

An Investigation of Factored Regression Missing Data Methods For Multilevel Models with Cross-level Interactions

Online Supplemental Material

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A Technical Appendix: Conditional Distributions for MCMC Sampling

Illustrative Models

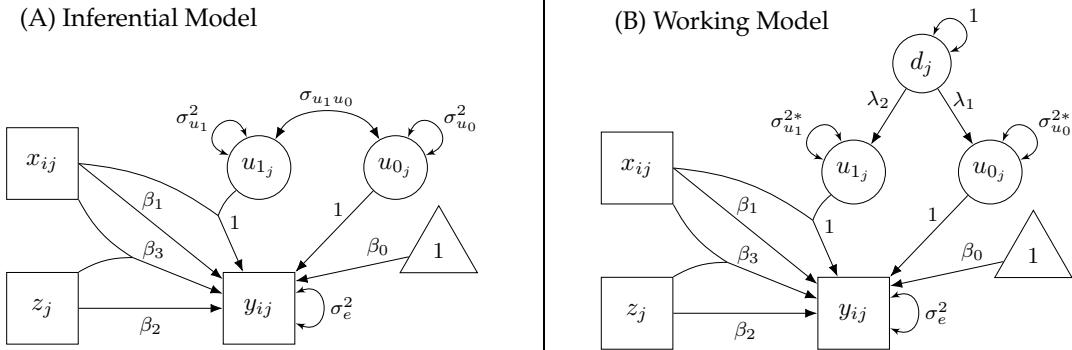
This document gives technical details about Blimp's MCMC estimation steps for a two-level regression model. To illustrate the estimation steps more concretely, we use the same moderated regression model from the manuscript. The focal analysis model is

$$\begin{aligned}
 y_{ij} &= (\beta_0 + u_{0j}) + (\beta_1 + u_{1j}) x_{ij} + \beta_2 z_j + \beta_3 x_{ij} z_j + e_{ij} = E(y_{ij}|x_{ij}, z_j, u_{0j}, u_{1j}) + e_{ij} \\
 \begin{pmatrix} u_{0j} \\ u_{1j} \end{pmatrix} &\sim N_2 \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{u_0}^2 & \sigma_{u_0 u_1} \\ \sigma_{u_0 u_1} & \sigma_{u_1}^2 \end{pmatrix} \right) \quad e_{ij} \sim N_1(0, \sigma_e^2) \\
 y_{ij} &\sim N_1 \left(E(y_{ij}|x_{ij}, z_j, u_{0j}, u_{1j}), \sigma_e^2 \right)
 \end{aligned} \tag{A1}$$

where y_{ij} is the dependent variable with observation i nested in cluster j , x_{ij} is the level-1 predictor value for that observation, and z_j is the level-2 moderator score for cluster j . The u_{0j} and u_{1j} terms are level-2 random effects that are multivariate normal with means of zero and an unstructured covariance matrix, Σ_u .

The top panel of Figure A1 below shows a path diagram of the focal regression model from Equation A1, and the bottom panel shows an alternate parameterization that uses a phantom latent variable to induce a correlation between the random effects. The “working model” with the phantom latent variable is used to implement a separation strategy that treats each level-2 variance component and the random effect *correlation* as distinct parameters with their own prior. With this approach, the random effect covariance is a deterministic function of the estimated parameters, which are random intercept and slope variances and the correlation between the random effects, $\rho_{u_0 u_1}$.

Figure A1



Incomplete predictors also require supporting models and distributions. The regression equations and conditional distributions for a sequential specification are as follows.

$$x_{ij} = \gamma_{0,X} + \gamma_{1,X}z_j + g_{0j,X} + r_{ij,X} = E(x_{ij}|z_j, g_{0j}) + r_{ij,X} \quad (A2)$$

$$f(X|Z) = N_1(E(x_{ij}|z_j, g_{0j}), \sigma_{w,X}^2) \quad g_{0j,X} \sim N_1(0, \sigma_{b,X}^2)$$

$$z_j = \gamma_{0,Z} + r_{j,Z} = E(z_j) + r_{j,Z} \quad (A3)$$

$$f(Z) = N_1(E(z_j), \sigma_{b,Z}^2)$$

Equation A2 is a random intercept model with the level-1 predictor regressed on the level-2 predictor, and Equation A3 is an empty cluster-level model for the level-2 predictor. Each MCMC step estimates the focal parameters and these supporting model parameters, and the distributions of missing values are functions of one or more of these densities.

To estimate the previous models, the MCMC algorithm may perform an identical operation multiple times within a given iteration. For example, the previous equations depict three sets of regression coefficients, all of which are estimated by sampling random numbers from a multivariate normal distribution. To streamline the ensuing presentation and eliminate redundancies, we generally abandon the scalar notation above and adopt a more succinct matrix representation that we use to generically reference *any* of the previous regression models.

$$\tilde{y}_j = \tilde{\mathbf{X}}_j \tilde{\beta} + \tilde{\mathbf{Z}}_j \tilde{u}_j + \tilde{e}_j \quad (A4)$$

The tilde accents convey that the vectors and matrices are generic containers that subsume the corresponding terms from Equations 1, 2, and 3. For example, \tilde{y}_j is a cluster-level vector that contains the dependent variable scores for group j . Applied to Equation A1, \tilde{y}_j contains all y_{ij} from cluster j ; applied to Equation A2, \tilde{y}_j includes all of cluster j 's x_{ij} scores from the left side of the equation; applied to the level-2 regression from Equation A3, all level-2 units belong to the same level-3 population, so $J = 1$ and \tilde{y}_j contains the Z_j values for the entire sample. Similarly, $\tilde{\mathbf{X}}_j$ is the corresponding matrix of predictor variables from the right side of an equation, $\tilde{\mathbf{Z}}_j$ is a subset of the level-1 variables in $\tilde{\mathbf{X}}_j$ that have a random influence on the outcome (e.g., a unit vector and any random coefficient predictors), \tilde{u}_j is the column vector of random effects for cluster j , and \tilde{e}_j is a vector of residuals. When applied to the level-2 regression in Equation A3, $\tilde{\mathbf{Z}}_j = \tilde{u}_j = \mathbf{0}$ because the model has no random effects.

The tildes on the model parameters have the same interpretation. For example, we use $\tilde{\beta}$ to denote a generic coefficient vector that could contain the β s from Equation A1 or the γ s from Equation A2 or 3. Similarly, we denote the level-2 covariance matrix as $\tilde{\Sigma}_{\tilde{u}}$, and we refer to the individual variance-covariance parameters as $\tilde{\sigma}_{\tilde{u}_0}^2$, $\tilde{\sigma}_{\tilde{u}_0\tilde{u}_1}$, and $\tilde{\sigma}_{\tilde{u}_1}^2$. Some or all of these elements could be 0. For example, the random intercept model in Equation A2 has $\tilde{\Sigma}_{\tilde{u}} = \tilde{\sigma}_{\tilde{u}_0}^2 = \sigma_{b,X}^2$, and the single-level regression in Equation A3 has $\tilde{\sigma}_{\tilde{u}_0}^2 = \tilde{\sigma}_{\tilde{u}_0\tilde{u}_1} = \tilde{\sigma}_{\tilde{u}_1}^2 = 0$. Finally, the residual variance is $\tilde{\sigma}_e^2$.

Full Conditional Distributions for MCMC Estimation

The previous regression models require the following tasks: estimate (1) regression coefficients, (2) random effects, (3) a level-2 covariance matrix (Wishart prior only), (4) one or more level-2 variance components, (5) a level-2 residual correlation (separation prior only), (6) the residual variance, (7) a shape parameter (Yeo–Johnson transformation only), and (8) missing values. MCMC estimates each of these quantities in turn by sampling random numbers from a full conditional distribution that reflects the uncertainty in the target parameter or variable while treating all other parameters or variables as fixed constants. The order that Blimp executes the above estimation tasks is somewhat model dependent, and the exact sequencing often doesn't matter. The remainder of this appendix describes the full conditional distributions that MCMC uses to sample new parameter values and variables at each iteration t .

Task 1: Estimate Regression Coefficients

Assuming a uniform prior, $f(\tilde{\beta}) \propto 1$, the full conditional distribution of a vector of K regression coefficients is a multivariate normal distribution.

$$\begin{aligned}\tilde{\beta} &\sim N_K(\hat{\beta}, \Sigma_{\hat{\beta}}) \\ \hat{\beta} &= \left(\sum_{j=1}^J \tilde{\mathbf{x}}_j' \tilde{\mathbf{x}}_j \right)^{-1} \sum_{j=1}^J \tilde{\mathbf{x}}_j' (\tilde{y}_j - \tilde{\mathbf{Z}}_j \tilde{u}_j) \\ \Sigma_{\hat{\beta}} &= \tilde{\sigma}_e^2 \left(\sum_{j=1}^J \tilde{\mathbf{x}}_j' \tilde{\mathbf{x}}_j \right)^{-1}\end{aligned}\tag{A5}$$

When applied to a level-2 regression equation from Equation A3, note that $J = 1$ (i.e., all level-2 units belong to the same level-3 population) and $\tilde{\mathbf{Z}}_j = \tilde{u}_j = \mathbf{0}$.

Task 2: Estimate Random Effects

The random effects for cluster j follow a multivariate normal conditional distribution. When implementing an inverse Wishart prior for the level-2 covariance matrix, MCMC generates random effect estimates by drawing random numbers from the following q -dimensional normal distribution, where q is the number of random effects per cluster.

$$\begin{aligned}\tilde{\mathbf{u}}_j &\sim N_q(\hat{\mathbf{u}}_j, \mathbf{V}_{\tilde{\mathbf{u}}_j}) \\ \mathbf{V}_{\tilde{\mathbf{u}}_j} &= (\tilde{\sigma}_e^{-2} \tilde{\mathbf{Z}}'_j \tilde{\mathbf{Z}}_j + \tilde{\Sigma}_u^{-1})^{-1} \\ \hat{\mathbf{u}}_j &= \tilde{\sigma}_e^{-2} \mathbf{V}_{\tilde{\mathbf{u}}_j} \tilde{\mathbf{Z}}'_j (\tilde{\mathbf{y}}_j - \tilde{\mathbf{X}}_j \tilde{\beta})\end{aligned}\tag{A6}$$

When applied to the random intercept regression from Equation A2, $q = 1$, $\tilde{\mathbf{Z}}_j$ is a unit vector, and $\tilde{\mathbf{u}}_j$, $\hat{\mathbf{u}}_j$, and $\mathbf{V}_{\tilde{\mathbf{u}}_j}$ are scalars.

When applying a separation strategy to the focal model from Equation A1, the random effect imputations condition on both the focal and working models in Figure A1. Because this prior is only germane to the focal model, we temporarily drop the tilde accent. In the focal model, the random effects contribute to Y 's conditional mean, denoted $E(y_{ij}|x_{ij}, z_j, u_{0j}, u_{1j})$ in Equation A1. In the working model, the level-2 residuals are outcomes regressed on the phantom latent variable. The distribution of the random effect imputations is proportional to the product of three distributions.

$$f(\mathbf{u}_j|\mathbf{y}_j, \mathbf{X}_j) \propto f(\mathbf{y}_j|\mathbf{X}_j, \mathbf{u}_j) \times f(\mathbf{u}_{0j}|D_j) \times f(\mathbf{u}_{1j}|D_j)\tag{A7}$$

where $f(\mathbf{y}_j|\mathbf{X}_j, \mathbf{u}_j)$ is a product over all observations within cluster j

$$f(\mathbf{y}_j|\mathbf{X}_j, \mathbf{u}_j) = \prod_{i=1}^{n_j} N_1(E(y_{ij}|x_{ij}, z_j, u_{0j}, u_{1j}), \sigma_e^2)\tag{A8}$$

The random effect densities from the working model are as follows.

$$\begin{aligned}f(u_{0j}|D_j) &\propto \prod_{j=1}^J \exp\left\{-\frac{1}{2} \frac{(u_{0j} - \lambda_1 D_j)^2}{\sigma_{u_0}^{2*}}\right\} \\ f(u_{1j}|D_j) &\propto \prod_{j=1}^J \exp\left\{-\frac{1}{2} \frac{(u_{1j} - \lambda_2 D_j)^2}{\sigma_{u_1}^{2*}}\right\}\end{aligned}\tag{A9}$$

A Metropolis sampling step is used to draw random effects from this target distribution. For each level-2 cluster, the Metropolis sampler draws a pair of candidate random effect imputations from a

bivariate normal proposal distribution, after which it computes an importance ratio by evaluating the previous densities at the candidate and current imputations, as follows.

$$\text{IR} = \frac{f(\mathbf{y}_j | \mathbf{X}_j, \mathbf{u}_{j(\text{Candidate})}) \times f(u_{0j(\text{Candidate})} | D_j) \times f(u_{1j(\text{Candidate})} | D_j)}{f(\mathbf{y}_j | \mathbf{X}_j, \mathbf{u}_{j(\text{Current})}) \times f(u_{0j(\text{Current})} | D_j) \times f(u_{1j(\text{Current})} | D_j)} \quad (\text{A10})$$

The importance ratio, which is essentially the relative height of the target function at the candidate and current values, defines the probability of accepting the new random effect imputations. The algorithm generates a random number from a binomial distribution with a success rate equal to IR, with the candidate imputations becoming the new random effect estimates for the next MCMC iteration if the draw is a “success”.

Task 3: Estimate a Level-2 Covariance Matrix

As noted in the manuscript, the choice of prior specification for the level-2 covariance matrix can be impactful on one’s results. Blimp offers three “off-the-shelf” inverse Wishart priors for the covariance matrix, and it is also possible to implement a so-called separation strategy that applies distinct priors to variances and correlations. Because this step is only germane to the focal model, we temporarily drop the tilde accent. The inverse Wishart distribution is a popular choice of conjugate prior, the form of which is

$$f(\Sigma_u) \propto |\Sigma_u|^{-(df_0 + V + 1)/2} \exp\left(-\frac{1}{2} \text{tr}(\mathbf{S}_0 \Sigma_u^{-1})\right) \quad (\text{A11})$$

where the hyperparameters \mathbf{S}_0 and df_0 are a sum of squares and cross-products matrix and degrees of freedom, respectively. Roughly speaking, the hyperparameters encode a prior guess about the random effect covariance matrix, and the degrees of freedom parameter is essentially the number of imaginary level-2 units assigned to that matrix.

To implement the inverse Wishart prior, we define the inverse of the covariance matrix (i.e., the precision matrix, Σ_u^{-1}) as a Wishart random variable. MCMC samples the precision matrix from the following full conditional distribution, after which it inverts the draw to get Σ_u .

$$\begin{aligned} \Sigma_u^{-1} &\sim W\left(\left(\mathbf{S} + \mathbf{S}_p^{-1}\right)^{-1}, J + df_p\right) \\ \mathbf{S} &= \sum_{j=1}^J \mathbf{u}_j' \mathbf{u}_j \end{aligned} \quad (\text{A12})$$

The matrix \mathbf{S}_p can be viewed as the *inverse* of the prior sums of squares matrix based on df_p degrees of freedom (i.e., prior observations), and $\mathbf{S} + \mathbf{S}_p^{-1}$ is a sums of squares and cross-products matrix based on $J + df_p$ observations.

The PRIOR1 keyword on the OPTIONS line sets $\mathbf{S}_p^{-1} = \mathbf{I}$ and $df_p = p + 1$, where p is the dimension of Σ_b . This prior corresponds to marginal uniform priors between -1 and 1 for all correlations and a marginal inverse gamma prior $IG(1, 5)$ for variance elements. Specifying the PRIOR2 keyword (the default) sets $\mathbf{S}_p^{-1} = 0$ and $df_p = -p - 1$, which is equivalent to a uniform prior on the elements in Σ_b .

Finally, the PRIOR3 keyword sets $\mathbf{S}_p^{-1} = 0$ and $df_p = 0$. Comparing these options, the default PRIOR2 setting is less informative (i.e., has more variance) because it subtracts the number of random effect variables plus 1 from the degrees of freedom; PRIOR1 is more informative because it adds the number of dimensions plus 1 to the degrees of freedom, and it adds an identity matrix to the sum of squares and cross-products; PRIOR3 adds zero degrees of freedom and adds zero to the sums of squares. The Appendix from Muthén and Asparouhov (2012) gives an excellent discussion of the Wishart distribution.

Task 4: Estimate a Level-2 Variance Component

The random intercept regression in Equation A2 requires a sampling step for a level-2 variance component, as does the separation prior strategy for the focal model's random intercept and random slope variances. We define the inverse of a level-2 variance component $1/\tilde{\sigma}_u^2$ (i.e., the precision) as a gamma random variable. MCMC samples a precision value from the full conditional distribution below, after which it inverts the draw to get $\tilde{\sigma}_u^2$. The distribution is

$$1/\tilde{\sigma}_u^2 \sim G\left(\frac{J + df_p}{2}, \frac{S + S_p}{2}\right) \quad (A13)$$

$$S = \sum_{j=1}^J \tilde{u}'_j \tilde{u}_j$$

where J is the number of level-2 units, \tilde{u}_j is the random effect estimate for level-2 cluster j , and df_p and S_p are the prior distribution's hyperparameters (a degrees of freedom and sum of squares value, respectively). The default setting in Blimp specifies $S_p = 1$ and $df_p = 2$, which corresponds to a $gamma(1, 5)$ prior. Two other options are to set $S_p = 0$ and $df_p = -2$ (the PRIOR2 keyword of the OPTIONS command) and $S_p = 0$ and $df_p = 0$ (the PRIOR3 keyword).

Task 5: Estimate a Level-2 Residual Correlation

Following ideas described in Merkle and Rosseel (2018), the separation strategy described in the manuscript uses a phantom latent variable to induce a correlation between the random effects. The “working model” in the bottom of Figure A1 shows the path diagram for this parameterization, where the phantom variable can be viewed as a proxy for the residual correlation. Because the residual correlation is only germane to the focal regression model, we temporarily drop the tilde accent and revert to the scalar notation in Equation A1 and Figure A1.

