Partial Least Squares Structural Equations Modelling (PLS-SEM) Using SmartPLS 3

Research Methods Workshop
at the University of Mauritius

By Prof. Dr. Christian M. Ringle
Professor of Management, Hamburg University of Technology (TUHH), Germany

Wednesday, August 8 to Thursday, August 9, 2018

9 am to 5 pm

Location: University of Mauritius, Reduit Campus

Contact Persons: Dr Viraiyan Teeroovengadum (v.teeroovengadum@uom.ac.mu;); Dr Robin Nunkoo (r.nunkoo@uom.ac.mu); Dr Boopen Seetanah (b.seetanah@uom.ac.mu)

1 Instructor

Prof. Dr. Christian M. Ringle
Professor of Management, Hamburg University of Technology (TUHH), Germany, c.ringle@tuhh.de, http://www.tuhh.de/hrmo/team/prof-dr-c-m-ringle.html and University of Newcastle (Australia), Visiting Professor to the Faculty of Business and Law

2 Course objectives

This 2-days workshop looks at partial least squares structural equation modelling (PLS-SEM), which has received considerable attention in a variety of disciplines, including marketing (Hair et al 2011, according to Google scholar the most-cited article ever published in JMTP; Hair et al. 2012a, according to Google scholar the most-cited JAMS article since 2012), strategic management (Hair et al. 2012b, according to Google scholar the most-cited LRP article since 2012), and management information systems (Ringle et al. 2012, according to Google scholar the second-most cited MIS Quarterly article since 2012).

The goal of PLS-SEM is the explanation of variances (prediction-oriented character of the methodology) rather than explaining covariances (theory testing via covariance-based SEM, CB-SEM). The application of the PLS-SEM method is of particular interest if the premises of CB-SEM are violated and the assumed relations of cause-and-effect are not sufficiently explored. An additional advantage of the PLS-SEM method is the unrestricted incorporation of latent variables in the path model that either draws on reflective or formative measurements models. The workshop will focus on introducing the state-of-the-art of PLS-SEM using the SmartPLS 3 software.

3 Who should attend?

This course has been designed for full-time faculty and PhD students who are interested in learning how to step-up their research towards well-designed and publishable outputs that potentially survive the test of time and are read and cited. A basic knowledge of univariate and multivariate statistics and SEM techniques is helpful, but not required.

4 Learning outcomes

This workshop is designed to look at the stages of research question development and theorizing together with the subsequent methodological implementation using the multivariate analysis method PLS-SEM in business and management research. The learning objectives are to (1) contribute to theory by establishing a useful PLS path model, (2) have an in-depth methodological appreciation of the PLS-SEM approach (the nature of causal modelling, analytical objectives, some statistics), (3) being able to evaluate measurement results, and (4) understand complementary analytical techniques.

Specifically, participants will understand the following topics:

- Model development and fundamentals of PLS-SEM and consistent PLS
- Assessment and reporting of measurement and structural model results (relevant criteria, measures, and critical values)
- A new criterion for discriminant validity: The heterotrait-monotrait ratio of correlations (HTMT)
- Mediating effects
- Moderating effects (interaction effects)
- Outlook on multigroup analysis and measurement invariance testing

In addition, the participants will be able to use the SmartPLS 3 software for their PLS-SEM analyses.

5 Teaching and learning methods

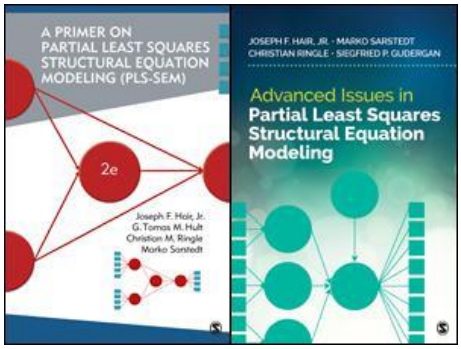
- Lectures/Presentations: The sessions will cover theory and its application. All participants receive a handout of the presentations.
- Computer exercises use the latest SmartPLS 3 version: Specifically, theoretical explanations underlying the software procedures and practical exercises where participants will apply their learning to real-world examples provided by the instructor.

6 Registration and practical issues

- Students and Academics: 395 EUR
- Practitioners rate: 495 EUR
- Food, drinks and subsistence included in the registration fee.
- Bring your laptop computer and a 2 or 3-way power extension lead.
- Download and install the SmartPLS 3 software from http://www.smartpls.com before coming to the workshop (participants will receive detailed instructions shortly before the course starts)
- All participants will get a 60-days license of SmartPLS 3 Professional.
- All participants receive a certificate of attendance!
- Most universities acknowledge the course participation with an equivalent of 2 ECTS.

