Instruction

for the standardization of loadings so that they enable the achievement of scaled variances of latent variables according to the paper titled *Scaling Variances of Latent Variables by Standardizing Loadings: Applications to Working Memory and the Position Effect* to appear in *Multivariate Behavioral Research* (Schweizer, in press).

1. The outset

The loadings on the latent variable for representing working memory capacity (second latent variable) are constrained as follows in the LISREL syntax:

VA 1 LX 1 2
VA 4 LX 2 2
VA 9 LX 3 2
VA 16 LX 4 2
VA 25 LX 5 2

2. Standardization by SPSS

2.1 Preparation

Define one case (e.g. LatVar) and variables corresponding to the manifest variables respectively items (e.g. L1, L2, …, Ln) in the datasheet. Insert the non-standardized loadings into the slots.

In the example this means that
L1=1
L2=4
L3=9
L4=16
L5=25

2.2 Computation

Develop the following syntax:

COMPUTE S_L1=L1/SQRT(sum(L1*L1, L2*L2, …. Ln*Ln)/n).
COMPUTE S_L2=L2/SQRT(sum(L1*L1, L2*L2, …. Ln*Ln)/n).
.....
COMPUTE S_Ln=Ln/SQRT(sum(L1*L1, L2*L2, …. Ln*Ln)/n).
EXECUTE.

The standardized loadings are stored into the new variables identified by S_L1, S_L2, ... S_Ln.
With respect to the example this means:

COMPUTE S_L1=L1/SQRT(sum(L1*L1, L2*L2, …. L5*L5)/5).
COMPUTE S_L2=L2/SQRT(sum(L1*L1, L2*L2, …. L5*L5)/5).
.....
3. Modification of LISREL program

The outcomes of the computation (S_L1, S_L2, ... S_Ln) are inserted in the LISREL syntax:

VA 0.0715 LX 1 2
VA 0.2860 LX 2 2
VA 0.6435 LX 3 2
VA 1.1440 LX 4 2
VA 1.7875 LX 5 2

Furthermore, the variance of the corresponding latent variable is set free for estimation:

FR PH(2,2).