The separation strategy introduces four augmented or “working model” parameters that are deterministic functions of the focal model parameters: two factor loadings, λ_1 and λ_2 , that connect the level-2 residuals to the phantom latent variable, and two working model residual variances, $\sigma_{u_0}^{2*}$ and $\sigma_{u_1}^{2*}$. These augmented parameters are always updated in the same step that estimates the random effect correlation using the following expressions.

$$\lambda_1 = \text{sign}(\rho_{u_0u_1}) \times \sqrt{\text{abs}|\rho_{u_0u_1}| \times \sigma_{u_0}^2} \quad (A14)$$

$$\lambda_2 = \sqrt{\text{abs}|\rho_{u_0u_1}| \times \sigma_{u_1}^2} \quad (A15)$$

$$\sigma_{u_0}^{2*} = \sigma_{u_0}^2 - \text{abs}|\rho_{u_0u_1}| \times \sigma_{u_0}^2 \quad (A16)$$

$$\sigma_{u_1}^{2*} = \sigma_{u_1}^2 - \text{abs}|\rho_{u_0u_1}| \times \sigma_{u_1}^2 \quad (A17)$$

Note that λ_1 takes on the sign of the residual correlation (positive or negative) via the sign function in Equation A14. The two loadings have the same absolute value, and either loading can encode the sign.

A Metropolis-Hastings sampling step is used to estimate the residual correlation. First, a candidate correlation is sampled from a truncated normal distribution bounded on the upper and lower ends at ± 1 . The correlation enters the model via the working model parameters in Equations 14 through 17. The relevant random effect densities from the working model are as follows.

$$f(u_0|D, \rho_{u_0u_1}, \sigma_{u_0}^2) \propto \prod_{j=1}^J \exp \left\{ -\frac{1}{2} \frac{(u_{0j} - \lambda_1 D_j)^2}{\sigma_{u_0}^{2*}} \right\} \quad (1.18)$$

$$f(u_1|D, \rho_{u_0u_1}, \sigma_{u_1}^2) \propto \prod_{j=1}^J \exp \left\{ -\frac{1}{2} \frac{(u_{1j} - \lambda_2 D_j)^2}{\sigma_{u_1}^{2*}} \right\}$$

The importance ratio is computed by evaluating the above densities and the prior distribution at the candidate and current values of the correlation (and working model parameters).

$$\text{IR} = \frac{f(\rho_{u_0u_1}(\text{Candidate})) \times f(\mathbf{u}_0|\mathbf{D}, \rho_{u_0u_1}(\text{Candidate}), \sigma_{u_0}^2) \times f(\mathbf{u}_1|\mathbf{D}, \rho_{u_0u_1}(\text{Candidate}), \sigma_{u_1}^2)}{f(\rho_{u_0u_1}(\text{Current})) \times f(\mathbf{u}_0|\mathbf{D}, \rho_{u_0u_1}(\text{Current}), \sigma_{u_0}^2) \times f(\mathbf{u}_1|\mathbf{D}, \rho_{u_0u_1}(\text{Current}), \sigma_{u_1}^2)} \times \frac{h(\rho_{u_0u_1}(\text{Candidate}) \mid \rho_{u_0u_1}(\text{Current}))}{h(\rho_{u_0u_1}(\text{Current}) \mid \rho_{u_0u_1}(\text{Candidate}))} \quad (\text{A19})$$

In line with Hastings (1970), $h(\cdot)$ is the proposal density used to make the random walk (i.e., truncated normal distribution bounded between ± 1 and a variance based on the tuned proposal variance).

Following Merkle and Rosseel (2018), the prior distribution $f(\rho_{u_0u_1})$ is a beta distribution with both shape parameters set to 1 (i.e., a flat prior over most of the correlation's -1 to $+1$ range). The importance ratio defines the probability of accepting the candidate correlation. The algorithm generates a random number from a binomial distribution with a success rate equal to IR, with the candidate correlation becoming the new parameter value for the next MCMC iteration if the draw is a "success". As depicted in Equation A18, the separation strategy also requires phantom latent variable scores. As these quantities are essentially missing data to be imputed, we describe their creation in the final estimation step for the missing values.

Task 6: Estimate the Residual Variance

Following the procedure for level-2 variance components, we define the inverse of the residual variance $1/\tilde{\sigma}_e^2$ (i.e., the precision) as a gamma random variable. MCMC samples a precision value from the full conditional distribution below, after which it inverts the draw to get $\tilde{\sigma}_e^2$. The distribution is

$$1/\tilde{\sigma}_e^2 \sim G\left(\frac{N + df_p}{2}, \frac{S + S_p}{2}\right)$$

$$S = \sum_{j=1}^J \tilde{\mathbf{e}}_j' \tilde{\mathbf{e}}_j \quad (\text{A20})$$

$$\tilde{\mathbf{e}}_j = \tilde{\mathbf{y}}_j - \tilde{\mathbf{X}}_j \tilde{\beta} - \tilde{\mathbf{Z}}_j \tilde{\mathbf{u}}_j$$

where df_p and S_p are the prior distribution's hyperparameters (a degrees of freedom and sum of squares value, respectively). The default setting in Blimp specifies $S_p = 1$ and $df_p = 2$, which corresponds to a $\text{gamma}(1,5)$ prior. Two other options are to set $S_p = 0$ and $df_p = -2$ (the PRIOR2 keyword of the OPTIONS command) and $S_p = 0$ and $df_p = 0$ (the PRIOR3 keyword). When applied to a level-2 regression

equation from Equation A3, note that $J = 1$ (i.e., all level-2 units belong to the same level-3 population) and $\tilde{\mathbf{Z}}_j = \tilde{\mathbf{u}}_j = \mathbf{0}$.

Task 7: Estimate the Yeo–Johnson Shape Parameter

As described in the manuscript, Yeo–Johnson transformation (Yeo & Johnson, 2000) defines a normalized predictor X^* with mean and variance μ_{X^*} and $\sigma_{X^*}^2$ and a skewed counterpart X that follows a Yeo–Johnson normal distribution with μ_{X^*} , $\sigma_{X^*}^2$, and a shape parameter λ . That is, $X^* \sim N_1(\mu_{X^*}, \sigma_{X^*}^2)$ and $X \sim YJN(\mu_{X^*}, \sigma_{X^*}^2, \lambda)$. Estimating the shape parameter requires the Yeo–Johnson density. We temporarily revert to the earlier scalar notation to illustrate the application of the procedure to the random intercept regression model from Equation A3, where x_{ij} becomes a normalized variable as follows.

$$\begin{aligned} x_{ij}^* &= \gamma_{0,X} + \gamma_{1,X}z_j + g_{0j,X} + r_{ij,X} = E(x_{ij}^*|z_j, g_{0j}) + r_{ij,X} \\ f(X|Z, \lambda) &= N_1(E(x_{ij}^*|z_j, g_{0j}), \sigma_{w,X^*}^2, \lambda) \quad g_{0j,X} \sim N_1(0, \sigma_{b,X^*}^2) \end{aligned} \quad (\text{A21})$$

Adapting Equation A3 from Yeo and Johnson (2000), the log-likelihood function for the skewed variable X is as follows.

$$f(x|z, g_0, \lambda) = \left\{ -\frac{N}{2} \ln(2\pi) - \frac{N}{2} \ln(\sigma_{w,X^*}^2) - \frac{1}{2} \sum_{i=1}^N \frac{(x_{ij}^* - E(x_{ij}^*|z_j, g_{0j}))^2}{\sigma_{w,X^*}^2} \right\} + (\lambda - 1) \sum_{i=1}^N \text{sign}(x_{ij}) \ln(|x_{ij}| + 1) \quad (\text{A22})$$

A Metropolis sampling step is used to draw the shape parameter based on this log-likelihood function. For each level-2 cluster, the Metropolis sampler draws a candidate shape parameter from a normal proposal distribution, after which it computes an importance ratio by evaluating the above density and the prior distribution at the candidate and current values of the shape parameter

$$\text{IR} = \frac{f(x|z, g_0, \lambda_{(\text{Candidate})}) \times f(\lambda_{(\text{Candidate})})}{f(x|z, g_0, \lambda_{(\text{Current})}) \times f(\lambda_{(\text{Current})})} \quad (\text{A23})$$

where the prior distribution $f(\lambda)$ is a uniform over the range from -2 to $+2$. The importance ratio, which is essentially the relative height of the target function at the candidate and current parameter values, defines the probability of accepting the candidate shape parameter. As before, the algorithm generates a random number from a binomial distribution with a success rate equal to IR, with the candidate λ becoming the new shape parameter for the next MCMC iteration if the draw is a “success”.

Task 8: Estimate Missing Values

In a factored regression specification, the distributions of missing values are a function of every model in which an incomplete variable appears. To replace missing outcome scores, MCMC samples imputations from the following univariate normal distribution in the bottom row of Equation A1.

In a sequential specification, the level-1 predictor X appears in the conditional mean of Y 's normal distribution from Equation A1, and it functions as an outcome in its own regression model and density in Equation A2. Symbolically, the conditional distribution of X given all other analysis variables is the product of two normal distributions.

$$f(X|Y, Z) \propto f(Y|X, Z) \times f(X|Z) = N_1(\hat{y}_{ij}, \sigma_e^2) \times N_1(E(x_{ij}|z_j, g_{0j}), \sigma_{w,X}^2) \quad (A24)$$

The resulting function is also normal distribution, the mean and variance of which depend on both the analysis and predictor model parameters (Enders et al., 2020, Eq. 20). Similarly, the distribution of a skewed predictor from the Yeo–Johnson procedure is as follows.

$$f(X|Y, Z) \propto f(Y|X, Z) \times f(X|Z, \lambda) = N_1(\hat{y}_{ij}, \sigma_e^2) \times N_1(E(x_{ij}^*|z_j, g_{0j}), \sigma_{w,X^*}^2) \quad (A25)$$

Importantly, the presence of a product term in the imputation model introduces a heteroscedastic variance parameter, such that the normal distribution's spread depends on the product term, cluster j 's random slope residual and its value on the moderator variable (Enders et al., 2020, Eq. 8).

Turning to the level-2 predictor Z , this variable appears in the conditional mean of the Y and X densities, and it is the outcome in the empty level-2 model in Equation A3. Symbolically, the conditional distribution of Z given all other analysis variables is the product of three normal distributions

$$\begin{aligned} f(Z|Y, X) &\propto f(Y|X, Z) \times f(X|Z) \times f(Z) \\ &= N_1(E(z_j), \sigma_{b,Z}^2) \times \prod_{i=1}^{n_j} N_1(E(y_{ij}|x_{ij}, z_j, u_{0j}, u_{1j}), \sigma_e^2) \times N_1(E(x_{ij}|z_j, g_{0j}), \sigma_{w,X}^2) \end{aligned} \quad (A26)$$

where the densities for the Y and X models are a product over all observations within a cluster, which are assumed independent after conditioning on the random effects.

When Z is binary predictor, the latent responses are missing values that require imputation. For cases with observed Z responses, MCMC samples Z^* values from a truncated normal distribution; when $Z = 0$, the algorithm samples negative imputations for Z^* (i.e., latent scores fall below the fixed threshold), and it otherwise samples positive imputations if $Z = 1$. For cases where Z is missing, the Z^* are drawn from an unconstrained normal distribution. Like its continuous counterpart, the posterior predictive

distribution of missing Z^* values is still proportional to the triple product in Equation A27, where σ_{bZ}^2 is fixed at 1 to identify the latent response variable's metric. The procedure naturally produces a discrete impute by comparing each Z^* to the fixed threshold.

A Metropolis sampling step is used to draw missing predictor scores. Candidate imputations are drawn from a normal proposal distribution, after which an importance ratio is computed by evaluating the appropriate functions at the candidate and current imputations. To illustrate, the importance ratio for a missing X score is as follows.

$$\text{IR} = \frac{f(Y|X_{(\text{Candidate})}, Z) \times f(X_{(\text{Candidate})}|Z)}{f(Y|X_{(\text{Current})}, Z) \times f(X_{(\text{Current})}|Z)} \quad (\text{A27})$$

As noted previously, the importance ratio is essentially the relative height of the target function at the candidate and current imputations, and its numeric value quantifies the probability of accepting the new impute. The algorithm generates a random number from a binomial distribution with a success rate equal to IR, with the candidate imputation becoming a new data point for the next MCMC iteration if the draw is a "success".

Finally, the separation strategy requires imputations for the level-2 phantom latent variable D in the bottom panel of Figure A1. The phantom latent variable scores are standard normal with $\mu_D = 0$ and $\sigma_D^2 = 1$. The density is as follows.

$$f(D) \propto \exp \left\{ -\frac{1}{2} \frac{(D_j - \mu_D)^2}{\sigma_D^2} \right\} \quad (\text{A28})$$

The level-2 latent variable scores also appear in the random effect densities in Equation A9. A Metropolis sampling step draws candidate latent variable imputations from a normal proposal distribution, after which an importance ratio is computed by evaluating the functions in Equations 16 and 29 at the candidate and current latent scores.

$$\text{IR} = \frac{f(u_{0j}|D_{j(\text{Candidate})}) \times f(u_{1j}|D_{j(\text{Candidate})}) \times f(D_{j(\text{Candidate})})}{f(u_{0j}|D_{j(\text{Current})}) \times f(u_{1j}|D_{j(\text{Current})}) \times f(D_{j(\text{Current})})} \quad (\text{A29})$$

As noted previously, the importance ratio quantifies the probability of accepting the new latent score, and a candidate value is accepted or rejected following the same procedure as before.

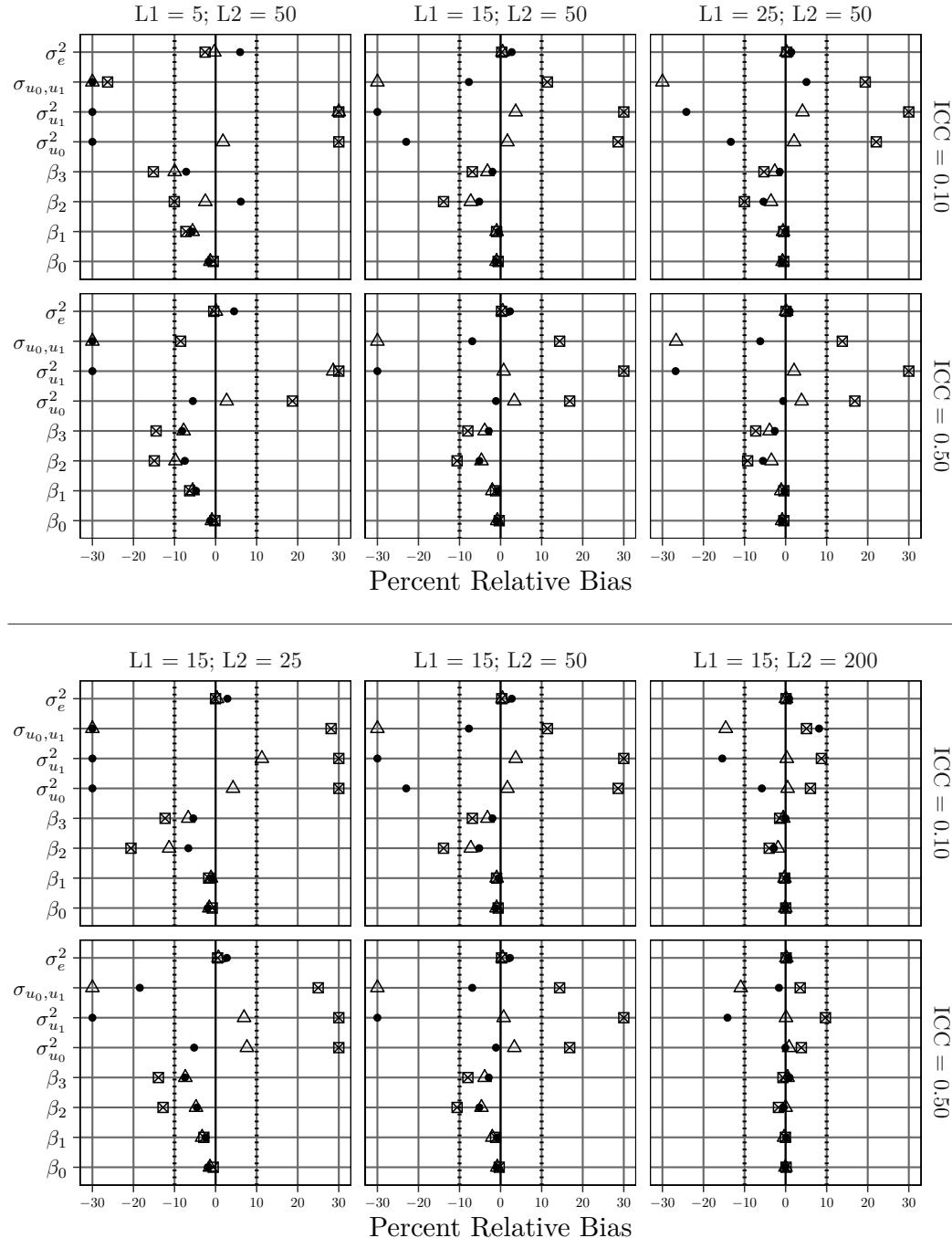
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B Main Document Simulation Results Displayed in Figures

