Supplementary Materials for

Wu, W., & West, S. G. (accepted). Sensitivity of SEM Fit Indices to Misspecifications in Growth Curve Models: A Simulation Study. *Multivariate Behavioral Research.*

Table 1 presents the values of the key parameters (τ_{01} , τ_{22} ,σ_1^2, σ_5^2, ρ and γ_{20}) in the population model used to generate misspecification in the covariance structure OR marginal mean structure. Tables 2 to 5 present the values of the key parameters in the population model used to generate misspecification in BOTH covariance AND marginal mean structures. The values of the other parameters are shown in the matrices below.

$$\mathbf{\Lambda} = \begin{bmatrix} 1 & -2 & 4 \\ 1 & -1 & 1 \\ 1 & 0 & 0 \\ 1 & 1 & 1 \\ 1 & 2 & 4 \end{bmatrix}, \quad \boldsymbol{\alpha} = \begin{bmatrix} 1 \\ 0.3 \\ \gamma_{20} \end{bmatrix}, \quad \mathbf{\Phi} = \begin{bmatrix} 3 & \tau_{01} & 0 \\ \tau_{10} & 0.3 & 0 \\ 0 & 0 & \tau_{22} \end{bmatrix},$$

$$\mathbf{\Psi} = \begin{bmatrix} \sigma_1^2 & \rho\sigma_1^2 & \rho^2\sigma_1^2 & \rho^3\sigma_1^2 & \rho^4\sigma_1^2 \\ \rho\sigma_1^2 & \rho^2\sigma_1^2+0.5 & \rho(\rho^2\sigma_1^2+0.5) & \rho^2(\rho^2\sigma_1^2+0.5) & \rho^2(\rho^4\sigma_1^2+\rho^2 0.5+0.5) \\ \rho^2\sigma_1^2 & \rho(\rho^2\sigma_1^2+0.5) & \rho^4\sigma_1^2+\rho^2 0.5+0.5 & \rho(\rho^4\sigma_1^2+\rho^2 0.5+0.5) & \rho^2(\rho^4\sigma_1^2+\rho^2 0.5+0.5) \\ \rho^3\sigma_1^2 & \rho^2(\rho^2\sigma_1^2+0.5) & \rho(\rho^4\sigma_1^2+\rho^2 0.5+0.5) & \rho^6\sigma_1^2+\rho^4 0.5+\rho^2 0.5+0.5 & \rho(\rho^6\sigma_1^2+\rho^4 0.5+\rho^2 0.5+0.5) \\ \rho^4\sigma_1^2 & \rho^3(\rho^2\sigma_1^2+0.5) & \rho^2(\rho^4\sigma_1^2+\rho^2 0.5+0.5) & \rho(\rho^6\sigma_1^2+\rho^4 0.5+\rho^2 0.5+0.5) & \rho^8\sigma_1^2+\rho^6 0.5+\rho^4 0.5+\rho^2 0.5+\sigma_5^2 \end{bmatrix}$$

Where $\mathbf{\Lambda}$ is the loading matrix. $\boldsymbol{\alpha}$ is the vector of the means of the growth parameters (intercept, linear slope, and quadratic parameter). $\mathbf{\Phi}$ is the covariance matrix among the growth parameters. $\mathbf{\Psi}$ is the covariance matrix of residuals, in which the parameters are residual variances (σ_2^2 ,σ_3^2 , and σ_4^2 are all equal to .5) and the autoregressive coefficient between residuals at adjacent time points (ρ).

Table 1

Values of the Key Parameters in the Population Models and Misspecification in the Models with Misspecification in either Covaraince or Marginal Mean Structure [a]

Population model			Misspecified model						
#	Marginal mean	Covariance	#	Misspec-ification	ELR ($N = 250$)	Power			
						$N =$ 125	$N =$ 250	$N = 500$	$N =$ 1000
PM 1	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.00667$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 1	$\tau_{22} = 0$	4.90	0.34	0.60	0.88	0.99
PM 2	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau22 = 0.00858$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 2	$\tau_{22} = 0$	7.85	0.51	0.80	0.98	≈1.00
PM 3	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau22 = 0.02068$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 3	$\tau_{22} = 0$	38.00	0.99	≈1.00	≈1.00	≈1.00
PM 4	$\gamma_{20} = -.03$	$\tau01 = 0.13857$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 4	$\tau_{01} = 0$	4.90	0.34	0.60	0.88	0.99
PM 5	$\gamma_{20} = -.03$	$\tau01 = 0.17620$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 5	$\tau_{01} = 0$	7.85	0.51	0.80	0.98	≈1.00
PM 6	$\gamma_{20} = -.03$	$\tau01 = 0.38110$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 6	$\tau_{01} = 0$	38.00	0.99	≈1.00	≈1.00	≈1.00
PM 7	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.49803$, $\rho = 0.1$	MM 7	$\sigma_1^2 = \sigma_5^2$	4.90	0.34	0.60	0.88	0.99
PM 8	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.59331$, $\rho = 0.1$	MM 8	$\sigma_1^2 = \sigma_5^2$	7.85	0.51	0.80	0.98	≈1.00

