Component-based Structural Equation Modelling

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Abstract

Two complementary schools have come to the fore in the field of Structural Equation Modelling (SEM): covariance-based SEM and component-based SEM. The first approach has been developed around Karl Joreskog and the second one around Herman Wold under the name "PLS" *(Partial Least Squares)*. Hwang and Takahe have proposed a new component-based SEM method named *Generalized Structured Component Analysis*. Covariance-based SEM is usually used with an objective of model validation and needs a large sample. Component-based SEM is mainly used for score computation and can be carried out on very small samples. In this research, we will explore the use of ULS-SEM, PLS, GSCA, path analysis on block principal components and path analysis on block scales on customer satisfaction data. Our conclusion is that score computation and bootstrap validation are very insensitive to the choice of the method when the blocks are homogenous.

Key words: Component-based SEM, Covariance-based SEM, GSCA, Path analysis, PLS path modelling, Structural Equation Modelling, Unweighted Least Squares