Figure B1

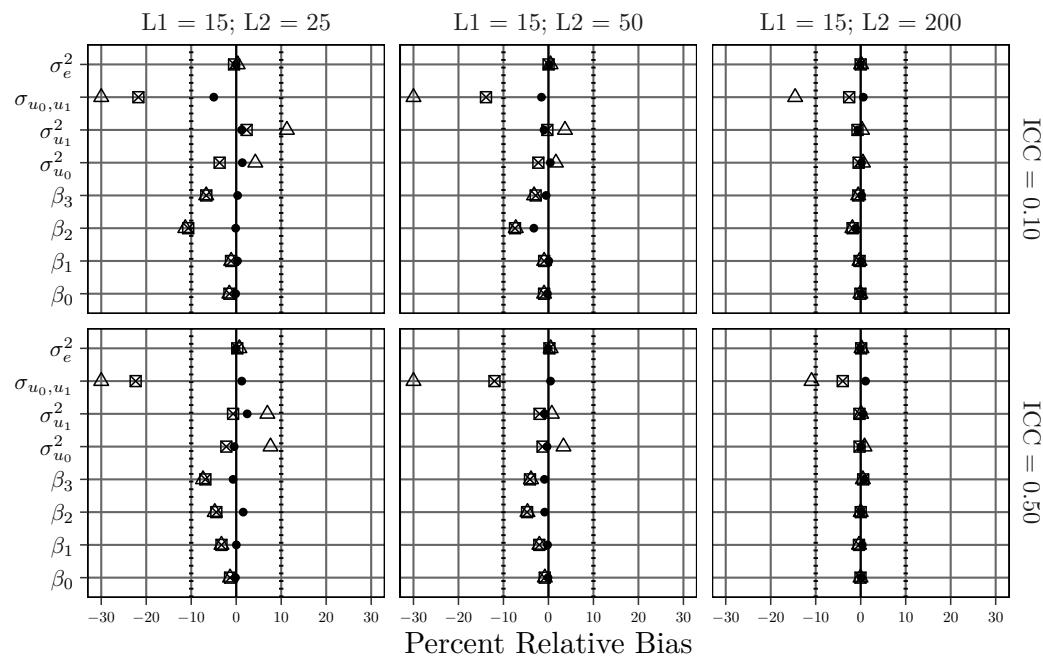
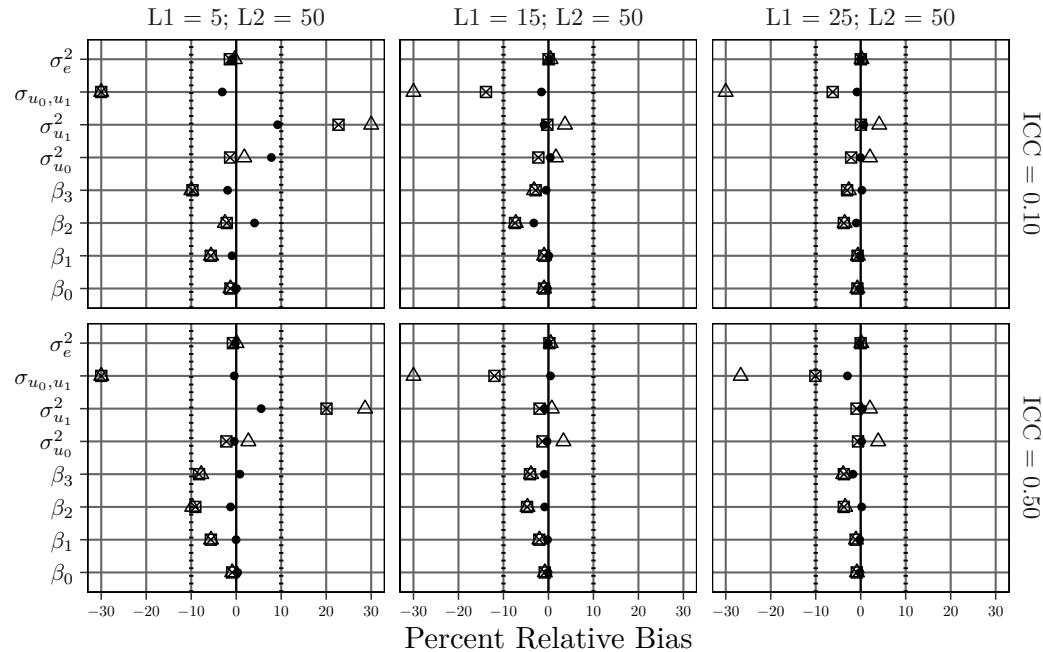
Comparing the Posterior Medians Based on Priors with 30% Missing Data Rate



Note: Trellis plots displaying percentage bias values associated with Bayesian estimation and three different prior distributions for the random effect covariance matrix. The solid circle (\bullet) is the inverse Wishart with $df = d + 1$ prior, the square (\blacksquare) is the inverse Wishart with $df = d - 1$ prior, and the triangle (\triangle) is the separation prior. Values are truncated to ± 30 bias.

Figure B2

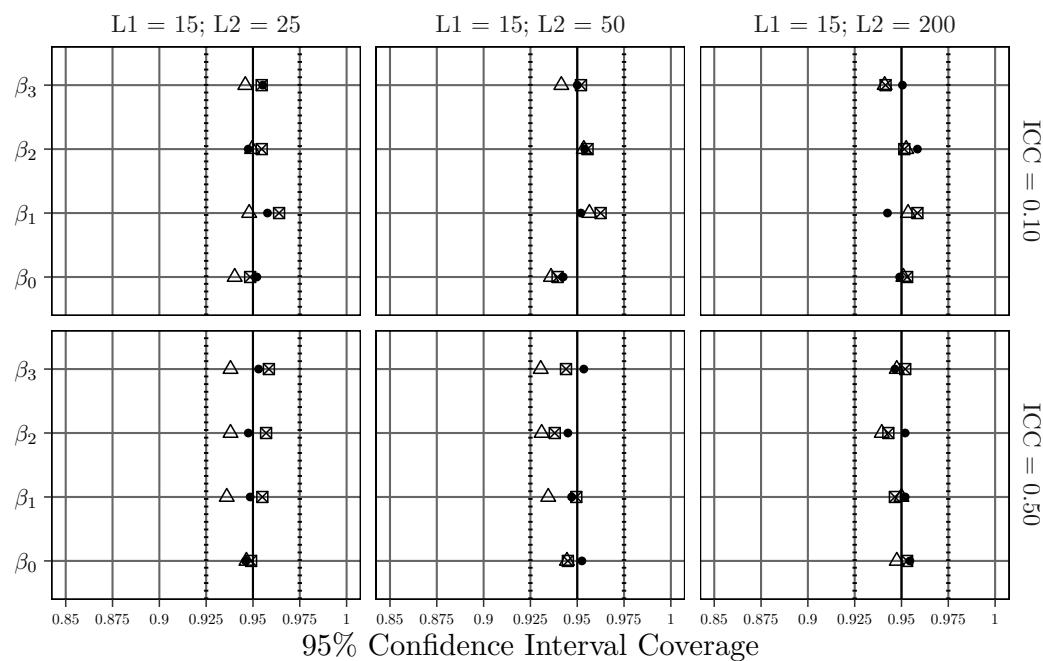
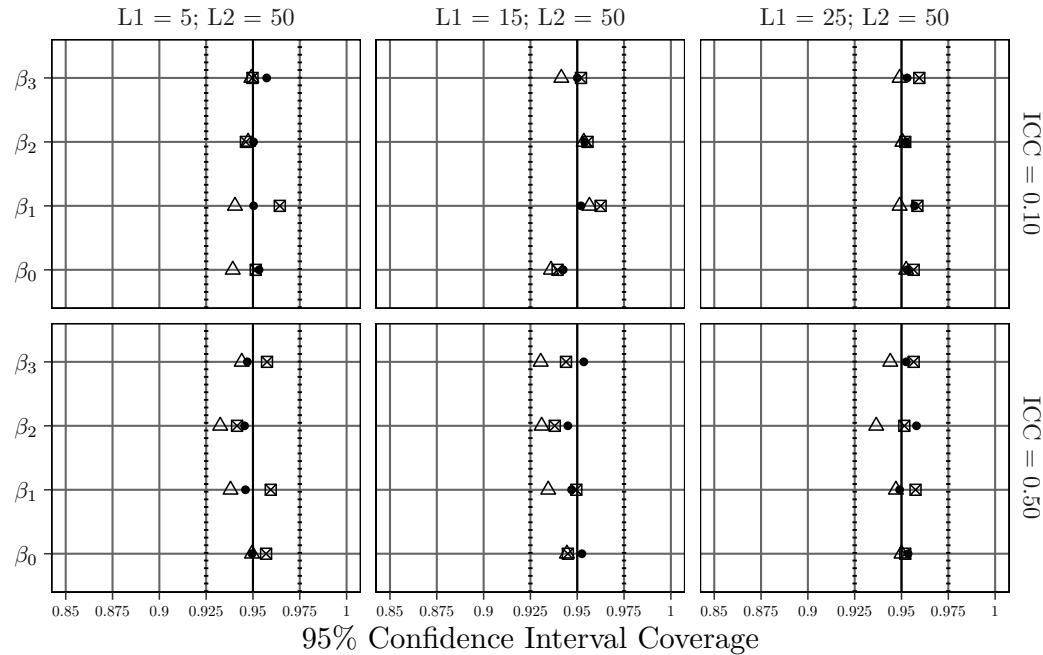
Bias for Bayesian Estimation and Multiple Imputation with 30% Missing Data Rate



Note: Trellis plots displaying percentage bias values by sample size and *ICC* condition for Bayesian estimation (\triangle) and factored regression multiple imputation (\boxtimes). Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison. L_1 is the within-cluster sample size and L_2 is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

Figure B3

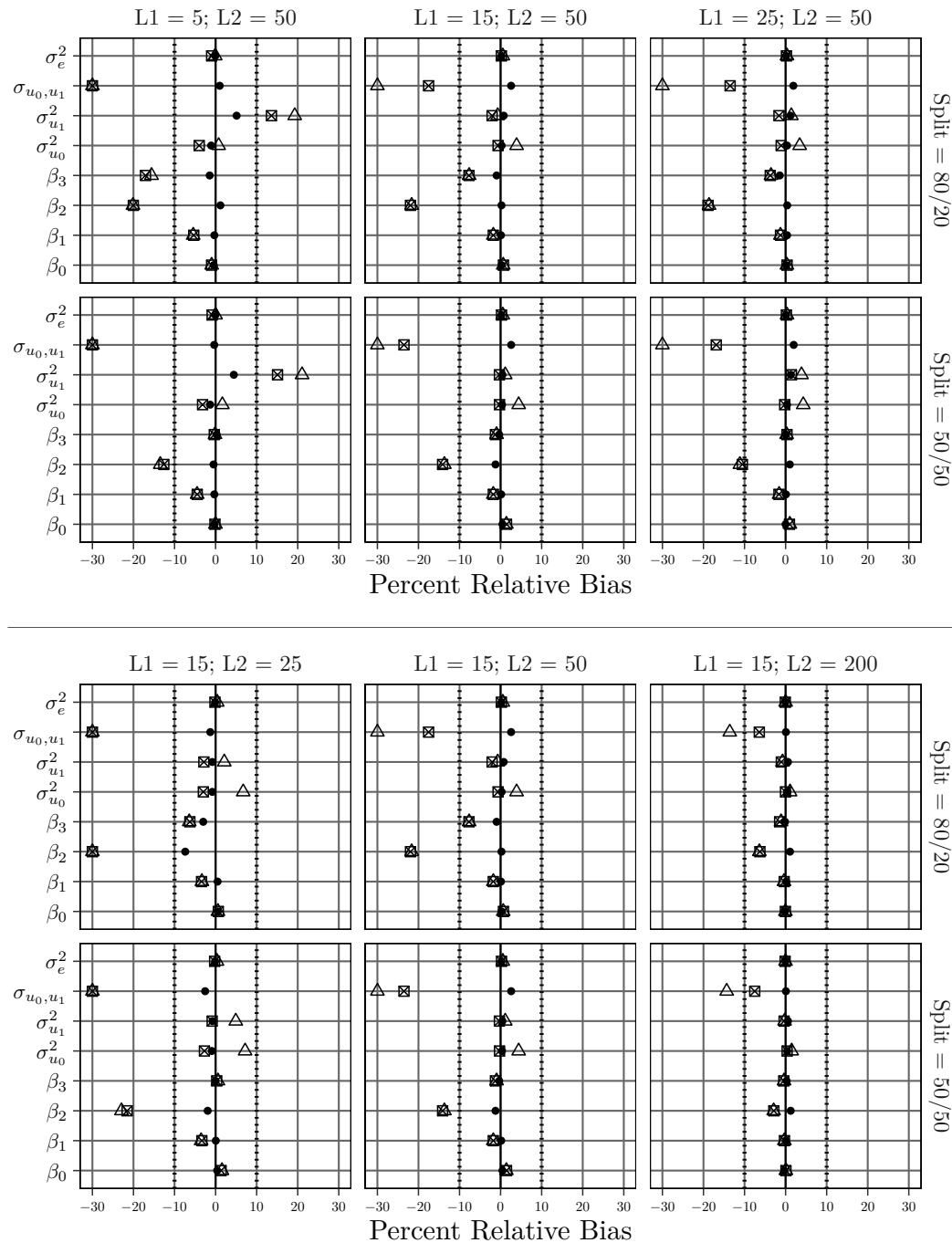
Coverage for Bayesian Estimation and Multiple Imputation with 30% Missing Data Rate



Note: Trellis plots displaying coverage values by sample size and *ICC* condition for Bayesian estimation (\triangle) and factored regression multiple imputation (\square). Complete-data coverage (\bullet) from restricted maximum likelihood are shown as a comparison. L1 is the within-cluster sample size and L2 is the number of level-2 sample size. The separation prior was used for both methods.

Figure B4

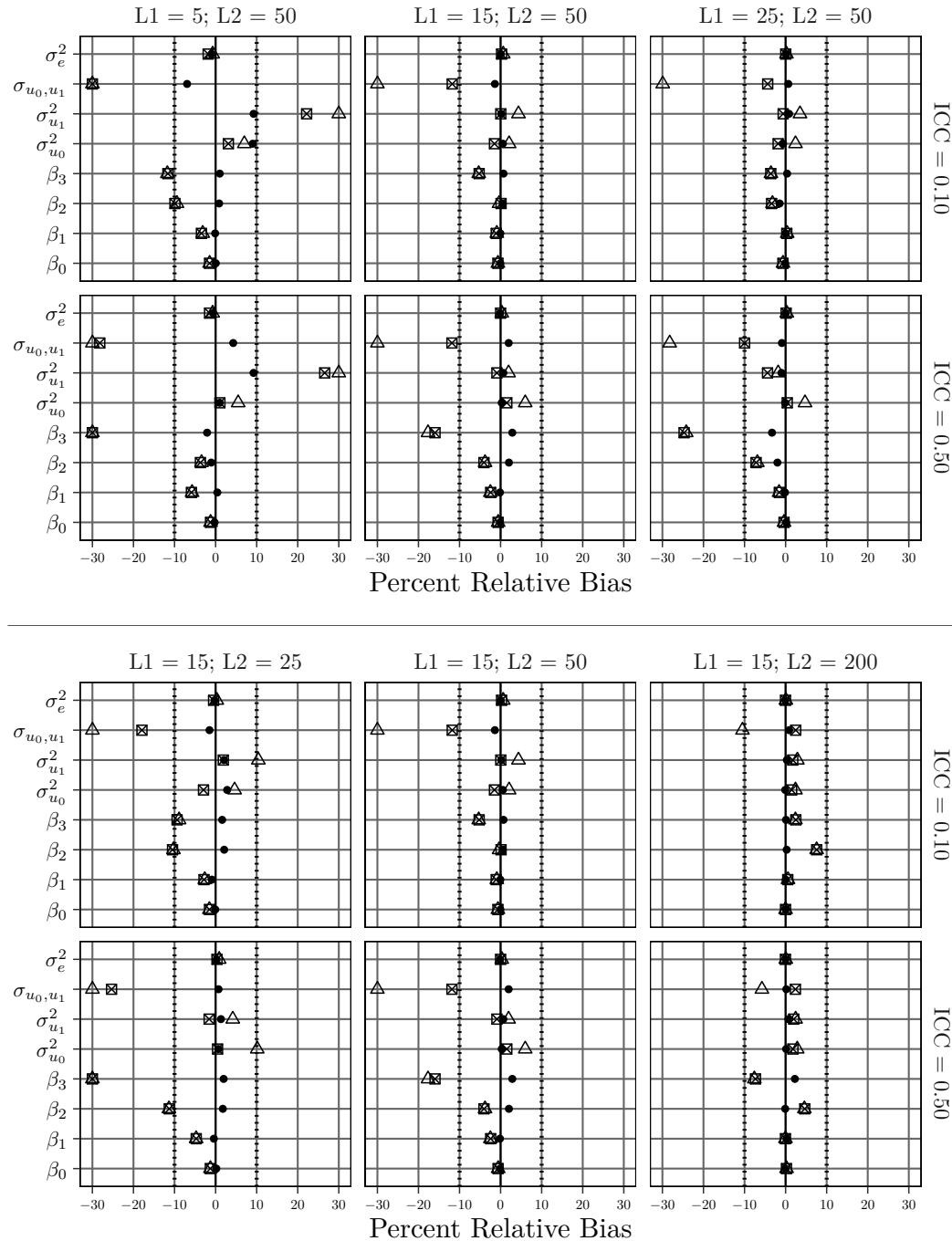
Bias for Bayesian Estimation and Multiple Imputation with Binary Level-2 Moderator



Note: Trellis plots displaying percentage bias values for Bayesian estimation (\triangle) and factored regression multiple imputation (\blacksquare) with a binary level-2 moderator. Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison, and the *ICC* held constant at 0.50. L1 is the within-cluster sample size and L2 is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

