

INTRODUCTION TO PARTIAL LEAST SQUARES STRUCTURAL EQUATION MODELLING (PLS-SEM) USING STATA

GENERAL DESCRIPTION

PLS-SEM, also referred to as partial least squares path modelling, is a type of SEM, which is being increasing used in social sciences, psychology, business administration and marketing. In a nutshell, PLS-SEM can be viewed as a component-based SEM alternative to the covariance-based structural equation modelling (CB-SEM) which can be described as a factor-based SEM technique. As such, the PLS-SEM approach provides researchers with a multivariate statistical technique that can readily be used to estimate exploratory or/and complex SEM models. Although there are several stand-alone specialized PLS-SEM or PLS-PM software packages available, this course introduces participants to the PLS-SEM methodology, through the user-written Stata-package, *plspm*, developed by the course instructors themselves.

In common with TStat's workshop philosophy, throughout the workshop, theoretical sessions are reinforced by case study examples, in which the course tutor discusses current research issues, highlighting potential pitfalls and the advantages of individual techniques. In this manner, course leaders are able to bridge the "often difficult" gap between abstract theoretical methodologies, and the practical issues one encounters when dealing with real data.

At the end of the course, participants are expected to be able to autonomously implement the theories and methodologies discussed during the workshop.

TARGET AUDIENCE

The PLS-SEM workshop is of particular interest to researchers and professional working in social sciences, psychology, business administration, marketing and management. Due to its introductory nature however, is it also accessible to individuals, regardless of their respective disciplines or fields, who need to acquire the requisite toolset to apply the PLS-SEM methodology to their own data.

When possible, participants should bring their own datasets to the workshop to work with and discuss with the instructors.

COURSE REQUISITES

It is assumed that participants have previously followed a basic course in statistics. Previous exposure to Stata or other statistical software packages would also be an advantage.

PROGRAM

SESSION I: INTRODUCTION

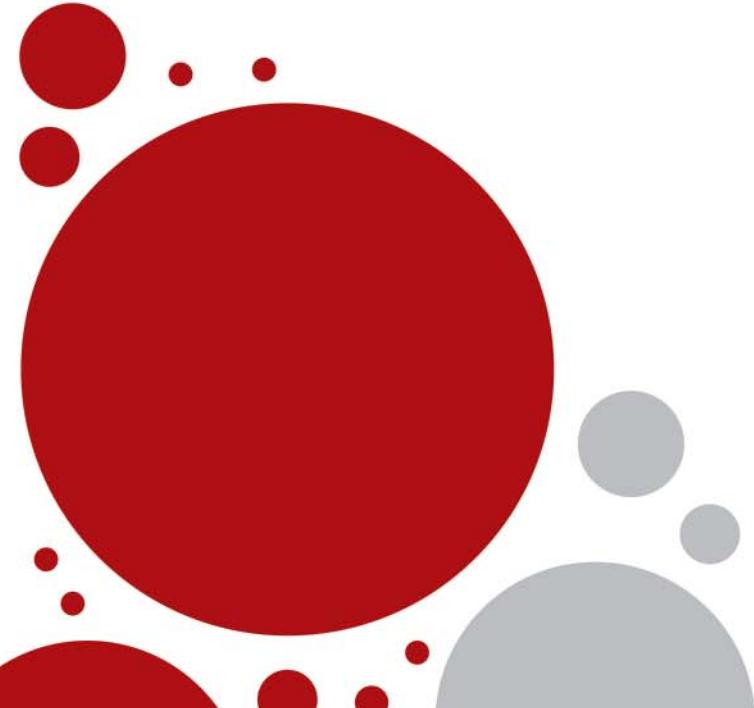
1. What is structural equation modeling (SEM)?
2. Different approaches to SEM
3. What is PLS-SEM?
4. PLS-SEM versus CB-SEM

SESSION II: BASIC CONCEPTS

1. Regression
2. Principal component analysis
3. Path analysis
4. Bootstrapping
5. Reflective and formative measures

SESSION III: DEVELOPING AND ASSESSING A PLS-SEM MODEL

1. Developing the model
 - Specification
 - Example study and measures
 - Estimation using *plspm* package in Stata
2. Assessing the model
 - Measurement model
 - Construct and discriminant validity
3. Structural model
 - Goodness of fit
 - Path coefficients



**SESSION IV: ADVANCED PLS-SEM MODELS USING
plssem PACKAGE IN STATA**

1. Mediation analysis
 - Barron and Kenny approach and its alternatives
 - Mediation analysis with observed variables
 - Mediation analysis with latent variables
2. Multiple sample models
 - Multi-group approach
 - MIMIC approach
3. Higher-order factor models
 - Second-order factor models
4. Interaction-based models
 - Product-term approach
5. PLS-SEM models including categorical variables

SESSION V: HOW TO PUBLISH A PLS-SEM STUDY

1. Scientific journal criteria
2. Example studies

**SESSION VI: HOW TO USE STORED INFO FROM *plssem*
PACKAGE**

1. Accessing scalars, macros and matrices

REGISTRATION FEES

Students*: € 598.00
Academic: € 996.00
Government /Nonprofit: € 1106.00
Commercial: € 1215.00

*To be eligible for student prices, participants must provide proof of their full-time student status for the current academic year.

All fees are subject to VAT (applied at the current Italian rate of 22%).

Please note that a ***non-refundable deposit*** of €100.00 for students and €200.00 for academic, Government/Nonprofit and commercial participants, is required to secure a place and is payable upon registration. The number of participants is limited to 15. Places will be allocated on a first come, first serve basis.

Course fees cover: i) teaching materials (copies of lecture slides, databases and Stata routines used during the workshop); ii) a temporary licence of Stata valid for 30 days from the beginning of the workshop; iii) half board accommodation (breakfast, lunch and coffee breaks) in a single room at the Centro Studi CISL from Sunday 7th to Tuesday 9th May 2017 (2 nights).

In order to maximize the usefulness of this workshop, we recommend that participants bring their own laptops with them, in order to be able to actively participate in the empirical sessions.

Individuals interested in attending this workshop must return their completed registration forms either by email (training@tstat.eu) or by fax (+39 0864 206014) to TStat by the 22nd of April 2017. Further details regarding our registration procedures, including our commercial terms and conditions, can be found at www.tstattraining.eu/training/i-ws21.

LOCATION AND DATE

The residential Workshop will be held in Florence at CISL Studium Centre, Via della Piazzuola 71, the 8th and 9th of May 2017.



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