Chapter 28
How to Write Up and Report PLS Analyses

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Abstract  The objective of this paper is to provide a basic framework for researchers interested in reporting the results of their PLS analyses. Since the dominant paradigm in reporting Structural Equation Modeling results is covariance based, this paper begins by providing a discussion of key differences and rationale that researchers can use to support their use of PLS. This is followed by two examples from the discipline of Information Systems. The first consists of constructs with reflective indicators (mode A). This is followed up with a model that includes a construct with formative indicators (mode B).

28.1 Introduction

This intent of this paper is to provide an introduction with corresponding examples to assist social scientists interested on how to write up research that employs PLS path analyses. Due to page limitations, the scope of discussion will be tailored towards survey based studies with specific examples from Information Systems research.

While a number of papers have been written dealing with appropriate reporting of covariance based SEM analyses (CBSEM) (Hoyle and Panter 1995; Steiger 1988, 2001; McDonald and Moon-Ho 2002), this is less so for Partial Least Squares. At first glance, it would seem that a researcher can simply follow the same process employed by covariance based SEM researchers. But, unreflectively following the same procedures may also overemphasize or possibly incorporate aspects that are idiosyncratic to that particular methodology. For example, it can arguably be said that there tends to be more emphasis spent in CBSEM papers on the adequacy of how well proposed models account for all item covariances based on the chi-square statistic and various goodness of fit indices. In contrast, as discussed in more detail in other papers in this handbook, PLS path analysis does not focus on accounting
for measurement item covariances. Rather, depending on the particular model specified by the researcher, only the variances of dependent variables (item or construct level) variances are considered. Therefore, since the dominant paradigm is CBSEM and most reviewers are trained in the use and reporting (at times unreflectively) of CBSEM models, it would seem appropriate to spend a little upfront time discussing why goodness of fit indices and chi-square statistics are not expected to have as prominent a role in PLS reports. In addition, other key methodological distinctions will be presented. It is hoped at the end of this initial discussion, researchers using PLS will be in better position to provide various reasons justifying both their choice of using PLS and why lack of usage or reporting of goodness of fit measures should not necessarily be viewed as a deficit. Then, we begin with an example of reporting a model with all reflective items. This is followed with one that incorporates formative measures.

### 28.2 On Using PLS Versus CBSEM

At this point in time, given that most readers and reviewers of research articles are likely to have more experience with CBSEM methods than PLS, it can be argued that researchers employing PLS analysis are obliged to provide some initial discussion as to the rationale for their use of this particular technique. Specifically, it can be viewed as an education process in explaining the underlying “raison d’être” for both CBSEM and PLS. Often, the cookbook like recipe taught to students on CBSEM analysis and reporting are continued in a unreflective manner when it comes to expectations for PLS papers. Rather than being competitive, it can be argued that the use of PLS is often complementary to CBSEM for research endeavors and may potentially be better suited depending on the specific empirical context and objectives. For consideration, some of the key issues and/or justifications used in the past are:

- Degree of Emphasis on Covariance Explanation
- Soft Distributional Assumptions
- Exploratory in Nature
- Modeling Formative Measurement Items
- Higher Order Molar and Molecular Models
- High Model Complexity as Criterion
- Sample Size Requirement
- Accuracy of Parameter Estimation
- Eschewing the “True” Model for Prediction Focus
- Determinate Scores/Indices for Predictive Relevance
- Ease of Model Specification and Model Interpretation

Let’s consider each one in detail.