Figure B5

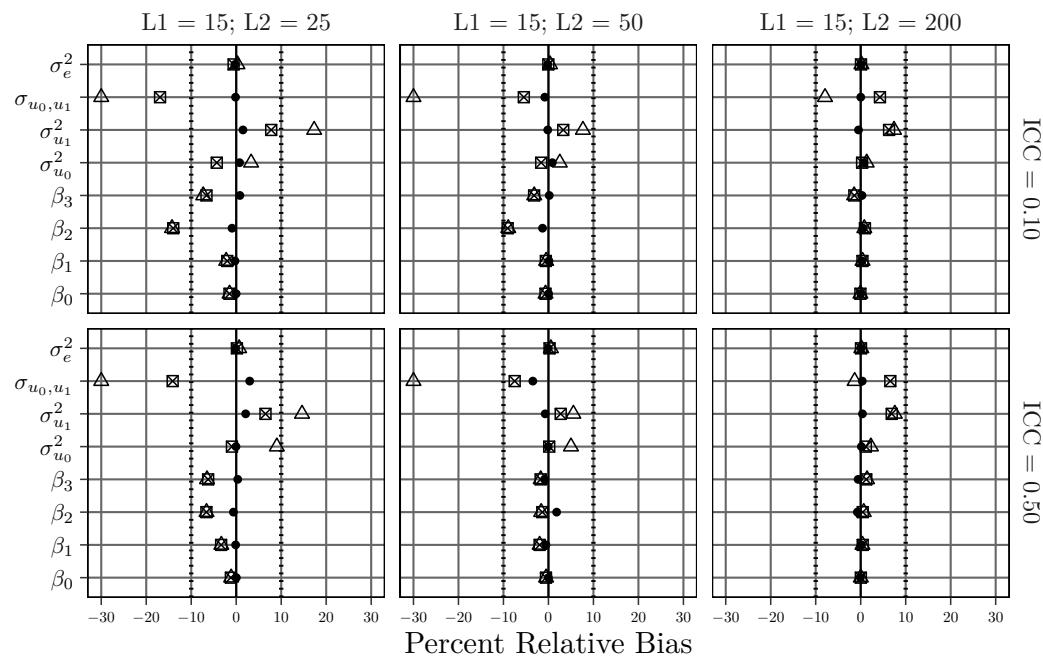
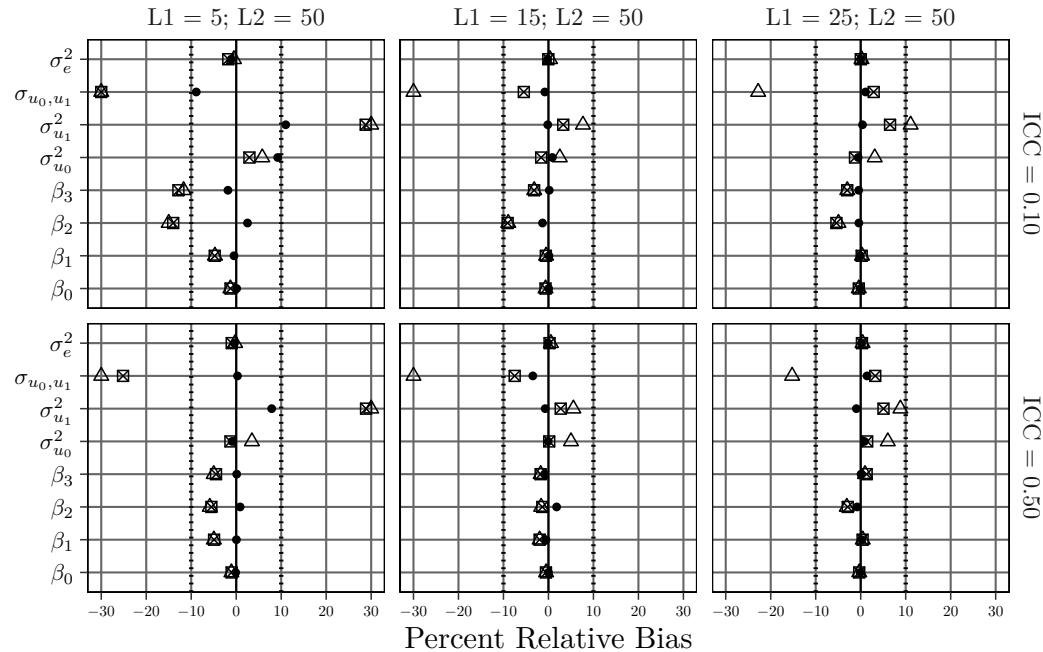
Bias for Bayesian Estimation and Multiple Imputation with non-normal Latent Group Mean



Note: Trellis plots displaying percentage bias values by sample size and *ICC* condition for Bayesian estimation (Δ) and factored regression multiple imputation (\square) when the level-1 predictor's latent group means are non-normal. Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison. $L1$ is the within-cluster sample size and $L2$ is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

Figure B6

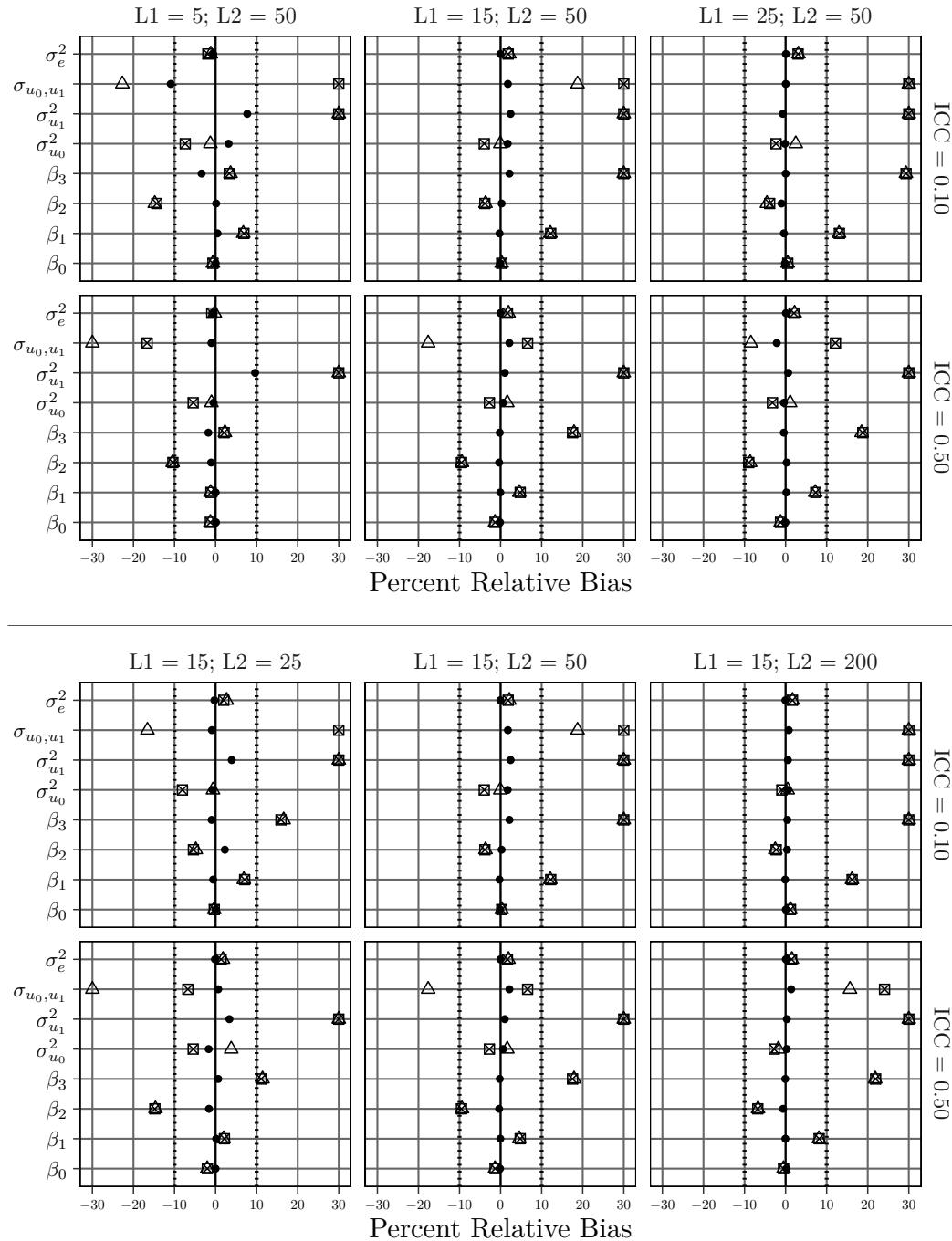
Bias for Bayesian Estimation and Multiple Imputation with non-normal Level-2 Moderator



Note: Trellis plots displaying percentage bias values by sample size and *ICC* condition for Bayesian estimation (Δ) and factored regression multiple imputation (\blacksquare) when the level-2 moderator's distribution is non-normal. Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison. $L1$ is the within-cluster sample size and $L2$ is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

Figure B7

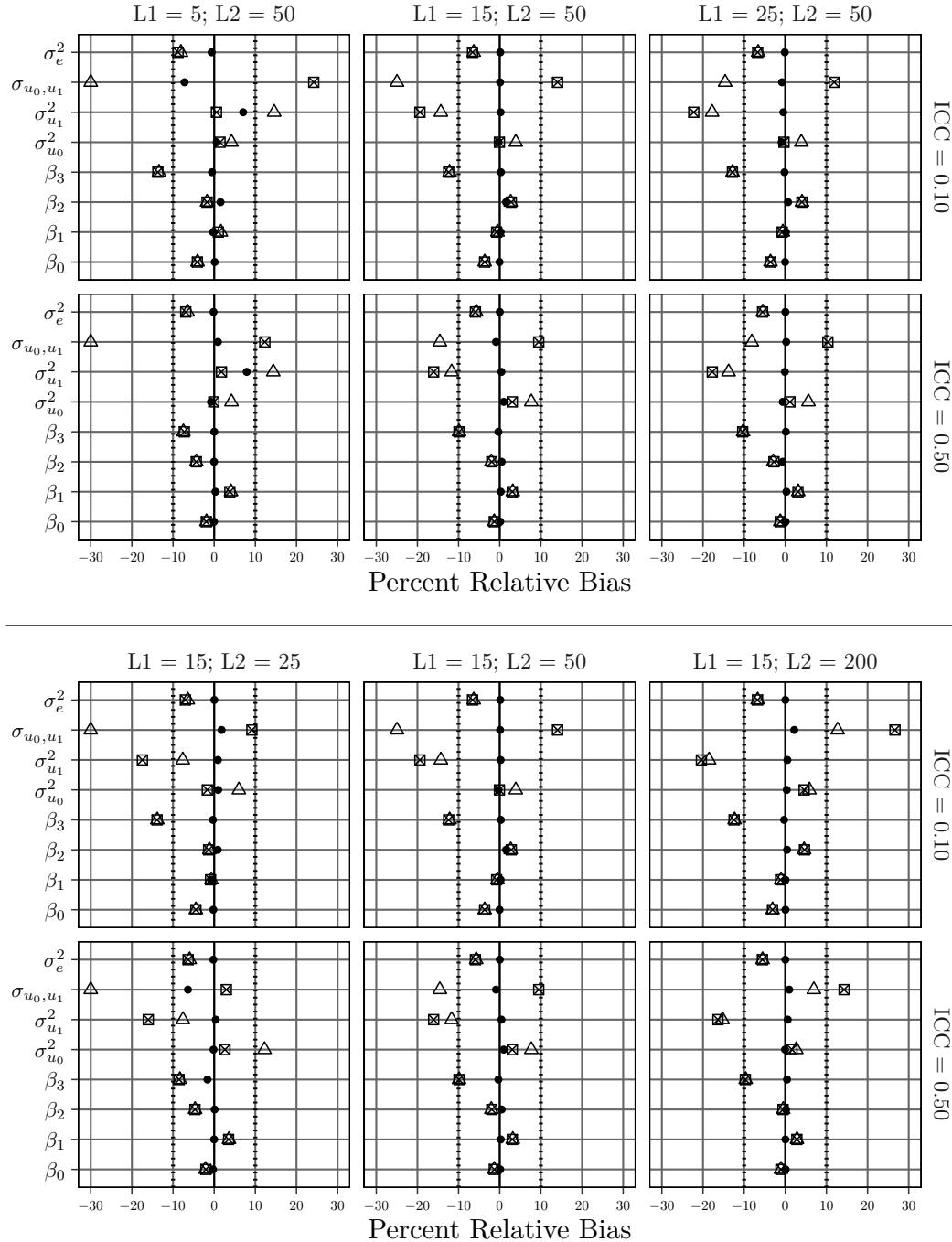
Bias for Bayesian Estimation and Multiple Imputation with non-normal Level-1 Residual



Note: Trellis plots displaying percentage bias values by sample size and *ICC* condition for Bayesian estimation (\triangle) and factored regression multiple imputation (\blacksquare) when the level-1 predictor's within-cluster distribution is non-normal. Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison. L1 is the within-cluster sample size and L2 is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

Figure B8

Bias for Follow-up Simulation with Reversed Missing Data Selection Mechanism



Note: Trellis plots displaying percentage bias values by sample size and *ICC* condition for Bayesian estimation (\triangle) and factored regression multiple imputation (\blacksquare) when the level-1 predictor's within-cluster distribution is non-normal and the missing data selection mechanism is reversed, such that values were deleted from the mass of data in the lower tail rather than the sparsely populated upper tail. Complete-data estimates (\bullet) from restricted maximum likelihood are shown as a comparison. L1 is the within-cluster sample size and L2 is the number of level-2 sample size. The separation prior was used for both methods. Values are truncated to ± 30 bias.

C Tabular Results for Simulation 4 and 5 Yeo-Johnson Transformation Follow-Up

Table on the next page.

Table 1: Bayesian Estimation with Varying Degrees of Non-Normal Residuals

ICC		df = 1						df = 2						df = 5						df = 10						df = 15											
		Sim 4			Sim 5			Sim 4			Sim 5			Sim 4			Sim 5			Sim 4			Sim 5			Sim 4			Sim 5								
		β_0	β_1	β_2	β_3	$\sigma_{u_0}^2$	$\sigma_{u_1}^2$	σ_{u_0, u_1}	σ_e^2	β_0	β_1	β_2	β_3	$\sigma_{u_0}^2$	$\sigma_{u_1}^2$	σ_{u_0, u_1}	σ_e^2	β_0	β_1	β_2	β_3	$\sigma_{u_0}^2$	$\sigma_{u_1}^2$	σ_{u_0, u_1}	σ_e^2	β_0	β_1	β_2	β_3	$\sigma_{u_0}^2$	$\sigma_{u_1}^2$	σ_{u_0, u_1}	σ_e^2				
0.1	L1 = 15	-0.01	-1.27	-1.49	0.06	-1.19	-1.33	0.06	-1.08	-1.11	0.35	-1.02	-0.99	0.08	-1.28	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26	-1.26					
	L2 = 25	-0.24	-1.50	-2.22	-0.74	-2.13	-2.50	0.52	-1.31	-1.34	-0.38	-2.29	-2.37	-0.18	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94					
	β_2	-1.36	-29.13	-14.46	1.82	-20.98	-10.48	-0.99	-15.25	-7.75	0.74	-15.53	-9.99	3.75	-12.14	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39	-7.39					
	β_3	1.00	-11.74	-7.18	0.76	-12.48	-8.74	0.86	-7.96	-4.88	-1.23	-9.83	-7.36	0.57	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69	-8.69					
	$\sigma_{u_0}^2$	0.36	5.59	2.80	-0.33	4.49	2.83	-0.23	3.03	2.60	0.60	2.96	3.00	1.27	4.77	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80				
	$\sigma_{u_1}^2$	1.28	16.36	17.13	-0.26	14.36	14.72	2.47	13.61	14.59	-0.15	12.74	13.43	-0.51	10.30	10.84	-0.51	10.30	10.84	-0.51	10.30	10.84	-0.51	10.30	10.84	-0.51	10.30	10.84	-0.51	10.30	10.84	-0.51	10.30	10.84			
	σ_{u_0, u_1}	0.18	-58.57	-59.79	-2.04	-60.59	-61.31	1.69	-61.17	-61.11	-7.45	-63.17	-63.08	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94	-2.20	-62.52	-61.94			
	σ_e^2	-0.29	0.34	0.28	0.03	0.64	0.56	-0.37	0.23	0.17	0.05	0.64	0.59	0.08	0.63	0.57	0.08	0.63	0.57	0.08	0.63	0.57	0.08	0.63	0.57	0.08	0.63	0.57	0.08	0.63	0.57	0.08	0.63	0.57			
	β_0	0.03	-0.88	-1.12	-0.25	-1.37	-1.43	-0.05	-1.49	-1.49	-0.54	-1.80	-1.74	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37	-0.16	-1.52	-1.37			
	β_1	-0.12	-3.06	-3.29	-0.53	-3.07	-3.31	-0.12	-3.27	-3.24	0.02	-2.93	-2.89	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57	-0.13	-2.78	-2.57			
	β_2	-0.64	-19.02	-6.63	-2.42	-18.03	-7.14	-3.16	-17.55	-11.65	-1.44	-14.65	-9.73	1.28	-14.41	-8.94	1.28	-14.41	-8.94	1.28	-14.41	-8.94	1.28	-14.41	-8.94	1.28	-14.41	-8.94	1.28	-14.41	-8.94	1.28	-14.41	-8.94			
	β_3	0.34	-12.25	-6.49	-0.10	-11.07	-6.41	-0.30	-11.74	-8.50	-1.80	-10.63	-8.18	1.55	-8.86	-5.59	1.55	-8.86	-5.59	1.55	-8.86	-5.59	1.55	-8.86	-5.59	1.55	-8.86	-5.59	1.55	-8.86	-5.59	1.55	-8.86	-5.59			
	$\sigma_{u_0}^2$	-0.03	10.33	9.06	0.70	9.89	9.18	-1.16	7.52	7.41	-1.57	6.79	6.90	-0.89	7.58	7.85	-0.89	7.58	7.85	-0.89	7.58	7.85	-0.89	7.58	7.85	-0.89	7.58	7.85	-0.89	7.58	7.85	-0.89	7.58	7.85			
	$\sigma_{u_1}^2$	2.10	13.36	14.59	1.30	12.92	14.28	0.46	9.94	10.33	1.66	8.82	10.15	1.28	8.58	8.84	1.28	8.58	8.84	1.28	8.58	8.84	1.28	8.58	8.84	1.28	8.58	8.84	1.28	8.58	8.84	1.28	8.58	8.84			
	σ_{u_0, u_1}	3.05	-47.18	-47.26	1.73	-47.65	-47.77	-0.15	-51.50	-51.01	0.80	-50.91	-50.14	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31	-1.28	-51.63	-51.31			
	σ_e^2	-0.15	0.74	0.65	-0.03	0.76	0.68	-0.14	0.37	0.35	-0.17	0.50	0.46	-0.01	0.63	0.59	-0.01	0.63	0.59	-0.01	0.63	0.59	-0.01	0.63	0.59	-0.01	0.63	0.59	-0.01	0.63	0.59	-0.01	0.63	0.59			
	β_0	-0.12	-0.69	0.29	-0.18	-1.06	0.17	-0.10	-1.05	0.06	0.10	-0.82	0.04	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	0.01	0.14	-0.71	
	β_1	-0.39	-15.62	11.32	0.63	-9.94	6.73	0.40	-4.56	3.16	-0.10	-3.10	1.25	-0.19	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	-2.58	0.62	
	β_2	0.81	-1.34	-2.98	-0.96	-6.64	-1.19	-1.32	-10.73	-2.80	-0.54	-7.38	-0.70	0.16	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	-4.91	0.77	
	β_3	-0.38	-6.25	27.58	0.17	-7.27	17.45	-0.20	-5.39	9.04	-0.59	-4.55	4.27	-0.62	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	-4.62	2.51	
	$\sigma_{u_0}^2$	-1.19	-2.39	-2.08	-0.63	-1.18	-1.05	0.13	0.48	1.65	0.39	-0.04	0.77	-1.02	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	-1.70	-0.72	
	$\sigma_{u_1}^2$	-1.32	-20.20	150.95	1.06	-14.23	90.82	-1.19	-7.35	44.58	0.30	-0.95	30.24	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67	-0.65	-2.76	20.67
	σ_{u_0, u_1}	-0.16	-63.46	13.87	2.78	-56.24	-0.28	3.29	-50.13	-17.08	0.01	-49.46	-28.50	-3.12	-51.26	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05	-35.05		
	σ_e^2	0.16	3.92	2.64	-0.06	2.11	2.78	0.06	0.88	2.46	-0.06	0.40	1.86	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89	0.09	0.59	1.89
	β_0	-0.06	-1.11	-1.20	0.06	-1.07	-0.96	0.06	-1.01	-0.84	0.32	-0.57	-0.41	0.18	-0.65	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	
	β_1	0.21	-2.66	5.25	0.12	-2.85	2.71	-0.20	-3.26	0.01	-0.02	-2.95	-0.85	-0.23	-2.47	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	-0.82	
	β_2	0.61	-5.14	-7.40	-1.26	-7.88																															