PM 9	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 1.31471$, $\rho = 0.1$	MM 9	$\sigma_1^2 = \sigma_5^2$	38.00	0.99	≈1.00	≈1.00	≈1.00
PM 10	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.04854$	MM 10	$\rho = 0$	4.90	0.34	0.60	0.88	0.99
PM 11	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.06180$	MM 11	$\rho = 0$	7.85	0.51	0.80	0.98	≈1.00
PM 12	$\gamma_{20} = -.03$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.13635$	MM 12	$\rho = 0$	38.00	0.99	≈1.00	≈1.00	≈1.00
PM 13	$\gamma_{20} = -.02629$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 13	$\gamma_{20} = 0$	4.90	0.34	0.60	0.88	0.99
PM 14	$\gamma_{20} = -.03351$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 14	$\gamma_{20} = 0$	7.85	0.51	0.80	0.98	≈1.00
PM 15	$\gamma_{20} = -.07470$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 15	$\gamma_{20} = 0$	38.00	0.99	≈1.00	≈1.00	≈1.00

Note. PM stands for population model. MM stands for misspecified model. TMFLR = true model fixed likelihood ratio test statistic.
[a] Each mispecified model was created by fixing one of the parameters to be 0 or constraining two of the parameters to be equal in the population model on its left. MMs 1 to 12 contain four types of misspecification in the covariance structure (MMs 1 to 3 for $\tau_{22} = 0$, MMs 4 –6 for $\tau_{01} = 0$, MMs 7 – 9 for $\sigma_1^2 = \sigma_5^2$, and MMs 10 – 12 for $\sigma = 0$). MMs 13 – 15 contain one type of misspecification ($\gamma_{20} = 0$) in marginal mean structure. Each type of misspecification is manipulated at three severity levels, which are defined through the statistical power associated with expected likelihood ratio statistics at $N = 250$. The three severity levels are power = 0.6 (low), power = 0.8 (moderate), power = 1.0 (high) (see the column under $N = 250$).

Table 2

Values of the Key Parameters in the Population Models and Misspecification in the Models with Misspecifications in both Marginal Mean ($\gamma_{20} = 0$) and Covariance ($\tau_{22} = 0$) Structures

Population model			Misspecified model [a]		
#	Marginal Mean	Covariance	#	Misspecification in marginal mean structure	Misspecification in covariance structure
PM 16	$\gamma_{20} = -.02637$	$\tau_{01} = 0.2$, $\tau_{22} = 0.00667$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 16	$\gamma_{20} = 0$ Power[b] = 0.60	$\tau_{22} = 0$ Power = 0.60
PM 17	$\gamma_{20} = -.03370$	$\tau_{01} = 0.2$, $\tau_{22} = 0.00667$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 17	$\gamma_{20} = 0$ Power = 0.80	$\tau_{22} = 0$ Power = 0.60
PM 18	$\gamma_{20} = -.07532$	$\tau_{01} = 0.2$, $\tau_{22} = 0.00667$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 18	$\gamma_{20} = 0$ Power ≈1.00	$\tau_{22} = 0$ Power = 0.60
PM 19	$\gamma_{20} = -.02715$	$\tau_{01} = 0.2$, $\tau22 = 0.00858$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 19	$\gamma_{20} = 0$ Power = 0.60	$\tau_{22} = 0$ Power = 0.80
PM 20	$\gamma_{20} = -.03464$	$\tau_{01} = 0.2$, $\tau22 = 0.00858$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 20	$\gamma_{20} = 0$ Power = 0.80	$\tau_{22} = 0$ Power = 0.80

