

STRUCTURAL EQUATIONS MODELING WS 2021/22

Course Assignment – Submission Deadline: 14.01.2022

The assignment is based on the SEM example used throughout the course (and also discussed in the course textbook) and uses (some or all of) the latent variables and indicators (i.e. observed variables) as described in the LISREL control file **Basemodel.spl** (attached). The sample covariance matrix is included in the file **ex1.cov** (attached).

You are asked to complete the following tasks which will require the specification and estimation of several LISREL models. Each task involves the specification of one or more different models involving ONLY the latent and/or observed variables indicated in the task. **It is essential that you do (lots of!) reading before tackling these tasks (particularly on how to formally compare models in terms of fit)!**

1. Estimate a three-factor confirmatory factor analysis model with 'Role Amb', 'Role Conf' and 'Cust Foc' as latent variables.
2. Estimate a model with 'Mkt Ort' as a determinant/predictor of 'Job Sat' and 'Cust Foc'.
3. For the model estimated in 2. above, test the hypothesis that 'Mkt Ort' has the same influence on 'Job Sat' and 'Cust Foc' against the alternative hypothesis that its influence is different.
4. Test the hypothesis that 'Mkt Ort' has the same influence on all its indicators against the alternative hypothesis that 'Mkt Ort' has the same influence on all its indicators AND the measurement errors of the latter are the same.
5. Estimate a multiple regression model with Work as the dependent variable and Custort, Comport and Intcord as predictors.
6. Add Pay as a dependent variable to the model estimated in 5. above and test the hypothesis that Custort, Comport and Intcord all have the same influence on Pay against the alternative hypothesis that their influence is different.
7. Estimate the following "chain" model: 'Mkt Ort' -> 'Role Amb' -> 'Role Conf' -> 'Job Sat'
8. How many (and which) constraints, are included in the structural part of the chain model in 7 above?
9. Compare the fit of the model in 7. above with the fit of a model where 'Mkt Ort', 'Role Amb', 'Role Conf' are all exogenous latent variables impacting a single endogenous latent variable, namely 'Job Sat'.
10. Re-estimate the model under 7. above but assume that the sample size is 3000 instead of 306. Comment on the differences in the results.

For all the above tasks, you should comment on the key results, highlight any problems, and provide the relevant LISREL output files in an Appendix.

No extensions to the submission deadline will be given!