D Blimp Syntax for the Real Data Example with Separation Prior

Blimp syntax for the real data example with the separate prior specification. The script also generates multiple imputations for a frequentist analysis along with estimates of the latent group means needed for centering. The full set of scripts are available at:

<https://github.com/blimp-stats/FACTORED-REGRESSION-WITH-CROSS-LEVEL-INTERACTIONS>

```
#-----#
# FACTORED REGRESSION WITH CROSS-LEVEL INTERACTIONS
#
# Bayesian analysis with Separate prior and
# Between-Cluster Interaction via
# Sequential Specification
#
#-----#
# Read Data in
DATA: employee.dat;

# List Variable Names
VARIABLES:
employee team turnover male empower
lmx jobsat climate cohesion;

# Specify Clustering Variable
CLUSTERID: team;

# Specify Missing Data Code
MISSING: 999;

# Request Latent Variable at team-level named "beta_1j"
LATENT:
team = beta_1j;

# Bayesian Grand and Group mean centering
CENTER:
groupmean = lmx;
grandmean = climate lmx.mean;

# Create a variable name (beta_0j) to reference
# "empower" random intercept at level "team"
RANDOMEFFECT:
beta_0j = empower | Intercept [team];

# Fit regression of empower on variables with random slope for lmx
MODEL:
# Specify Empower model
empower ~ lmx*beta_1j@1 # Fix betalj*lmx interaction to one.
lmx.mean climate lmx*climate
lmx.mean*climate male cohesion
| 1@i_var; # Label intercept variance (i_var)
```

```

# Estimate intercept for beta_1j (represents beta_1 coefficient).
beta_1j ~ 1;

# Label slope variance (s_var)
beta_1j ~~ beta_1j@s_var;

# Estimate correlation between random intercept and slope
# empower[team] references "empower" at the "team" level
beta_0j ~~ beta_1j@corr;

# Fit Sequential Predictor Models
# male has very little level-2 variability so set no random intercept (0);
male ~ lmx climate cohesion | 0;

# Automatically specifies the following models with one line
# lmx ~ climate cohesion;
# climate ~ cohesion;
# cohesion ~ 1;
lmx climate cohesion ~ 1;

# Post compute parameters using model parameters
PARAMETERS:
# Compute the covariance based on correlation and varainces
covariance = corr * sqrt(s_var * i_var);

# Compute Rights & Sterba (2019) R-square Effect Sizes
# not automatically computed for separation prior.
# Adding a '.totalvar' after variable name returns
# model implied total variance for the variable.
# Adding a '.residvar' returns the residual variance.
r2_slope = (s_var*lmx.totalvar) / empower.totalvar;
r2_icept = i_var / empower.totalvar;
r2_resid = empower.residvar / empower.totalvar;
r2_fixed = 1.0 - (r2_slope + r2_resid + r2_icept);

## Specify Algorithmic options
SEED: 698231; # PRNG Seeding
BURN: 20000; # Set number of burn iterations
ITERATIONS: 20000; # Set number of post-burn iterations
OPTIONS: prior1; # Set prior1 (Positive df prior)
## Specify Imputations to Save
NIMPS: 100; # Save 100 Imputed data sets equally spaced
SAVE: # Save imputations in single stacked file
stacked = imps.priorsep.csv;
OPTIONS:
saveLatent; # Request saving latent means
saveVarNames; # Save Variable names as header

```

E Tables of Simulation Burn-In PSRF summaries

This Appendix provides tables to summarize the burn-in PSRF information. We ran two chains for each replication and looked at the final split chain PSRF across these two chains. These metrics are based on taking the last 5,000 iterations for each chain, splitting these again, and comparing them using the PSRF. For our example, this means taking burn-in iterations 5001 to 7500 chain 1, 7501 to 10000 chain 1, 5001 to 7500 chain 2, and 7501 to 10000 chain 2, and comparing them as if we had sampled four independent chains.

We used three metrics to evaluate these burn-in across the simulations. First, the largest PSRF value averaged across replications. In the max PSRF tables, we bolded any values over 1.10. Second, the total number of parameters averaged across replications above PSRF = 1.05; a conservative suggested rule of thumb for convergence. Third, the total number of parameters averaged across replications above PSRF = 1.10 is another suggested rule of thumb requiring convergence.

As an overall summary of the results, we saw that the separation prior specification had worse convergence than the other two priors. On average, most conditions still maintained a max PSRF of less than 1.10, but in some of the more problematic conditions, we can see slightly higher PSRF. Overall, the most problematic conditions were those with $n_j = 5$, and increasing these units saw much better and faster convergence. This is partly because the algorithm (discussed in the Technical Appendix in Section 1) is less efficient and requires rejection rates via the Metropolis-Hastings step.

Average Max PSRF

Average Max PSRF for Simulation 1: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.013	1.008	1.057
15	25	0.1	1.009	1.006	1.036
25	25	0.1	1.007	1.006	1.027
5	50	0.1	1.023	1.013	1.092
15	50	0.1	1.012	1.006	1.047
25	50	0.1	1.006	1.005	1.033
5	200	0.1	1.062	1.029	1.239
15	200	0.1	1.007	1.005	1.058
25	200	0.1	1.004	1.004	1.033
5	25	0.5	1.029	1.011	1.061
15	25	0.5	1.014	1.015	1.044
25	25	0.5	1.018	1.023	1.049
5	50	0.5	1.027	1.011	1.083
15	50	0.5	1.013	1.013	1.050
25	50	0.5	1.018	1.022	1.048
5	200	0.5	1.041	1.016	1.152
15	200	0.5	1.012	1.012	1.045
25	200	0.5	1.017	1.017	1.045

Average Max PSRF for Simulation 1: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.016	1.011	1.072
15	25	0.1	1.013	1.009	1.045
25	25	0.1	1.012	1.010	1.035
5	50	0.1	1.026	1.017	1.100
15	50	0.1	1.016	1.010	1.060
25	50	0.1	1.010	1.007	1.041
5	200	0.1	1.071	1.035	1.266
15	200	0.1	1.014	1.007	1.072
25	200	0.1	1.007	1.006	1.042
5	25	0.5	1.043	1.017	1.077
15	25	0.5	1.026	1.024	1.060
25	25	0.5	1.025	1.031	1.064
5	50	0.5	1.040	1.017	1.099
15	50	0.5	1.020	1.018	1.066
25	50	0.5	1.027	1.028	1.066
5	200	0.5	1.047	1.021	1.199
15	200	0.5	1.021	1.018	1.068
25	200	0.5	1.029	1.028	1.065

Average Max PSRF for Simulation 2: Missing = 15%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.013	1.007	1.081
15	25	0.1	1.009	1.006	1.041
25	25	0.1	1.007	1.006	1.034
5	50	0.1	1.023	1.011	1.103
15	50	0.1	1.011	1.006	1.050
25	50	0.1	1.006	1.005	1.036
5	200	0.1	1.058	1.023	1.227
15	200	0.1	1.008	1.005	1.060
25	200	0.1	1.004	1.004	1.037
5	25	0.5	1.027	1.010	1.075
15	25	0.5	1.015	1.017	1.067
25	25	0.5	1.021	1.024	1.087
5	50	0.5	1.026	1.011	1.093
15	50	0.5	1.015	1.014	1.069
25	50	0.5	1.019	1.022	1.089
5	200	0.5	1.041	1.017	1.153
15	200	0.5	1.012	1.012	1.067
25	200	0.5	1.019	1.020	1.083

Average Max PSRF for Simulation 2: Missing = 15%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.014	1.009	1.062
15	25	0.1	1.010	1.007	1.035
25	25	0.1	1.008	1.007	1.028
5	50	0.1	1.024	1.013	1.094
15	50	0.1	1.012	1.007	1.046
25	50	0.1	1.007	1.006	1.032
5	200	0.1	1.062	1.024	1.228
15	200	0.1	1.008	1.006	1.054
25	200	0.1	1.005	1.005	1.032
5	25	0.5	1.031	1.016	1.062
15	25	0.5	1.021	1.021	1.054
25	25	0.5	1.029	1.032	1.070
5	50	0.5	1.027	1.013	1.085
15	50	0.5	1.020	1.018	1.060
25	50	0.5	1.029	1.028	1.068
5	200	0.5	1.043	1.017	1.150
15	200	0.5	1.015	1.014	1.053
25	200	0.5	1.024	1.023	1.064

Average Max PSRF for Simulation 2: Missing = 30%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.015	1.011	1.101
15	25	0.1	1.013	1.009	1.050
25	25	0.1	1.011	1.009	1.042
5	50	0.1	1.025	1.014	1.118
15	50	0.1	1.016	1.009	1.063
25	50	0.1	1.011	1.008	1.047
5	200	0.1	1.068	1.028	1.257
15	200	0.1	1.013	1.009	1.075
25	200	0.1	1.007	1.007	1.049
5	25	0.5	1.041	1.017	1.099
15	25	0.5	1.026	1.025	1.084
25	25	0.5	1.034	1.036	1.115
5	50	0.5	1.037	1.016	1.107
15	50	0.5	1.023	1.022	1.090
25	50	0.5	1.034	1.034	1.115
5	200	0.5	1.048	1.021	1.190
15	200	0.5	1.021	1.018	1.089
25	200	0.5	1.032	1.031	1.111

Average Max PSRF for Simulation 2: Missing = 30%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.018	1.013	1.073
15	25	0.1	1.015	1.010	1.042
25	25	0.1	1.013	1.011	1.035
5	50	0.1	1.027	1.017	1.103
15	50	0.1	1.016	1.011	1.056
25	50	0.1	1.012	1.010	1.039
5	200	0.1	1.067	1.030	1.246
15	200	0.1	1.014	1.010	1.062
25	200	0.1	1.008	1.009	1.040
5	25	0.5	1.048	1.025	1.085
15	25	0.5	1.036	1.033	1.078
25	25	0.5	1.053	1.047	1.102
5	50	0.5	1.043	1.025	1.101
15	50	0.5	1.031	1.028	1.081
25	50	0.5	1.048	1.043	1.104
5	200	0.5	1.048	1.023	1.184
15	200	0.5	1.025	1.022	1.073
25	200	0.5	1.038	1.037	1.096

Average Max PSRF for Simulation 3: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.014	1.008	1.058
15	25	0.1	1.010	1.006	1.036
25	25	0.1	1.008	1.006	1.028
5	50	0.1	1.024	1.014	1.092
15	50	0.1	1.014	1.008	1.050
25	50	0.1	1.008	1.006	1.036
5	200	0.1	1.062	1.033	1.234
15	200	0.1	1.009	1.006	1.061
25	200	0.1	1.008	1.007	1.036
5	25	0.5	1.028	1.011	1.059
15	25	0.5	1.017	1.018	1.047
25	25	0.5	1.020	1.026	1.055
5	50	0.5	1.030	1.011	1.083
15	50	0.5	1.015	1.014	1.050
25	50	0.5	1.020	1.021	1.054
5	200	0.5	1.043	1.018	1.141
15	200	0.5	1.015	1.012	1.049
25	200	0.5	1.018	1.019	1.051

Average Max PSRF for Simulation 3: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.018	1.013	1.075
15	25	0.1	1.015	1.011	1.045
25	25	0.1	1.015	1.013	1.039
5	50	0.1	1.026	1.019	1.102
15	50	0.1	1.018	1.014	1.062
25	50	0.1	1.015	1.011	1.043
5	200	0.1	1.070	1.040	1.260
15	200	0.1	1.018	1.013	1.078
25	200	0.1	1.015	1.012	1.046
5	25	0.5	1.042	1.017	1.080
15	25	0.5	1.026	1.024	1.065
25	25	0.5	1.029	1.036	1.075
5	50	0.5	1.043	1.016	1.099
15	50	0.5	1.022	1.021	1.067
25	50	0.5	1.025	1.028	1.068
5	200	0.5	1.050	1.022	1.168
15	200	0.5	1.020	1.017	1.060
25	200	0.5	1.023	1.025	1.067

Average Max PSRF for Simulation 4: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.014	1.009	1.060
15	25	0.1	1.009	1.007	1.037
25	25	0.1	1.007	1.006	1.028
5	50	0.1	1.025	1.015	1.094
15	50	0.1	1.012	1.006	1.050
25	50	0.1	1.006	1.005	1.032
5	200	0.1	1.062	1.028	1.242
15	200	0.1	1.007	1.005	1.056
25	200	0.1	1.005	1.004	1.034
5	25	0.5	1.029	1.011	1.061
15	25	0.5	1.014	1.017	1.045
25	25	0.5	1.018	1.024	1.053
5	50	0.5	1.028	1.012	1.086
15	50	0.5	1.016	1.014	1.050
25	50	0.5	1.032	1.028	1.056
5	200	0.5	1.044	1.017	1.150
15	200	0.5	1.016	1.015	1.055
25	200	0.5	1.024	1.028	1.054

Average Max PSRF for Simulation 4: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.016	1.012	1.078
15	25	0.1	1.017	1.010	1.050
25	25	0.1	1.013	1.009	1.045
5	50	0.1	1.029	1.020	1.103
15	50	0.1	1.016	1.011	1.059
25	50	0.1	1.011	1.009	1.040
5	200	0.1	1.070	1.033	1.249
15	200	0.1	1.012	1.008	1.069
25	200	0.1	1.006	1.007	1.039
5	25	0.5	1.057	1.020	1.094
15	25	0.5	1.028	1.024	1.068
25	25	0.5	1.032	1.033	1.071
5	50	0.5	1.050	1.020	1.104
15	50	0.5	1.025	1.025	1.073
25	50	0.5	1.036	1.036	1.077
5	200	0.5	1.048	1.022	1.182
15	200	0.5	1.031	1.026	1.068
25	200	0.5	1.040	1.042	1.078

Average Max PSRF for Simulation 5: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.023	1.017	1.076
15	25	0.1	1.019	1.013	1.047
25	25	0.1	1.016	1.013	1.042
5	50	0.1	1.036	1.021	1.107
15	50	0.1	1.019	1.012	1.058
25	50	0.1	1.013	1.012	1.043
5	200	0.1	1.073	1.026	1.212
15	200	0.1	1.012	1.010	1.059
25	200	0.1	1.011	1.011	1.042
5	25	0.5	1.046	1.019	1.075
15	25	0.5	1.023	1.026	1.054
25	25	0.5	1.031	1.037	1.059
5	50	0.5	1.044	1.019	1.094
15	50	0.5	1.023	1.026	1.062
25	50	0.5	1.033	1.040	1.062
5	200	0.5	1.047	1.017	1.132
15	200	0.5	1.020	1.021	1.053
25	200	0.5	1.035	1.038	1.058

Average Max PSRF for Simulation 5: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	1.040	1.026	1.130
15	25	0.1	1.034	1.026	1.067
25	25	0.1	1.031	1.024	1.061
5	50	0.1	1.052	1.031	1.141
15	50	0.1	1.036	1.026	1.076
25	50	0.1	1.032	1.031	1.062
5	200	0.1	1.086	1.034	1.243
15	200	0.1	1.022	1.018	1.070
25	200	0.1	1.021	1.024	1.056
5	25	0.5	1.064	1.027	1.109
15	25	0.5	1.051	1.047	1.088
25	25	0.5	1.047	1.056	1.087
5	50	0.5	1.069	1.032	1.117
15	50	0.5	1.042	1.043	1.085
25	50	0.5	1.048	1.057	1.090
5	200	0.5	1.061	1.030	1.175
15	200	0.5	1.045	1.045	1.092
25	200	0.5	1.064	1.070	1.108

Average Parameters Above PSRF 1.05

Average Parameters Above PSRF 1.05 for Simulation 1: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.030	0.003	1.086
15	25	0.1	0.004	0.010	0.329
25	25	0.1	0.000	0.004	0.161
5	50	0.1	0.109	0.007	2.199
15	50	0.1	0.001	0.000	0.624
25	50	0.1	0.000	0.006	0.302
5	200	0.1	1.315	0.254	3.655
15	200	0.1	0.011	0.003	0.730
25	200	0.1	0.000	0.000	0.333
5	25	0.5	0.289	0.031	1.137
15	25	0.5	0.027	0.035	0.626
25	25	0.5	0.068	0.142	0.967
5	50	0.5	0.190	0.038	1.818
15	50	0.5	0.004	0.011	0.779
25	50	0.5	0.040	0.105	0.961
5	200	0.5	0.560	0.101	2.495
15	200	0.5	0.028	0.019	0.585
25	200	0.5	0.032	0.048	0.826

