## LISREL NOTATION

## **Parameter Notation:**

- $\eta$  = ETA: dependent latent variable.
- $\xi = KSI$ : independent latent variable.
- Y = ETA indicator variable.
- X = KSI indicator variable.
- $\delta$  = DELTA: X error term.
- $\varepsilon = EPSILON$ : Y error term.
- $\beta$  = BETA: path from ETA to ETA variable.
- $\gamma$  = GAMMA: path from KSI variable to ETA variable.
- $\lambda^{(y)}$  = LAMBDA-Y: path from ETA variable to Y variable.
- $\lambda^{(x)}$  = LAMBDA-X: path from KSI variable to X variable.

Notation: Each parameter has two subscripts, the first being the index of the variable to which the path is going and the second being the index of the variable from which the path is coming. Thus BETA(2,1) ( $\beta_{21}$ ) is the parameter associated with the path from ETA1 ( $\eta_1$ ) to ETA2 ( $\eta_2$ ).

## **Matrix Notation: (Each parameter may be collected into a respective matrix)** B = BETA

 $\begin{aligned} \mathbf{D} &= \mathbf{B} \mathbf{E} \mathbf{I} \mathbf{A} \\ \mathbf{\Gamma} &= \mathbf{G} \mathbf{A} \mathbf{M} \mathbf{M} \mathbf{A} \\ \mathbf{\Lambda}_{\mathbf{y}} &= \mathbf{L} \mathbf{A} \mathbf{M} \mathbf{B} \mathbf{D} \mathbf{A} \cdot \mathbf{Y} \\ \mathbf{\Lambda}_{\mathbf{x}} &= \mathbf{L} \mathbf{A} \mathbf{M} \mathbf{B} \mathbf{D} \mathbf{A} \cdot \mathbf{X} \end{aligned}$ 

	1	0	0	
	LX(2,1)	0	0	
	LX(3,1)	LX(3,2)	0	0 = non-existent path
e.g. $\Lambda_x =$	0	1	0	1 = fixed path
0	0	LX(5,2)	0	LX(i,j) = estimated path
	0	0	1	
	0	0	LX(7,3)	

 $\Phi$  = PHI: variances and covariances of the latent independent variables.

 $\Psi$  = PSI: variance of respective error terms.

 $\Theta_{\varepsilon}$  = THETA-EPS: variance of respective error terms.

 $\Theta_{\delta}$  = THETA-DELTA: variance of respective error terms.

 $\Theta_{\delta\epsilon}$  = THETA-DELTA-EPS: covariances between measurement errors in X- and Y-variables.