7 Teaching resources

The Book on PLS-SEM and Software



Hair, Joseph F., G. Tomas M. Hult, Christian M. Ringle, and Marko Sarstedt (2017), A primer on partial least squares structural equation modeling (PLS-sem) (2nd ed.). Thousands Oak, CA: Sage Publications.

Hair, Joseph F., Marko Sarstedt, Christian Ringle, and Siegfried P. Gudergan (2017), Advanced issues in partial least squares structural equation modeling. Thousands Oaks, CA: Sage Publications.

Software

Ringle, Christian M., Sven Wende, and Jan-Michael Becker (2015), "SmartPLS 3." Bönningstedt: SmartPLS.

Recommended Readings

Hair, Joe F., Christian M. Ringle, and Marko Sarstedt (2011), "PLS-SEM: Indeed a silver bullet," Journal of Marketing Theory & Practice, 19 (2), 139-152.

Hair, Joe F., Marko Sarstedt, Christian Ringle, and Jeannette Mena (2012a), "An assessment of the use of partial least squares structural equation modeling in marketing research," Journal of the Academy of Marketing Science, 40 (3), 414-433.

Hair, Joe F., Marko Sarstedt, Torsten M. Pieper, and Christian M. Ringle (2012b), "The use of partial least squares structural equation modeling in strategic management research: A Review of past practices and recommendations for future applications," Long Range Planning, 45 (5-6), 320-340.

Henseler, Jörg, Christian M. Ringle, and Marko Sarstedt (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling," Journal of the Academy of Marketing Science, 43 (1), 115-135.

Richter, Nicole. F., Rudolf R. Sinkovics, Christian M. Ringle, and Christopher Schlägel (2016). "A critical look at the use of SEM in international business research," International Marketing Review, 33 (3), 376-404.
Ringle, Christian M., Marko Sarstedt, and Detmar W. Straub (2012), "A critical look at the use of PLS-SEM in MIS Quarterly," MIS Quarterly, 36 (1), iii–xiv.
Sarstedt, Marko, Joe F. Hair, Christian M. Ringle, Kai O. Thiele, and Siegfried P. Gudergan (2016), "Estimation issues with PLS and CBSEM: Where the bias lies!" Journal of Business Research, 69 (10), 3998-4010.
Sarstedt, Marko, Christian M. Ringle, and Joseph F. Hair (2017), "Partial least squares structural equation modeling," in Handbook of Market Research, Christian Homburg and Martin Klarmann and Arndt Vomberg, eds. Heidelberg: Springer.

More PLS-SEM literature and publications:
https://www.smartpls.com/documentation
https://www.tuhh.de/hrmo/team/prof-dr-c-m-ringle.html

8 Schedule

- Date and Time: Wednesday, August 8th to Thursday, August 9th, 2018, 9 am to 5 pm
- Location: University of Mauritius, Reduit
- Room: TBA

Date	Time	Content
Thursday August 8 2018	09:00 - 10:30	Foundations of structural equation modelling and introduction to PLS-SEM
	11:00 - 12:30	Model estimation and assessing measurement models; software tutorial
	13:30 - 15:00	Model estimation and assessing measurement models; software tutorial
	16:00 - 17:00	Assessing structural models; software tutorial
Friday August 9 2018	09:00 - 10:30	Assessing structural models; software tutorial
	11:00 - 12:30	Higher-order constructs; software tutorial
	13:30 - 15:00	Mediation; software tutorial
	16:00 - 17:00	Moderation; software tutorial

9 Instructor's short bio

Christian M. Ringle is a Professor of Management and the Director of the Institute for Human Resource Management and Organizations at the Hamburg University of Technology (TUHH) and Visiting Professor at the Faculty of Business, and Law Professor at the University of Newcastle (Australia). His research has been published in well-known journals such as *Annals of Tourism Research, Information Systems Research, International Journal of Contemporary Hospitality Management, International Journal of Human Resource Management, International Journal of Research in Marketing, International Marketing Review, Journal of Interactive Marketing, Journal of International Management, Journal of Service Research, Journal of the Academy of Marketing Science, Journal of Travel Research, Long Range Planning, MIS Quarterly, Organizational Research Methods, Tourism Management*. Dr. Ringle co-authored the textbook on PLS-SEM and is co-founder of SmartPLS, a software tool with a graphical user interface for the application of the PLS-SEM method. More information: www.tuhh.de/hrmo/team/prof-dr-c-m-ringle.html
Google Scholar: https://scholar.google.de/citations?user=y5F176wAAAAJ&hl=de