Average Parameters Above PSRF 1.05 for Simulation 1: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.092	0.023	1.725
15	25	0.1	0.065	0.017	0.574
25	25	0.1	0.030	0.029	0.348
5	50	0.1	0.173	0.038	2.681
15	50	0.1	0.032	0.028	0.967
25	50	0.1	0.021	0.004	0.491
5	200	0.1	1.570	0.349	4.162
15	200	0.1	0.056	0.004	0.956
25	200	0.1	0.026	0.009	0.480
5	25	0.5	0.649	0.089	1.919
15	25	0.5	0.211	0.191	1.260
25	25	0.5	0.225	0.316	1.589
5	50	0.5	0.496	0.092	2.447
15	50	0.5	0.070	0.086	1.444
25	50	0.5	0.184	0.238	1.581
5	200	0.5	0.663	0.138	3.264
15	200	0.5	0.120	0.125	1.210
25	200	0.5	0.269	0.293	1.592

Average Parameters Above PSRF 1.05 for Simulation 2: Missing = 15%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.014	0.002	2.457
15	25	0.1	0.001	0.001	0.556
25	25	0.1	0.000	0.000	0.404
5	50	0.1	0.101	0.001	3.341
15	50	0.1	0.003	0.000	0.761
25	50	0.1	0.001	0.000	0.396
5	200	0.1	1.190	0.139	4.004
15	200	0.1	0.011	0.000	0.739
25	200	0.1	0.000	0.000	0.379
5	25	0.5	0.237	0.009	2.136
15	25	0.5	0.051	0.064	2.037
25	25	0.5	0.201	0.216	2.826
5	50	0.5	0.178	0.011	2.845
15	50	0.5	0.035	0.028	2.051
25	50	0.5	0.129	0.165	2.950
5	200	0.5	0.561	0.101	3.233
15	200	0.5	0.013	0.018	1.851
25	200	0.5	0.093	0.091	2.733

Average Parameters Above PSRF 1.05 for Simulation 2: Missing = 15%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.020	0.004	1.297
15	25	0.1	0.007	0.001	0.301
25	25	0.1	0.021	0.002	0.183
5	50	0.1	0.120	0.010	2.527
15	50	0.1	0.007	0.000	0.594
25	50	0.1	0.000	0.004	0.272
5	200	0.1	1.260	0.141	3.728
15	200	0.1	0.014	0.000	0.661
25	200	0.1	0.000	0.000	0.300
5	25	0.5	0.315	0.086	1.374
15	25	0.5	0.181	0.155	1.232
25	25	0.5	0.412	0.396	1.907
5	50	0.5	0.214	0.050	2.082
15	50	0.5	0.145	0.092	1.458
25	50	0.5	0.391	0.321	1.915
5	200	0.5	0.594	0.086	2.732
15	200	0.5	0.020	0.013	1.009
25	200	0.5	0.178	0.146	1.763

Average Parameters Above PSRF 1.05 for Simulation 2: Missing = 30%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.031	0.018	3.232
15	25	0.1	0.032	0.002	1.008
25	25	0.1	0.029	0.009	0.718
5	50	0.1	0.151	0.015	4.304
15	50	0.1	0.025	0.003	1.262
25	50	0.1	0.010	0.002	0.776
5	200	0.1	1.475	0.220	4.941
15	200	0.1	0.032	0.003	1.157
25	200	0.1	0.002	0.002	0.733
5	25	0.5	0.616	0.073	3.325
15	25	0.5	0.316	0.262	2.999
25	25	0.5	0.623	0.626	4.060
5	50	0.5	0.445	0.040	3.676
15	50	0.5	0.164	0.162	3.348
25	50	0.5	0.577	0.575	4.269
5	200	0.5	0.691	0.141	4.515
15	200	0.5	0.115	0.054	3.050
25	200	0.5	0.431	0.411	4.041

Average Parameters Above PSRF 1.05 for Simulation 2: Missing = 30%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.084	0.013	1.911
15	25	0.1	0.061	0.012	0.602
25	25	0.1	0.050	0.015	0.421
5	50	0.1	0.213	0.037	3.091
15	50	0.1	0.021	0.004	0.941
25	50	0.1	0.015	0.008	0.467
5	200	0.1	1.496	0.218	4.301
15	200	0.1	0.035	0.002	0.831
25	200	0.1	0.000	0.000	0.422
5	25	0.5	0.885	0.223	2.501
15	25	0.5	0.663	0.428	2.326
25	25	0.5	1.143	0.904	3.198
5	50	0.5	0.655	0.218	3.046
15	50	0.5	0.439	0.318	2.548
25	50	0.5	1.104	0.866	3.396
5	200	0.5	0.688	0.153	3.691
15	200	0.5	0.217	0.138	2.060
25	200	0.5	0.710	0.668	3.242

Average Parameters Above PSRF 1.05 for Simulation 3: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.057	0.008	1.114
15	25	0.1	0.019	0.001	0.319
25	25	0.1	0.013	0.005	0.166
5	50	0.1	0.132	0.018	2.266
15	50	0.1	0.017	0.023	0.697
25	50	0.1	0.022	0.017	0.302
5	200	0.1	1.303	0.307	3.661
15	200	0.1	0.031	0.011	0.771
25	200	0.1	0.052	0.039	0.364
5	25	0.5	0.261	0.033	1.143
15	25	0.5	0.103	0.092	0.778
25	25	0.5	0.109	0.216	1.182
5	50	0.5	0.266	0.026	1.921
15	50	0.5	0.012	0.030	0.841
25	50	0.5	0.074	0.103	1.163
5	200	0.5	0.590	0.113	2.443
15	200	0.5	0.041	0.013	0.669
25	200	0.5	0.042	0.051	1.087

Average Parameters Above PSRF 1.05 for Simulation 3: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.144	0.058	1.712
15	25	0.1	0.092	0.070	0.611
25	25	0.1	0.113	0.071	0.458
5	50	0.1	0.187	0.090	2.809
15	50	0.1	0.065	0.086	1.024
25	50	0.1	0.104	0.067	0.513
5	200	0.1	1.569	0.479	4.205
15	200	0.1	0.112	0.107	1.026
25	200	0.1	0.141	0.116	0.529
5	25	0.5	0.670	0.080	2.015
15	25	0.5	0.265	0.213	1.474
25	25	0.5	0.374	0.486	1.909
5	50	0.5	0.563	0.065	2.479
15	50	0.5	0.121	0.114	1.615
25	50	0.5	0.196	0.236	1.816
5	200	0.5	0.735	0.159	3.018
15	200	0.5	0.079	0.033	1.119
25	200	0.5	0.099	0.154	1.690

Average Parameters Above PSRF 1.05 for Simulation 4: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.042	0.024	1.165
15	25	0.1	0.003	0.017	0.370
25	25	0.1	0.017	0.006	0.173
5	50	0.1	0.123	0.036	2.219
15	50	0.1	0.007	0.005	0.677
25	50	0.1	0.004	0.004	0.295
5	200	0.1	1.266	0.236	3.770
15	200	0.1	0.011	0.005	0.755
25	200	0.1	0.013	0.016	0.352
5	25	0.5	0.269	0.032	1.262
15	25	0.5	0.036	0.061	0.726
25	25	0.5	0.060	0.139	1.015
5	50	0.5	0.232	0.053	1.913
15	50	0.5	0.036	0.034	0.804
25	50	0.5	0.167	0.130	0.972
5	200	0.5	0.611	0.099	2.456
15	200	0.5	0.095	0.085	0.750
25	200	0.5	0.144	0.227	0.932

Average Parameters Above PSRF 1.05 for Simulation 4: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.113	0.037	1.903
15	25	0.1	0.117	0.040	0.682
25	25	0.1	0.088	0.012	0.499
5	50	0.1	0.209	0.070	2.784
15	50	0.1	0.054	0.057	0.978
25	50	0.1	0.045	0.042	0.486
5	200	0.1	1.540	0.348	3.957
15	200	0.1	0.053	0.029	0.899
25	200	0.1	0.022	0.030	0.429
5	25	0.5	0.915	0.170	2.361
15	25	0.5	0.265	0.186	1.534
25	25	0.5	0.379	0.374	1.809
5	50	0.5	0.652	0.176	2.669
15	50	0.5	0.153	0.205	1.595
25	50	0.5	0.321	0.393	1.785
5	200	0.5	0.691	0.166	3.166
15	200	0.5	0.306	0.247	1.157
25	200	0.5	0.469	0.564	1.655

Average Parameters Above PSRF 1.05 for Simulation 5: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.229	0.186	1.831
15	25	0.1	0.160	0.158	0.651
25	25	0.1	0.122	0.132	0.411
5	50	0.1	0.423	0.199	2.983
15	50	0.1	0.131	0.148	0.915
25	50	0.1	0.084	0.122	0.527
5	200	0.1	1.566	0.229	3.505
15	200	0.1	0.119	0.115	0.765
25	200	0.1	0.177	0.193	0.488
5	25	0.5	0.658	0.172	1.671
15	25	0.5	0.171	0.242	0.971
25	25	0.5	0.262	0.397	1.143
5	50	0.5	0.551	0.180	2.220
15	50	0.5	0.136	0.220	1.096
25	50	0.5	0.289	0.444	1.171
5	200	0.5	0.654	0.131	2.381
15	200	0.5	0.159	0.188	0.690
25	200	0.5	0.392	0.435	0.955

Average Parameters Above PSRF 1.05 for Simulation 5: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.528	0.362	3.034
15	25	0.1	0.504	0.471	1.399
25	25	0.1	0.476	0.361	1.014
5	50	0.1	0.824	0.473	4.178
15	50	0.1	0.450	0.471	1.595
25	50	0.1	0.452	0.580	1.017
5	200	0.1	2.005	0.449	4.096
15	200	0.1	0.337	0.320	1.022
25	200	0.1	0.431	0.601	0.738
5	25	0.5	1.192	0.324	2.809
15	25	0.5	0.630	0.674	2.123
25	25	0.5	0.657	0.948	2.195
5	50	0.5	1.232	0.452	3.145
15	50	0.5	0.426	0.603	2.046
25	50	0.5	0.600	0.854	2.166
5	200	0.5	1.010	0.335	3.219
15	200	0.5	0.611	0.679	1.700
25	200	0.5	1.093	1.250	2.152

Average Parameters Above PSRF 1.10

Average Parameters Above PSRF 1.10 for Simulation 1: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.003	0.001	0.126
15	25	0.1	0.002	0.006	0.035
25	25	0.1	0.000	0.003	0.013
5	50	0.1	0.009	0.001	0.567
15	50	0.1	0.000	0.000	0.124
25	50	0.1	0.000	0.004	0.045
5	200	0.1	0.289	0.044	2.063
15	200	0.1	0.000	0.000	0.289
25	200	0.1	0.000	0.000	0.087
5	25	0.5	0.082	0.015	0.203
15	25	0.5	0.006	0.006	0.080
25	25	0.5	0.008	0.027	0.180
5	50	0.5	0.021	0.011	0.506
15	50	0.5	0.000	0.005	0.120
25	50	0.5	0.017	0.048	0.144
5	200	0.5	0.098	0.013	1.231
15	200	0.5	0.008	0.011	0.105
25	200	0.5	0.013	0.019	0.120

Average Parameters Above PSRF 1.10 for Simulation 1: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.031	0.006	0.331
15	25	0.1	0.018	0.008	0.073
25	25	0.1	0.013	0.016	0.043
5	50	0.1	0.024	0.006	0.734
15	50	0.1	0.010	0.013	0.234
25	50	0.1	0.011	0.002	0.088
5	200	0.1	0.396	0.071	2.421
15	200	0.1	0.009	0.002	0.358
25	200	0.1	0.019	0.007	0.137
5	25	0.5	0.211	0.025	0.464
15	25	0.5	0.070	0.050	0.268
25	25	0.5	0.045	0.051	0.338
5	50	0.5	0.132	0.028	0.762
15	50	0.5	0.024	0.029	0.312
25	50	0.5	0.066	0.069	0.352
5	200	0.5	0.140	0.028	1.738
15	200	0.5	0.048	0.073	0.295
25	200	0.5	0.113	0.134	0.366

Average Parameters Above PSRF 1.10 for Simulation 2: Missing = 15%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.003	0.001	0.577
15	25	0.1	0.000	0.001	0.059
25	25	0.1	0.000	0.000	0.024
5	50	0.1	0.009	0.000	0.915
15	50	0.1	0.000	0.000	0.129
25	50	0.1	0.000	0.000	0.035
5	200	0.1	0.235	0.015	2.071
15	200	0.1	0.000	0.000	0.264
25	200	0.1	0.000	0.000	0.083
5	25	0.5	0.058	0.000	0.522
15	25	0.5	0.018	0.014	0.444
25	25	0.5	0.050	0.025	0.949
5	50	0.5	0.026	0.005	0.775
15	50	0.5	0.005	0.005	0.435
25	50	0.5	0.022	0.025	0.979
5	200	0.5	0.117	0.012	1.342
15	200	0.5	0.001	0.004	0.379
25	200	0.5	0.009	0.005	0.837

Average Parameters Above PSRF 1.10 for Simulation 2: Missing = 15%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.001	0.001	0.186
15	25	0.1	0.000	0.000	0.018
25	25	0.1	0.001	0.000	0.012
5	50	0.1	0.005	0.005	0.620
15	50	0.1	0.001	0.000	0.105
25	50	0.1	0.000	0.002	0.035
5	200	0.1	0.327	0.010	2.063
15	200	0.1	0.000	0.000	0.240
25	200	0.1	0.000	0.000	0.067
5	25	0.5	0.090	0.019	0.232
15	25	0.5	0.051	0.024	0.244
25	25	0.5	0.110	0.082	0.615
5	50	0.5	0.016	0.009	0.539
15	50	0.5	0.033	0.014	0.276
25	50	0.5	0.103	0.071	0.540
5	200	0.5	0.131	0.012	1.282
15	200	0.5	0.001	0.001	0.184
25	200	0.5	0.015	0.014	0.456

Average Parameters Above PSRF 1.10 for Simulation 2: Missing = 30%; Split = 0.50%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.007	0.004	1.012
15	25	0.1	0.008	0.000	0.137
25	25	0.1	0.004	0.003	0.082
5	50	0.1	0.025	0.005	1.312
15	50	0.1	0.001	0.000	0.265
25	50	0.1	0.002	0.000	0.109
5	200	0.1	0.360	0.022	2.588
15	200	0.1	0.002	0.000	0.422
25	200	0.1	0.001	0.001	0.169
5	25	0.5	0.188	0.005	1.013
15	25	0.5	0.090	0.054	0.844
25	25	0.5	0.203	0.122	1.589
5	50	0.5	0.090	0.010	1.125
15	50	0.5	0.024	0.025	0.914
25	50	0.5	0.155	0.114	1.635
5	200	0.5	0.149	0.022	2.063
15	200	0.5	0.006	0.006	0.845
25	200	0.5	0.054	0.040	1.528

Average Parameters Above PSRF 1.10 for Simulation 2: Missing = 30%; Split = 0.80%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.012	0.001	0.362
15	25	0.1	0.011	0.003	0.059
25	25	0.1	0.011	0.003	0.063
5	50	0.1	0.031	0.009	0.828
15	50	0.1	0.000	0.000	0.182
25	50	0.1	0.001	0.000	0.064
5	200	0.1	0.375	0.025	2.413
15	200	0.1	0.004	0.000	0.296
25	200	0.1	0.000	0.000	0.115
5	25	0.5	0.245	0.035	0.634
15	25	0.5	0.226	0.108	0.671
25	25	0.5	0.452	0.251	1.200
5	50	0.5	0.145	0.071	0.900
15	50	0.5	0.120	0.077	0.661
25	50	0.5	0.391	0.224	1.376
5	200	0.5	0.159	0.018	1.801
15	200	0.5	0.022	0.017	0.487
25	200	0.5	0.146	0.128	1.171

Average Parameters Above PSRF 1.10 for Simulation 3: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.020	0.000	0.141
15	25	0.1	0.010	0.000	0.026
25	25	0.1	0.009	0.004	0.015
5	50	0.1	0.025	0.008	0.552
15	50	0.1	0.015	0.017	0.155
25	50	0.1	0.018	0.010	0.052
5	200	0.1	0.288	0.064	2.079
15	200	0.1	0.012	0.009	0.310
25	200	0.1	0.038	0.029	0.092
5	25	0.5	0.070	0.003	0.181
15	25	0.5	0.033	0.019	0.134
25	25	0.5	0.016	0.043	0.270
5	50	0.5	0.047	0.013	0.542
15	50	0.5	0.005	0.007	0.131
25	50	0.5	0.011	0.005	0.229
5	200	0.5	0.110	0.017	1.116
15	200	0.5	0.013	0.008	0.127
25	200	0.5	0.005	0.011	0.163

Average Parameters Above PSRF 1.10 for Simulation 3: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.059	0.020	0.368
15	25	0.1	0.033	0.031	0.100
25	25	0.1	0.062	0.047	0.079
5	50	0.1	0.044	0.036	0.793
15	50	0.1	0.033	0.054	0.237
25	50	0.1	0.068	0.049	0.127
5	200	0.1	0.394	0.113	2.433
15	200	0.1	0.063	0.083	0.461
25	200	0.1	0.100	0.084	0.191
5	25	0.5	0.192	0.014	0.489
15	25	0.5	0.057	0.048	0.335
25	25	0.5	0.087	0.107	0.560
5	50	0.5	0.149	0.021	0.782
15	50	0.5	0.033	0.030	0.344
25	50	0.5	0.018	0.041	0.443
5	200	0.5	0.172	0.043	1.488
15	200	0.5	0.018	0.018	0.216
25	200	0.5	0.009	0.038	0.401

