UNIVERSIDADE DE ÉVORA
ESCOLA DE CIÊNCIAS E TECNOLOGIA
DEPARTAMENTO DE MATEMÁTICA

Centro de Investigação em Matemática e Aplicações

Departamento de Matemática

Seminário

07 de novembro de 2018

CLAV-Anfiteatro 1-15h

Partial Least Squares Structural Equation Modeling: A Case Study

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Abstract

The powerful statistical technique Structural Equation Modeling (SEM) integrates a number of different multivariate techniques into a model fitting framework. SEM has become a mainstream modeling approach in areas as marketing, information systems and innovation management. It has been also used in human and social sciences, biological and health sciences. The following application of SEM will be presented in this Seminar after introducing this technique using the Partial Least Squares (PLS) estimation method. In several academic activities students experience a considerable stress in their daily life. Stressors may affect the mental and physical health

of College students, leading them to the burnout syndrome. A survey was conducted in a University to evaluate this state using a previous developed questionnaire, with ordinal variables expressed in a Likert type scale. A theoretical SEM was designed for the global randomly collected sample and the estimated model was obtained applying the PLS approach. Based on the estimated path coefficients with the PLS-SEM, the latent construct 'behavioural stress' has a direct effect on 'distress' and 'insecurity' – these have a direct effect on 'quantitative demands' of students. Then, the latent constructs 'quantitative demands' and 'distress' have both direct and indirect (as mediators) significant effects on the 'academic burnout'. A multi-group analysis was also conducted to compare the estimated model by gender (female and male). There are differences in some path coefficients, namely the estimated value between 'distress' and 'academic burnout' is higher for females and the estimated value between 'quantitative demands' and 'academic burnout' is higher for males, but all of these differences are not statistically significant.

Keywords: Bootstrap, multi-group analysis, survey, (under)graduate students.

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