

LISREL Notation

Appendix to *Latent Variable Modeling using R: A Step-by-Step Guide*

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LISREL (*L*inear *S*tructural *R*ELations; Jöreskog & Sörbom, 2006; Jöreskog & van Thillo, 1972) was one of the first widely-used SEM programs. To use it, one had to learn its Greek-letter naming conventions as that was how the models were specified in the program. These naming conventions and notation are still used by many SEM authors. In Figure 1 I show a path model using the LISREL notation, while in Table 1 I give the LISREL notation and an explanation of their meaning.

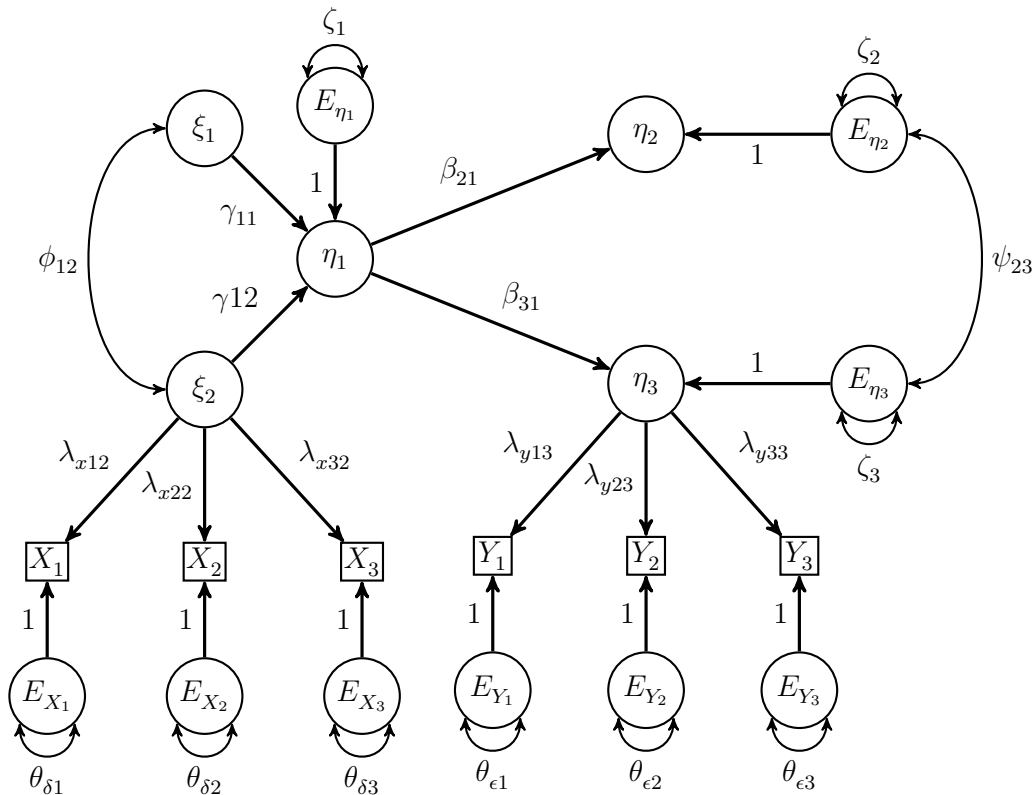


Figure 1 Example of a LISREL path model. Manifest variables for ξ_1 , η_1 , and η_2 , omitted from the diagram for convenience.

Table 1 LISREL Notation

Parameter	Name	Matrix	Description
λ_x	lambda (x)	Λ_x	Exogenous latent variables' loadings
λ_y	lambda (y)	Λ_y	Endogenous latent variables' loadings
ϕ	phi	Φ	Exogenous latent variables' variances/covariances
ψ	psi	Ψ	Endogenous latent variables' variances/covariances
γ	gamma	Γ	Direct paths from exogenous latent variables to endogenous latent variables
β	beta	B	Direct paths endogenous latent variables
θ_δ	theta delta	Θ_δ	Measurement error of exogenous latent variables' indicator variables
θ_ϵ	theta epsilon	Θ_ϵ	Measurement error of endogenous latent variables' indicator variables
ξ	xi/ksi	N/A	Exogenous latent variables
η	eta	N/A	Endogenous latent variables
ζ	zeta	N/A	Endogenous latent variables' error variances

Note. Newer versions of LISREL use a simplified version of these matrices.

References

- Jöreskog, K. G., & Sörbom, D. (2006). *LISREL for Windows (Version 8.8) [Computer software]*. Skokie, IL: Scientific Software International.
- Jöreskog, K. G., & van Thillo, M. (1972). *LISREL: A general computer program for estimating a linear structural equation system involving multiple indicators of unmeasured variables* (Research Bulletin No. 72-56). Princeton, NJ: Service, Educational Testing.