategic measures or possibilities aimed at examining alternative methods for compliance [7].

The existence of equivalent model is the most interesting and significant approach in alternative models that matches any data in a similar degree however, such models can only be distinguished by substantive meaning [7]. MacCallum et al [8] have demonstrated SEM applications, which showed that in practice, equivalent models with increased numbers occur regularly. Researchers are generally unaware of this phenomenon and therefore decided to ignore it. Moreover, it is imperative for researchers to really evaluate and generate

equivalent models and its basis on empirical studies.

To further support the favored model, it is encouraging to neglect other alternative model existence; efforts aimed at examining alternative models can add more impetus to protection against confirmation bias, which therefore favors the choice model [7].

To make it brief, it should not be forgotten that SEM is going to be one of the most popular quantitative methodology techniques specially in management studies. Researchers are concerned of two SEM symptoms bias, which includes a moderately frequent, model fit, assessment and secondly unwillingness to consider alternative data explanations at regular intervals [7]. From the published papers in AMAE, it is clear that SEM papers are receiving. The main objective of this paper was to examine the need for theoretical justification of the model examination process.

As mentioned, theory is particularly important for SEM, because it is considered a confirmatory analysis, i.e. it is useful for testing and potentially confirming theory [2]. Strongest type of theoretical inference a researcher can draw involves proposing that a dependence relationship is based on causation, i.e. a hypothesized cause-effect relationship [2-3]. We repeat MacCallum's word [9] that "it would be appropriate for editors of journals publishing applications of SEM to reject papers employing the model generation strategy if authors ignore these concerns". Chin [1] suggest alternative methodologies for those researchers who are interested in approaches geared more for exploration and model development. As lack of attention were found in many published papers, we aspect reviewers and editors in AMAE discipline should be equally critical of such studies and methodologies.

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