

## BOOK REVIEW

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**Book: A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)**

Author: Joseph F. Hair Jr., G. Tomas M. Hult, Christian M. Ringle, and Marko Sarstedt

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Over the past decade, Partial Least Squares Structural Equation Modeling (PLS-SEM) has become a staple analytical technique in business and social science research. Scholars and practitioners in fields such as marketing, management, psychology, and education have embraced this approach due to its flexibility, its capacity to handle relatively small sample sizes and non-normal data distributions, and its applicability to exploratory as well as more confirmatory research designs. In *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (Second Edition)*, Joseph F. Hair Jr., G. Tomas M. Hult, Christian M. Ringle, and Marko Sarstedt present an updated and expanded guide to PLS-SEM, blending methodological depth with practical, step-by-step instruction.

Before delving into the content, it is worth noting that the authors collectively bring decades of experience in marketing research, quantitative methods, and applied statistics. Joseph F. Hair Jr. is widely recognized for his seminal contributions to marketing research and multivariate data analysis, having authored or co-authored numerous influential textbooks on the subject. G. Tomas M. Hult, a prominent scholar at Michigan State University, has contributed extensively to global marketing and supply chain management, bridging academia and industry practices. Christian M. Ringle, a professor of management at the Hamburg University of Technology, has pioneered research on PLS path modeling and co-developed the popular SmartPLS software package. Marko Sarstedt, a chaired professor at Ludwig-Maximilians-Universität Munich, focuses on marketing measurement and consumer behavior, regularly publishing on advanced methodological approaches in leading academic journals. By bringing together their distinct yet complementary expertise, the authors ensure a well-rounded exploration of PLS-SEM that appeals to both novice and advanced researchers.

The text opens by positioning PLS-SEM in the broader landscape of structural equation modeling, differentiating it from its covariance-based counterpart (CB-SEM). This introduction is particularly helpful for readers who may be new to SEM, offering clear explanations of why PLS-SEM might be preferable under certain conditions. The authors underscore how PLS-SEM can accommodate situations with smaller sample sizes, complex models, or formative constructs circumstances that often challenge researchers relying on traditional SEM. This section feels akin to an orientation led by experienced mentors who guide you through the rationale, advantages, and limitations of adopting PLS-SEM.

Building on these foundational insights, the book transitions into the crux of any SEM framework: the measurement model. Hair and his co-authors meticulously outline the difference between reflective and formative constructs, an issue that frequently confounds researchers new to SEM. They emphasize that correct specification of these constructs is essential to avoid biases in path estimates or invalid interpretations. The writing style is academic yet reassuring, with frequent reminders that a strong measurement model underpins

all subsequent analyses. Guidelines on evaluating reliability and validity-ranging from Cronbach's alpha and composite reliability to the more recent heterotrait-monotrait (HTM) ratio are presented in straightforward terms that reduce the learning curve for readers navigating these metrics.

Once the fundamentals of construct operationalization are established, the authors guide the reader through structural model assessment. This section includes a detailed exploration of path coefficients, coefficients of determination ( $R^2$ ), effect sizes ( $f^2$ ), and predictive relevance ( $Q^2$ ). Of particular note is the attention given to the standardized root mean square residual (SRMR), which, although more commonly discussed in the covariance-based SEM literature, has generated increasing interest among PLS researchers. Rather than dismissing debates regarding global fit indices in PLS-SEM, the authors offer balanced perspectives, reminding readers that PLS-SEM historically emphasizes prediction and robustness over stringent model fit indices. In doing so, they encourage a more critical and context-specific application of these measures.

A highlight of the second edition is its thorough treatment of advanced topics, including mediation, moderation, and multigroup analysis (MGA). Recognizing that modern research questions often involve complex interrelationships, the authors expand on how to compute and interpret indirect effects in mediation models, while also demonstrating ways to incorporate moderators into PLS-SEM. Their discussion of MGA is particularly accessible, offering researchers a step-by-step guide to analyzing whether structural paths differ across subgroups. By situating these techniques within real-world examples and detailed software demonstrations, the authors help readers grasp not only how to run these analyses but also how to interpret and report them responsibly.

One of the Primer's most valuable features is its consistent attention to practical instruction via popular software especially SmartPLS, a program co-developed by one of the authors, Christian M. Ringle. Each step in the analytical process is illustrated with screenshots, annotated outputs, and sample datasets, enabling readers to replicate the procedures in real time. This "learning by doing" framework fosters both confidence and competence, which is critical for researchers who might otherwise be intimidated by advanced statistical methods.

While the text focuses primarily on SmartPLS, the authors acknowledge that similar logic can be applied to alternative platforms such as R's *sem* or *plspm* packages. Readers who prefer open-source environments may still wish for more explicit guidance tailored to their chosen software, but the principles remain highly transferable.

The second edition also shines by integrating recent developments and innovations in PLS-SEM. For example, the authors devote attention to *PLSpredict*, an emerging procedure that emphasizes predictive performance in real-world contexts. By encouraging researchers to differentiate between explanatory power (how well a model fits existing data) and predictive power (how well it anticipates out-of-sample observations), Hair et al. push the conversation forward in meaningful ways. This forward-looking perspective underscores their commitment to keeping the Primer aligned with ongoing methodological debates in the scholarly community.

Pedagogically, the book is designed to support both structured coursework and independent study. Each chapter sets out learning objectives and concludes with concise summaries, reflective questions, and suggestions for further reading. These features, alongside the online companion materials, create a supportive learning ecosystem well-suited to graduate students embarking on their first major research projects or experienced scholars seeking to refine their methods. The prose never loses sight of the core audience, balancing academic rigor with clear explanations and illustrative storytelling.

Despite its many strengths, the Primer does have minor limitations. By heavily featuring SmartPLS, readers who prefer other software could find themselves wishing for more cross-platform demonstrations. In addition, some might seek even deeper coverage of emerging frontiers- such as latent class modeling or more advanced hierarchical component models-in the PLS-SEM space. However, it should be noted that these omissions reflect the authors' focus on providing a thorough "primer" rather than an exhaustive encyclopedia of every possible PLS-SEM application. For the majority of readers looking to design robust PLS-SEM studies, the scope is both suitable and sufficiently detailed.

In sum, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (Second Edition)* is a valuable resource for anyone eager to harness the power of PLS-SEM in their research. It stands out for its lucid explanations, hands-on exercises, and thorough coverage of both fundamental and advanced topics. The synergy of expertise among Joseph F. Hair Jr., G. Tomas M. Hult, Christian M. Ringle, and Marko Sarstedt ensures that the methodological guidance is firmly grounded in leading scholarship and real-world application.

Whether one is a doctoral candidate seeking to build a reliable measurement model or a seasoned researcher aiming to integrate moderation and mediation into complex analyses, this book offers a user-friendly yet methodologically rigorous roadmap. Ultimately, the authors have succeeded in creating a text that both demystifies PLS-SEM and places it firmly within the evolving landscape of quantitative social science research.