PM 21	γ_{20} = -.07721	τ_{01} = 0.2, τ22 = 0.00858, σ_1^2 = 0.2, σ_5^2 = 0.8, ρ = 0.1	MM 21	γ_{20} = 0 Power ≈1.00	τ_{22} = 0 Power = 0.80
PM 22	γ_{20} = -.03092	τ_{01} = 0.2, τ22 = 0.02068, σ_1^2 = 0.2, σ_5^2 = 0.8, ρ = 0.1	MM 22	γ_{20} = 0 Power = 0.60	τ_{22} = 0 Power ≈1.00
PM 23	γ_{20} = -.03946	τ_{01} = 0.2, τ22 = 0.02068, σ_1^2 = 0.2, σ_5^2 = 0.8, ρ = 0.1	MM 23	γ_{20} = 0 Power = 0.80	τ_{22} = 0 Power ≈1.00
PM 24	γ_{20} = -.08807	τ_{01} = 0.2, τ22 = 0.02068, σ_1^2 = 0.2, σ_5^2 = 0.8, ρ = 0.1	MM 24	γ_{20} = 0 Power ≈1.00	τ_{22} = 0 Power ≈1.00

[a] Each mispecified model was created by fixing the average quadratic parameter (γ_{20}) and the quadratic parameter variance (τ_{22}) to be 0 based on the population model on its left.
[b] Power to detect each misspecification when the other parameters in the model are correctly specified at N = 250.

Table 3

Values of the Key Parameters in the Population Models and Misspecification in the Models with Misspecifications in both Marginal Mean ($\gamma_{20} = 0$) and Covariance ($\tau_{01} = 0$) Structures

Population model			Misspecified model[a]		
#	Marginal mean	Covariance	#	Misspecification in marginal mean structure	Misspecification in covariance structure
PM 25	$\gamma_{20} = -.02635$	$\tau 01 = 0.13857$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 25	$\gamma_{20} = 0$ Power[b] = 0.60	$\tau_{01} = 0$ Power = 0.60
PM 26	$\gamma_{20} = -.03360$	$\tau 01 = 0.13857$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 26	$\gamma_{20} = 0$ Power = 0.80	$\tau_{01} = 0$ Power = 0.60
PM 27	$\gamma_{20} = -.07489$	$\tau 01 = 0.13857$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 27	$\gamma_{20} = 0$ Power ≈1.00	$\tau_{01} = 0$ Power = 0.60
PM 28	$\gamma_{20} = -.02631$	$\tau 01 = 0.17620$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 28	$\gamma_{20} = 0$ Power = 0.60	$\tau_{01} = 0$ Power = 0.80
PM 29	$\gamma_{20} = -.03354$	$\tau 01 = 0.17620$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 29	$\gamma_{20} = 0$ Power = 0.80	$\tau_{01} = 0$ Power = 0.80

PM 30	$\gamma_{20} = -.07478$	$\tau 01 = 0.17620$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 30	$\gamma_{20} = 0$ Power ≈1.00	$\tau_{01} = 0$ Power = 0.80
PM 31	$\gamma_{20} = -.02599$	$\tau 01 = 0.38110$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 31	$\gamma_{20} = 0$ Power = 0.60	$\tau_{01} = 0$ Power ≈1.00
PM 32	$\gamma_{20} = -.03313$	$\tau 01 = 0.38110$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 32	$\gamma_{20} = 0$ Power = 0.80	$\tau_{01} = 0$ Power ≈1.00
PM 33	$\gamma_{20} = -.07392$	$\tau 01 = 0.38110$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.1$	MM 33	$\gamma_{20} = 0$ Power ≈1.00	$\tau_{01} = 0$ Power ≈1.00

[a] Each mispecified model was created by fixing the average quadratic parameter (γ_{20}) and the covariance between the intercept and linear slope (τ_{01}) to be 0 based on the population model on its left.
[b] Power to detect each misspecification when the other parameters in the model are correctly specified at $N = 250$.