Average Parameters Above PSRF 1.10 for Simulation 4: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.013	0.010	0.155
15	25	0.1	0.000	0.009	0.045
25	25	0.1	0.009	0.004	0.013
5	50	0.1	0.014	0.011	0.575
15	50	0.1	0.003	0.004	0.156
25	50	0.1	0.003	0.002	0.054
5	200	0.1	0.302	0.031	2.144
15	200	0.1	0.002	0.001	0.268
25	200	0.1	0.007	0.009	0.104
5	25	0.5	0.085	0.013	0.233
15	25	0.5	0.009	0.028	0.111
25	25	0.5	0.013	0.032	0.220
5	50	0.5	0.043	0.021	0.546
15	50	0.5	0.023	0.021	0.123
25	50	0.5	0.112	0.079	0.191
5	200	0.5	0.127	0.015	1.183
15	200	0.5	0.057	0.052	0.208
25	200	0.5	0.083	0.128	0.219

Average Parameters Above PSRF 1.10 for Simulation 4: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.024	0.014	0.424
15	25	0.1	0.051	0.017	0.141
25	25	0.1	0.040	0.004	0.119
5	50	0.1	0.037	0.026	0.763
15	50	0.1	0.018	0.025	0.228
25	50	0.1	0.026	0.025	0.103
5	200	0.1	0.400	0.067	2.251
15	200	0.1	0.009	0.015	0.374
25	200	0.1	0.010	0.015	0.130
5	25	0.5	0.328	0.051	0.670
15	25	0.5	0.107	0.072	0.369
25	25	0.5	0.139	0.120	0.489
5	50	0.5	0.214	0.073	0.880
15	50	0.5	0.071	0.105	0.374
25	50	0.5	0.167	0.196	0.481
5	200	0.5	0.175	0.052	1.626
15	200	0.5	0.182	0.151	0.346
25	200	0.5	0.271	0.325	0.505

Average Parameters Above PSRF 1.10 for Simulation 5: Missing = 15%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.091	0.088	0.421
15	25	0.1	0.098	0.090	0.159
25	25	0.1	0.076	0.076	0.145
5	50	0.1	0.151	0.101	0.939
15	50	0.1	0.059	0.088	0.249
25	50	0.1	0.060	0.083	0.172
5	200	0.1	0.507	0.062	1.966
15	200	0.1	0.067	0.058	0.288
25	200	0.1	0.086	0.091	0.178
5	25	0.5	0.231	0.088	0.428
15	25	0.5	0.091	0.135	0.168
25	25	0.5	0.158	0.198	0.255
5	50	0.5	0.171	0.099	0.697
15	50	0.5	0.079	0.159	0.263
25	50	0.5	0.198	0.286	0.278
5	200	0.5	0.194	0.052	1.115
15	200	0.5	0.103	0.126	0.176
25	200	0.5	0.245	0.266	0.222

Average Parameters Above PSRF 1.10 for Simulation 5: Missing = 30%

Level-1	Level-2	ICC	Wishart1	Wishart2	Separation
5	25	0.1	0.252	0.179	1.062
15	25	0.1	0.236	0.237	0.373
25	25	0.1	0.265	0.197	0.317
5	50	0.1	0.301	0.224	1.621
15	50	0.1	0.212	0.259	0.513
25	50	0.1	0.259	0.362	0.372
5	200	0.1	0.696	0.175	2.377
15	200	0.1	0.153	0.128	0.393
25	200	0.1	0.197	0.259	0.321
5	25	0.5	0.467	0.131	0.939
15	25	0.5	0.271	0.346	0.665
25	25	0.5	0.325	0.431	0.734
5	50	0.5	0.461	0.210	1.133
15	50	0.5	0.216	0.371	0.571
25	50	0.5	0.320	0.516	0.653
5	200	0.5	0.334	0.178	1.637
15	200	0.5	0.373	0.425	0.569
25	200	0.5	0.629	0.691	0.791

F Simulation 1 Follow Up: L1 = 20; L2 = 1000; Missing = 30%

Percent Bias for Posterior Median with Bayesian Separation Prior and Large Level-2 Clusters

Parameter	ICC = 0.10			ICC = 0.50		
	Complete	Listwise	Separation	Complete	Listwise	Separation
β_0	-0.01	-35.86	-0.03	0.04	-33.62	-0.03
β_1	-0.04	-27.54	-0.02	0.09	-23.06	0.01
β_2	-0.14	-51.35	-0.46	-0.05	-40.69	-0.24
β_3	-0.26	-29.18	-0.34	-0.05	-26.89	0.13
$\sigma_{u_0}^2$	-0.19	-58.60	-0.59	0.06	-42.50	-0.11
$\sigma_{u_1}^2$	-0.13	-37.84	-0.87	-0.07	-28.96	-0.63
σ_{u_0, u_1}	0.12	-69.65	-2.61	0.36	-58.62	-2.41
σ_e^2	0.03	-19.79	0.07	0.03	-11.90	0.04
ρ_{u_0, u_1}	0.33	-40.37	-1.50	0.44	-35.35	-1.74

Coverage for Bayesian Separation Prior with Large Level-2 Clusters

Parameter	ICC = 0.10			ICC = 0.50		
	Complete	Listwise	Separation	Complete	Listwise	Separation
β_0	0.95	0.00	0.95	0.94	0.00	0.95
β_1	0.95	0.00	0.95	0.95	0.00	0.94
β_2	0.95	0.03	0.95	0.95	0.02	0.95
β_3	0.95	0.03	0.95	0.95	0.08	0.95
$\sigma_{u_0}^2$	—	—	0.94	—	—	0.95
$\sigma_{u_1}^2$	—	—	0.93	—	—	0.94
σ_{u_0, u_1}	—	—	0.93	—	—	0.93
σ_e^2	—	—	0.95	—	—	0.95
ρ_{u_0, u_1}	—	—	0.95	—	—	0.94

G Simulation Data Generation Process

Due to the complex nature of multilevel models and the addition of both a random slope and an interaction, this section discusses how we generated the data for Simulation 1. The same basic process was used for Simulations 2 to 5, but with the modifications discussed within the manuscript.

Let the matrix \mathbf{X} refer to the predictors matrix (i.e., column 1 contains the observations of X , column 2 contains the observations of Z , and column 3 contains the product of X and Z), R be the population correlation matrix, and Σ be the population covariance matrix. To obtain Σ , we assume that the population matrix is made up of two orthogonal parts: a level-1 covariance matrix, Σ_w , and a level-2 covariance matrix, Σ_b . Because they are orthogonal, by definition, the following is true.

$$\Sigma = \Sigma_w + \Sigma_b \quad (\text{G1})$$

To obtain Σ_w and Σ_b , we pre- and post-multiply the population correlation matrix with a diagonal matrix containing the square root of the population variance at the respective level. For X and Y , the population variance at any given level is defined by the total variance multiplied by the variance partition for the desired ICC condition (e.g., ICC = 0.1 condition constitutes a partition of 0.9 for level-1 and 0.1 for level-2). The product term's variance and covariances were empirically estimated using one-hundred million cases.

To obtain solutions for the population regression coefficients for the predictors (denoted by the vector $\beta'_X = [\beta_1 \ \ \beta_2]$), we use the standard linear regression formula as follows

$$\beta_X = \Sigma_{\mathbf{X}}^{-1} \Sigma_{\mathbf{XY}} \quad (\text{G2})$$

where $\Sigma_{\mathbf{X}}$ is the covariance matrix of the predictors (i.e., X , Z , and the XZ product) and $\Sigma_{\mathbf{XY}}$ is a vector of the covariances of the predictors and Y . Using the population regression coefficients, we solved for the population residual variance of Y for level-1

$$\sigma_e^2 = \sigma_{w(Y)}^2 - \beta'_X \Sigma_{w(\mathbf{XY})} - \sigma_{u_1}^2 \sigma_{w(X)}^2 \quad (\text{G3})$$

and the population random intercept variance at level-2

$$\sigma_{u_0}^2 = \sigma_{b(Y)}^2 - \beta'_X \Sigma_{b(\mathbf{XY})} - \sigma_{u_1}^2 \sigma_{b(X)}^2 \quad (\text{G4})$$

where $\sigma_{u_1}^2$ is the population random slope variance.

Finally, with all parameters determined or otherwise specified (i.e., $\sigma_{(u_1)}^2$ is specified to account for the proportion of within-cluster outcome variance explained by level-1 predictors via random slope variation/-covariation to be equal to 0.05), the data can be generated. For the level-1 covariate, we drew the level-1 residual for i^{th} observation within-cluster j (denoted as $r_{ij(X)}$), and for both predictors we drew the level-2 residuals for the j^{th} cluster (denoted as the row vector \mathbf{d}_j).

$$r_{ij(X)} \sim \mathcal{N}(0, \sigma_{w(X)}^2) \quad (\text{G5})$$

$$\mathbf{d}_j = \begin{bmatrix} d_{j(X)} \\ d_{j(Z)} \end{bmatrix} \sim \mathcal{N}_2 \left(0, \boldsymbol{\Sigma}_{b(\mathbf{X})} = \begin{bmatrix} \sigma_{b(X)}^2 & \sigma_{b(X,Z)} \\ \sigma_{b(X,Z)} & \sigma_{b(Z)}^2 \end{bmatrix} \right) \quad (\text{G6})$$

With the residuals drawn, we then used the following formulas to create X and Z.

$$\begin{aligned} x_{ij} &= d_{j(X)} + r_{ij(X)} \\ z_j &= d_{j(Z)} \end{aligned} \quad (\text{G7})$$

Turning to the dependent variable, we drew the level-1 residual (denoted as e), the level-2 residual (denoted as u_0), and the random slope residual (denoted as u_1) as follows.

$$\begin{aligned} e_{ij} &\sim \mathcal{N}(0, \sigma_e^2) \\ u_{0j} &\sim \mathcal{N}(0, \sigma_{u_0}^2) \\ u_{1j} &\sim \mathcal{N}(0, \sigma_{u_1}^2) \end{aligned} \quad (\text{G8})$$

With the residuals sampled for the dependent variable, we then created Y using the following regression equation.

$$y_{ij} = \beta_0 + \beta_1 x_{ij} + \beta_2 z_j + \beta_3 x_{ij} z_j + u_{0j} + u_{1j} x_{ij} + e_{ij} \quad (\text{G9})$$

The analytical population parameters for the substantive models are given in Appendix A. For simulations 2 to 5, we used the same process, but altering the appropriate residual as discussed within the body of the manuscript.

H Simulation Population Values

This Appendix provides the population values used for each simulation.

Simulation 1

ICC = 0.10

$$\begin{aligned}
 y_{ij} &= 10 + 3.47(x_{ij}) + 0.77(z_j) + 1.49(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \Sigma_u = \begin{bmatrix} 6.36 & 1.69 \\ 1.69 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 69.80)
 \end{aligned} \tag{H1}$$

ICC = 0.50

$$\begin{aligned}
 y_{ij} &= 10 + 3.48(x_{ij}) + 1.84(z_j) + 1.44(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \Sigma_u = \begin{bmatrix} 33.2 & 3.87 \\ 3.87 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 40.41)
 \end{aligned} \tag{H2}$$

Simulation 2

ICC = 0.10; 80/20 split

$$\begin{aligned}
 y_{ij} &= 10 + 4.16(x_{ij}) + 1.46(z_j) - 1.05(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \Sigma_u = \begin{bmatrix} 7.25 & 1.81 \\ 1.81 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 71.30)
 \end{aligned} \tag{H3}$$

ICC = 0.50; 80/20 split

$$\begin{aligned}
 y_{ij} &= 10 + 4.17(x_{ij}) + 3.69(z_j) - 2.17(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 36.7 & 4.06 \\ 4.06 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 40.16)
 \end{aligned} \tag{H4}$$

ICC = 0.10; 50/50 split

$$\begin{aligned}
 y_{ij} &= 10 + 5.84(x_{ij}) + 1.22(z_j) - 3.81(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 6.76 & 1.74 \\ 1.74 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 68.28)
 \end{aligned} \tag{H5}$$

ICC = 0.50; 50/50 split

$$\begin{aligned}
 y_{ij} &= 10 + 5.69(x_{ij}) + 2.85(z_j) - 4.02(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 34.5 & 3.94 \\ 3.94 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 38.72)
 \end{aligned} \tag{H6}$$

Simulation 3

ICC = 0.10

$$\begin{aligned}
 y_{ij} &= 10 + 3.82(x_{ij}) + 0.65(z_j) + 0.90(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 5.79 & 1.61 \\ 1.61 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 71.67)
 \end{aligned} \tag{H7}$$

ICC = 0.50

$$\begin{aligned}
y_{ij} &= 10 + 3.63(x_{ij}) + 1.90(z_j) - 0.29(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
\begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 34.9 & 3.96 \\ 3.96 & 5.0 \end{bmatrix} \right) \\
e_{ij} &\sim \mathcal{N}(0, 40.87)
\end{aligned} \tag{H8}$$

Simulation 4

ICC = 0.10

$$\begin{aligned}
y_{ij} &= 10 + 3.90(x_{ij}) + 0.77(z_j) + 1.49(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
\begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 6.36 & 1.69 \\ 1.69 & 5.0 \end{bmatrix} \right) \\
e_{ij} &\sim \mathcal{N}(0, 69.80)
\end{aligned} \tag{H9}$$

ICC = 0.50

$$\begin{aligned}
y_{ij} &= 10 + 3.48(x_{ij}) + 1.85(z_j) + 1.44(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
\begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 33.2 & 3.87 \\ 3.87 & 5.0 \end{bmatrix} \right) \\
e_{ij} &\sim \mathcal{N}(0, 40.41)
\end{aligned} \tag{H10}$$

Simulation 5

ICC = 0.10

$$\begin{aligned}
y_{ij} &= 10 + 3.47(x_{ij}) + 0.77(z_j) + 1.49(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
\begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 6.36 & 1.69 \\ 1.69 & 5.0 \end{bmatrix} \right) \\
e_{ij} &\sim \mathcal{N}(0, 69.80)
\end{aligned} \tag{H11}$$

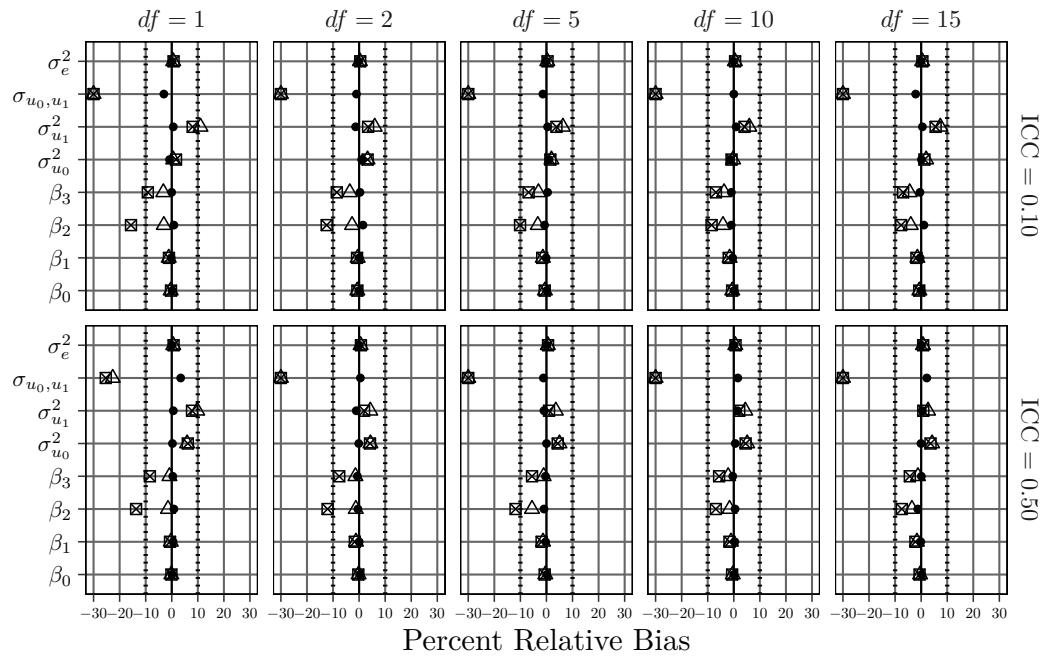
ICC = 0.50

$$\begin{aligned}
 y_{ij} &= 10 + 3.48(x_{ij}) + 1.84(z_j) + 1.44(x_{ij}z_j) + u_{0j} + u_{1j}x_{ij} + e_{ij} \\
 \begin{bmatrix} u_{0j} \\ u_{1j} \end{bmatrix} &\sim \mathcal{N}_2 \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \boldsymbol{\Sigma}_u = \begin{bmatrix} 33.2 & 3.87 \\ 3.87 & 5.0 \end{bmatrix} \right) \\
 e_{ij} &\sim \mathcal{N}(0, 40.41)
 \end{aligned} \tag{H12}$$

I Simulation 4 Follow Up: Yeo-Johnson Transformation with 50 Level-2 Clusters

Figure I1

Bias for Bayesian Estimation with Varying Degrees of non-normal Level-2 Moderator