Table 4

Values of the Key Parameters in the Population Models and Misspecification in the Models with Misspecifications in both Marginal Mean ($\gamma_{20} = 0$) and Covariance ($\sigma_1^2 = \sigma_5^2$) Structures

Population model			Misspecified model [a]		
#	Marginal Mean	Covariance	#	Misspecification in marginal mean structure	Misspecification in covariance structure
PM 34	$\gamma_{20} = -.024803$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.49803$, $\rho = 0.1$	MM 34	$\gamma_{20} = 0$ Power[b] = 0.60	$\sigma_1^2 = \sigma_5^2$ Power = 0.60
PM 35	$\gamma_{20} = -.031603$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.49803$, $\rho = 0.1$	MM 35	$\gamma_{20} = 0$ Power = 0.80	$\sigma_1^2 = \sigma_5^2$ Power = 0.60
PM 36	$\gamma_{20} = -.070409$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.49803$, $\rho = 0.1$	MM 36	$\gamma_{20} = 0$ Power ≈1.00	$\sigma_1^2 = \sigma_5^2$ Power = 0.60
PM 37	$\gamma_{20} = -.025305$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.59331$, $\rho = 0.1$	MM 37	$\gamma_{20} = 0$ Power = 0.60	$\sigma_1^2 = \sigma_5^2$ Power = 0.80
PM 38	$\gamma_{20} = -.032262$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.59331$, $\rho = 0.1$	MM 38	$\gamma_{20} = 0$ Power = 0.80	$\sigma_1^2 = \sigma_5^2$ Power = 0.80

PM 39	$\gamma_{20} = -.071893$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.59331$, $\rho = 0.1$	MM 39	$\gamma_{20} = 0$ Power ≈1.00	$\sigma_1^2 = \sigma_5^2$ Power = 0.80
PM 40	$\gamma_{20} = -.028073$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 1.31471$, $\rho = 0.1$	MM 40	$\gamma_{20} = 0$ Power = 0.60	$\sigma_1^2 = \sigma_5^2$ Power ≈1.00
PM 41	$\gamma_{20} = -.035812$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 1.31471$, $\rho = 0.1$	MM 41	$\gamma_{20} = 0$ Power = 0.80	$\sigma_1^2 = \sigma_5^2$ Power ≈1.00
PM 42	$\gamma_{20} = -.079903$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 1.31471$, $\rho = 0.1$	MM 42	$\gamma_{20} = 0$ Power ≈1.00	$\sigma_1^2 = \sigma_5^2$ Power ≈1.00

[a] Each mispecified model was created by fixing the average quadratic parameter (γ_{20}) and equating the level-1 residual variances at time 1 and time 5 ($\sigma_1^2 = \sigma_5^2$) based on the population model on its left.
[b] Power to detect each misspecification when the other parameters in the model are correctly specified at $N = 250$.

Table 5

Values of the Key Parameters in the Population Models and Misspecification in the Models with Misspecifications in both Marginal Mean ($\gamma_{20} = 0$) and Covariance ($\rho = 0$) Structures

Population model			Misspecified model[a]		
#	Mean	Covariance	#	Misspecification in marginal mean structure	Misspecification in covariance structure
PM 43	$\gamma_{20} = -.026273$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.04854$	MM 43	$\gamma_{20} = 0$ Power[b] = 0.60	$\rho = 0$ Power = 0.60
PM 44	$\gamma_{20} = -.033513$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.04854$	MM 44	$\gamma_{20} = 0$ Power = 0.80	$\rho = 0$ Power = 0.60
PM 45	$\gamma_{20} = -.074697$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.04854$	MM 45	$\gamma_{20} = 0$ Power ≈1.00	$\rho = 0$ Power = 0.60
PM 46	$\gamma_{20} = -.026274$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.06180$	MM 46	$\gamma_{20} = 0$ Power = 0.60	$\rho = 0$ Power = 0.80
PM 47	$\gamma_{20} = -.033513$	$\tau_{01} = 0.2$, $\tau_{22} = 0.006$, $\sigma_1^2 = 0.2$, $\sigma_5^2 = 0.8$, $\rho = 0.06180$	MM 47	$\gamma_{20} = 0$ Power = 0.80	$\rho = 0$ Power = 0.80

PM 48	$\gamma_{20} = -.074697$	$\tau_{01} = 0.2, \tau_{22} = 0.006,$ $\sigma_1^2 = 0.2, \sigma_5^2 = 0.8, \rho = 0.06180$	MM 48	$\gamma_{20} = 0$ Power ≈1.00	$\rho = 0$ Power = 0.80
PM 49	$\gamma_{20} = -.026274$	$\tau_{01} = 0.2, \tau_{22} = 0.006,$ $\sigma_1^2 = 0.2, \sigma_5^2 = 0.8, \rho = 0.13635$	MM 49	$\gamma_{20} = 0$ Power = 0.60	$\rho = 0$ Power ≈1.00
PM 50	$\gamma_{20} = -.033513$	$\tau_{01} = 0.2, \tau_{22} = 0.006,$ $\sigma_1^2 = 0.2, \sigma_5^2 = 0.8, \rho = 0.13635$	MM 50	$\gamma_{20} = 0$ Power = 0.80	$\rho = 0$ Power ≈1.00
PM 51	$\gamma_{20} = -.074697$	$\tau_{01} = 0.2, \tau_{22} = 0.006,$ $\sigma_1^2 = 0.2, \sigma_5^2 = 0.8, \rho = 0.13635$	MM 51	$\gamma_{20} = 0$ Power ≈1.00	$\rho = 0$ Power ≈1.00

[a] Each mispecified model was created by fixing the average quadratic parameter (γ_{20}) and the autoregressive correlation (ρ) to be 0 based on the population model on its left.

[b] Power to detect each misspecification when the other parameters in the model are correctly specified at $N = 250$.

Example Mplus syntax for fitting a growth curve model with true mean structure and misspecified covariance structure (TMMC, the residual variances at time 1 and time 5 are equated).

```
Data:
  file is 'C:\fit2\study1\data\pm7n125\rep1.dat';
  format is 5f13.6;

Variable:
  names are y1-y5;
  usevariables y1 y2 y3 y4 y5;

Analysis:
  estimator is ml;
  type = mean;

Model:
  i s1 s2 | y1@-2 y2@-1 y3@0 y4@1 y5@2;
  [i s1 s2];
  i; s1; s2;
  i WITH s1;
  s1 WITH s2@0; i WITH s2@0;
  y2-y4 (1);  y1 y5 (2);
  y2 on y1 (3); y3 on y2 (3); y4 on y3 (3); y5 on y4 (3);

Output:
  sampstat standardized;
```

Example Mplus syntax for fitting a growth curve model with saturated mean structure and misspecified covariance structure (SMMC, the residual variances at time 1 and time 5 are equated)

```
Data:
  file is 'C:\fit2\study1\data\pm7n125\rep1.dat';
  format is 5f13.6;

Variable:
  names are y1-y5;
  usevariables y1 y2 y3 y4 y5;

Analysis:
  estimator is ml; type = mean;

Model:
  i s1 s2 | y1@-2 y2@-1 y3@0 y4@1 y5@2;
  [i@0 s1@0 s2@0];
  [y1 - y5];
  i; s1; s2;
  i WITH s1;  s1 WITH s2@0; i WITH s2@0;
  y2-y4 (1); y1 y5 (2);
  y2 on y1 (3); y3 on y2 (3); y4 on y3 (3); y5 on y4 (3);

Output:
  sampstat standardized;
```

Example Mplus syntax for fitting a growth curve model with saturated covariance structure and misspecified mean structure (MMSC, the mean quadratic rate is fixed at 0)

```
Data:
   file is 'C:\fit2\study1\data\pm13n125\rep1.dat';
   format is 5f13.6;

Variable:
   names are y1-y5;
   usevariables y1 y2 y3 y4 y5;

Analysis:
   estimator is ml;
   type = mean;

Model:
   i s1 s2 | y1@-2 y2@-1 y3@0 y4@1 y5@2;
   [i s1 s2@0];
   i@0; s1@0; s2@0;
   i WITH s1@0;  s1 WITH s2@0; i WITH s2@0; y1-y5;
   y1 with y2 - y5;
   y2 with y3 - y5;
   y3 with y4 - y5;
   y4 with y5;

Output:
   sampstat standardized residual;
```

Example Mplus syntax for fitting a growth curve model with true covariance structure and misspecified mean structure (MMTC, the mean quadratic rate is fixed at 0).

```
Data:
   file is 'C:\fit2\study1\data\pm13n125\rep1.dat';
   format is 5f13.6;

Variable:
   names are y1-y5;
   usevariables y1 y2 y3 y4 y5;

Analysis:
   estimator is ml;
   type = mean;

Model:
   i s1 s2 | y1@-2 y2@-1 y3@0 y4@1 y5@2;
   [i s1 s2@0];
   i; s1; s2;
   i WITH s1;
   s1 WITH s2@0;
   i WITH s2@0;
   y2-y4 (1);
   y1 y5;
   y2 on y1 (2);
   y3 on y2 (2);
   y4 on y3 (2);
   y5 on y4 (2);

Output:
   sampstat standardized residual;
```