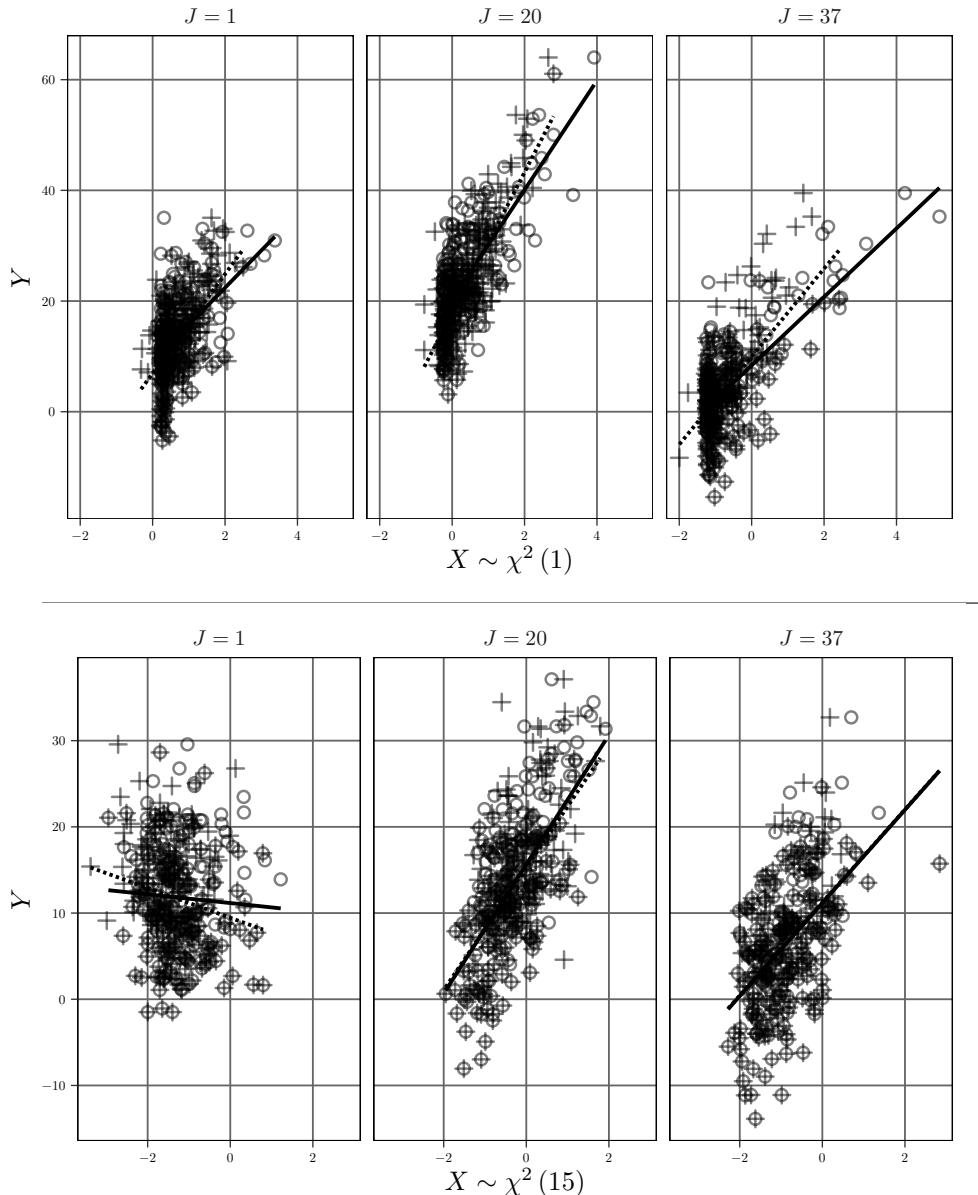


Note: Trellis plots displaying percentage bias values from Bayesian estimation with a Yeo-Johnson transformation (\blacksquare) applied to a level-2 predictor with varying degrees of non-normality. Complete-data estimates (\bullet) from restricted maximum likelihood and Bayesian estimation without the transformation (\triangle) are shown as a comparison. The within-cluster sample size is 15 and the number of level-2 clusters is 50. Values are truncated to ± 30 bias.

J Simulation 5 Follow Up: Imputation Fit Between $\chi^2(1)$ and $\chi^2(15)$ Data Generation Process

Figure J1

Illustrating imputation comparison between $\chi^2(1)$ and $\chi^2(15)$ data generation



Note: The circle is the complete data estimates and the crosshair is the model-based imputations. The top panel shows three prototypical clusters for when X 's level-1 residual is one degree of freedom chi-square distributed, and the bottom panel shows three prototypical clusters for when X 's level-1 residual is fifteen degree of freedom chi-square distributed.

K Tables of Percent Bias: Missing Data 15%; Complete data, Listwise deletion, JAV

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.25	-20.79	-1.41	0.28	-19.14	-0.50	-0.01	-18.87	-0.61
β_1	1.01	-19.99	-7.17	0.27	-19.43	-4.03	-0.08	-18.47	-2.61
β_2	7.34	-33.40	-6.59	-0.25	-38.16	-8.45	4.29	-37.17	-7.32
β_3	0.55	-23.59	12.14	-2.28	-23.73	10.35	0.41	-19.88	14.12
$\sigma_{u_0}^2$	24.52	-23.11	23.20	-0.07	-42.95	0.96	0.38	-41.42	1.76
$\sigma_{u_1}^2$	23.12	2.88	49.20	1.68	-24.17	4.84	-0.64	-29.32	-4.05
σ_{u_0, u_1}	-11.72	-71.33	-86.11	0.62	-66.48	-37.39	-1.21	-62.23	-28.67
σ_e^2	-3.76	-17.63	-4.83	-0.20	-13.64	0.04	-0.03	-13.35	0.42
ρ_{u_0, u_1}	-6.66	-64.23	-94.22	5.54	-58.09	-39.38	1.55	-50.10	-27.79
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.17	-21.69	-0.92	0.02	-19.65	-0.26	-0.02	-18.97	-0.19
β_1	0.01	-20.40	-5.64	-0.23	-19.35	-3.06	0.17	-18.41	-2.21
β_2	3.31	-38.90	-1.93	3.09	-36.82	4.71	-0.63	-40.46	-1.82
β_3	0.16	-22.26	13.54	-0.31	-22.11	15.78	-0.61	-21.99	15.57
$\sigma_{u_0}^2$	7.58	-45.84	8.63	0.78	-44.74	3.13	0.36	-41.93	2.88
$\sigma_{u_1}^2$	7.38	-16.25	19.77	0.63	-28.69	-3.61	0.39	-28.67	-6.00
σ_{u_0, u_1}	-6.12	-78.19	-71.99	0.23	-68.03	-29.48	-1.14	-61.60	-24.37
σ_e^2	-0.36	-14.20	-0.33	-0.03	-13.36	0.67	0.10	-13.21	0.89
ρ_{u_0, u_1}	6.57	-60.89	-77.30	3.67	-52.84	-27.29	0.42	-40.98	-21.23
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.03	-21.55	-0.01	-0.10	-19.68	0.04	0.00	-18.92	0.13
β_1	-0.07	-21.08	-3.58	0.08	-19.24	-2.50	0.07	-18.69	-2.17
β_2	1.36	-38.70	7.43	-0.65	-40.87	7.29	-0.25	-39.86	7.91
β_3	-0.70	-24.14	15.69	-0.16	-22.79	18.30	-0.16	-21.80	18.52
$\sigma_{u_0}^2$	-0.80	-62.01	4.45	0.62	-44.40	5.24	-0.02	-41.59	3.92
$\sigma_{u_1}^2$	-1.17	-30.11	-4.78	0.56	-29.04	-7.29	-0.10	-29.40	-8.43
σ_{u_0, u_1}	-2.06	-85.22	-46.70	-0.41	-67.11	-25.32	0.64	-61.63	-19.87
σ_e^2	0.10	-12.69	1.27	-0.06	-13.10	1.11	-0.12	-13.27	0.89
ρ_{u_0, u_1}	7.77	-61.34	-41.59	-0.19	-48.25	-23.44	0.89	-40.72	-17.50

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.39	-19.15	-1.48	-0.12	-17.95	-1.34	-0.15	-17.85	-1.39
β_1	0.43	-19.16	-7.75	-0.04	-15.79	-3.73	0.10	-15.13	-2.42
β_2	1.73	-27.65	-7.22	-0.80	-29.36	-10.74	-1.00	-29.58	-8.54
β_3	1.41	-22.59	21.17	-0.37	-20.01	22.12	-0.33	-21.04	24.87
$\sigma_{u_0}^2$	-0.88	-33.45	-1.95	0.03	-29.16	0.74	-0.32	-28.52	0.28
$\sigma_{u_1}^2$	20.30	6.58	44.61	1.53	-17.68	4.75	-0.25	-21.98	-0.90
σ_{u_0, u_1}	-2.93	-63.38	-62.98	2.20	-48.46	-33.01	-0.91	-49.85	-28.82
σ_e^2	-0.51	-8.64	-1.42	-0.06	-8.04	0.22	-0.13	-8.16	0.26
ρ_{u_0, u_1}	-4.86	-68.13	-68.62	5.99	-35.88	-32.70	1.60	-35.78	-27.40
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.26	-19.95	-1.11	0.04	-17.88	-0.45	-0.19	-17.65	-0.66
β_1	0.10	-19.68	-6.24	-0.01	-15.76	-3.23	-0.03	-14.79	-2.61
β_2	0.15	-29.28	-1.24	1.03	-28.29	1.38	2.21	-27.59	2.20
β_3	-0.27	-26.91	22.32	0.38	-21.00	26.02	0.03	-18.49	27.05
$\sigma_{u_0}^2$	0.01	-33.19	1.00	-1.20	-30.20	0.78	0.27	-28.44	2.09
$\sigma_{u_1}^2$	6.79	-11.14	19.16	-0.28	-21.78	-1.39	-1.04	-22.35	-4.77
σ_{u_0, u_1}	-1.88	-64.25	-51.66	-2.38	-53.59	-30.77	-2.74	-50.77	-27.85
σ_e^2	-0.31	-7.91	-0.10	0.19	-7.62	0.90	-0.11	-7.91	0.60
ρ_{u_0, u_1}	13.55	-58.29	-50.33	1.58	-38.94	-28.59	-1.97	-34.79	-26.23
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.01	-19.77	-0.16	0.14	-17.86	0.09	-0.26	-17.73	-0.27
β_1	0.04	-20.00	-4.51	-0.06	-15.97	-3.23	-0.14	-15.22	-2.78
β_2	-0.99	-31.68	3.62	0.67	-28.97	7.08	-0.18	-29.25	6.97
β_3	-0.01	-26.62	26.07	-0.21	-21.06	27.56	0.03	-19.82	29.18
$\sigma_{u_0}^2$	-0.35	-33.12	2.96	0.16	-29.25	3.07	-0.38	-28.78	2.32
$\sigma_{u_1}^2$	1.71	-26.91	0.03	0.25	-22.14	-4.35	0.32	-21.46	-5.23
σ_{u_0, u_1}	2.22	-63.85	-33.35	1.32	-51.95	-26.66	0.64	-49.35	-23.55
σ_e^2	0.13	-6.97	1.49	-0.08	-7.70	1.03	0.01	-7.76	0.99
ρ_{u_0, u_1}	8.87	-47.56	-29.39	1.79	-35.36	-25.38	0.65	-32.59	-22.21

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.45	-21.07	-1.27	-0.01	-18.48	-0.41	-0.12	-18.04	-0.92
β_1	-1.01	-18.02	-9.47	0.39	-14.90	-5.53	0.13	-15.12	-7.17
β_2	6.71	-13.44	-4.34	2.89	-19.61	-4.30	0.33	-22.99	1.66
β_3	0.08	11.58	13.08	0.16	10.37	12.62	-0.53	9.96	18.07
$\sigma_{u_0}^2$	20.43	-29.01	16.92	2.28	-42.56	0.13	1.15	-40.98	-0.05
$\sigma_{u_1}^2$	22.81	2.29	38.92	0.87	-23.58	6.68	-1.82	-30.58	4.10
σ_{u_0, u_1}	-19.50	-86.72	-73.07	-3.50	-70.11	-25.34	1.19	-63.04	-12.16
σ_e^2	-2.83	-16.69	-2.94	-0.11	-13.32	0.04	0.04	-12.98	0.21
ρ_{u_0, u_1}	-23.55	-92.82	-84.04	2.30	-57.26	-25.55	4.96	-45.54	-12.18

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.05	-20.91	0.29	0.14	-18.59	0.20	-0.15	-18.03	-0.50
β_1	-0.31	-17.73	-6.09	0.06	-15.93	-4.90	-0.16	-15.37	-6.87
β_2	3.18	-15.63	-15.68	0.13	-21.22	-8.64	2.63	-20.34	2.02
β_3	0.40	12.65	8.44	-0.25	10.74	9.91	0.21	10.54	17.23
$\sigma_{u_0}^2$	3.86	-47.70	1.23	0.13	-45.02	-0.92	-0.75	-42.32	-1.04
$\sigma_{u_1}^2$	7.30	-13.74	13.91	0.64	-27.45	2.06	-0.26	-28.39	3.15
σ_{u_0, u_1}	-3.87	-77.29	-56.94	1.72	-68.01	-18.06	-1.99	-65.02	-15.59
σ_e^2	-0.65	-14.77	-0.24	0.03	-12.91	0.45	0.14	-13.06	0.37
ρ_{u_0, u_1}	9.02	-60.22	-58.68	5.67	-50.77	-15.74	-0.22	-46.53	-15.54

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.07	-20.98	0.90	0.03	-18.72	0.33	-0.01	-18.06	-0.33
β_1	-0.03	-17.67	-3.30	-0.02	-15.88	-4.24	-0.03	-15.42	-6.22
β_2	2.10	-18.16	-19.31	-0.13	-22.32	-9.25	0.62	-22.70	2.23
β_3	-0.00	12.75	3.53	0.26	10.95	8.86	-0.06	10.43	15.69
$\sigma_{u_0}^2$	-0.00	-63.15	-1.00	-0.72	-46.14	-0.85	-0.35	-42.53	-0.14
$\sigma_{u_1}^2$	-1.20	-28.33	-5.20	-0.08	-28.62	-0.71	-0.40	-28.82	0.82
σ_{u_0, u_1}	-1.14	-86.20	-45.48	-0.36	-68.70	-19.58	-0.11	-63.90	-13.18
σ_e^2	0.21	-12.44	1.14	-0.09	-13.04	0.37	0.07	-13.04	0.40
ρ_{u_0, u_1}	8.80	-68.96	-38.43	0.74	-50.04	-18.48	0.38	-44.00	-13.47

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.20	-21.61	-1.83	0.17	-19.50	-0.60	-0.06	-19.06	-0.66
β_1	-1.68	-20.73	-9.93	0.51	-17.43	-4.23	-0.39	-17.96	-4.96
β_2	1.36	-21.61	-2.27	0.09	-24.40	-4.37	-2.02	-31.70	-5.98
β_3	10.65	6.97	41.29	-0.78	3.53	23.22	3.09	0.05	34.50
$\sigma_{u_0}^2$	20.71	-29.41	14.99	2.36	-43.55	-0.86	1.70	-41.63	-0.38
$\sigma_{u_1}^2$	25.23	3.03	40.78	1.45	-24.62	0.00	-1.91	-30.99	-5.69
σ_{u_0, u_1}	-18.35	-86.37	-81.72	-2.82	-68.80	-32.58	1.26	-64.30	-21.91
σ_e^2	-2.91	-17.09	-3.83	-0.16	-13.76	0.23	0.00	-13.45	0.55
ρ_{u_0, u_1}	-19.13	-87.40	-88.90	1.42	-55.44	-29.38	4.54	-47.53	-17.07

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.03	-21.70	-0.65	0.18	-19.56	-0.11	-0.06	-18.95	-0.33
β_1	-0.47	-20.18	-6.70	-0.08	-18.52	-3.80	0.02	-17.50	-3.87
β_2	3.70	-24.94	-5.75	-1.50	-32.04	-10.29	1.63	-31.18	-3.43
β_3	4.12	1.62	21.64	-0.30	1.38	12.67	-3.46	-5.92	22.07
$\sigma_{u_0}^2$	4.06	-48.18	-0.72	0.29	-45.90	-1.02	-0.61	-43.28	-1.73
$\sigma_{u_1}^2$	8.54	-13.59	12.78	0.51	-28.44	-6.09	-0.34	-29.93	-7.24
σ_{u_0, u_1}	-2.50	-73.97	-58.70	2.01	-69.73	-23.45	-2.35	-66.34	-21.72
σ_e^2	-0.75	-15.35	-0.55	0.03	-13.40	0.75	0.14	-13.40	0.90
ρ_{u_0, u_1}	8.90	-61.20	-61.26	5.75	-54.54	-17.46	-0.75	-48.79	-17.04

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.03	-21.82	0.19	0.01	-19.75	0.22	0.03	-19.06	0.10
β_1	0.07	-20.03	-3.14	-0.05	-18.34	-2.88	0.00	-17.70	-3.21
β_2	1.35	-29.08	-12.34	0.64	-33.05	-11.05	0.09	-33.74	-6.18
β_3	-1.85	0.80	0.09	2.60	1.58	8.46	-1.28	-4.12	17.69
$\sigma_{u_0}^2$	-0.21	-63.05	-0.37	-0.69	-46.74	0.13	-0.35	-43.43	0.31
$\sigma_{u_1}^2$	-1.11	-30.96	-13.50	-0.06	-30.43	-10.68	-0.36	-29.99	-9.36
σ_{u_0, u_1}	-1.15	-87.39	-40.48	-0.42	-70.17	-22.50	-0.12	-65.27	-17.64
σ_e^2	0.22	-12.82	1.43	-0.09	-13.49	0.89	0.07	-13.50	0.89
ρ_{u_0, u_1}	8.82	-69.62	-28.69	0.66	-52.09	-17.24	0.36	-45.34	-13.46

Simulation 2: ICC = 0.50; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.16	-17.26	-1.03	-0.49	-15.73	-1.80	-0.10	-14.63	-2.40
β_1	0.96	-12.64	-7.49	0.58	-11.17	-7.72	0.30	-9.57	-9.07
β_2	1.94	-24.63	-3.96	1.38	-24.63	1.90	0.56	-27.52	8.73
β_3	-1.19	4.42	10.53	1.09	5.93	15.09	-0.76	3.02	20.81
$\sigma_{u_0}^2$	-1.52	-35.27	-3.82	0.98	-29.81	-0.43	0.23	-28.99	-0.47
$\sigma_{u_1}^2$	26.42	15.48	35.37	-0.06	-18.27	2.27	-1.86	-21.36	3.76
σ_{u_0, u_1}	7.60	-56.62	-41.48	-0.51	-53.36	-24.23	-0.97	-51.74	-17.40
σ_e^2	-1.34	-9.38	-1.16	0.10	-7.76	0.48	-0.13	-8.06	0.23
ρ_{u_0, u_1}	15.31	-56.05	-41.49	8.45	-41.68	-19.78	0.85	-39.65	-19.02
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.31	-17.76	-0.90	-0.46	-15.65	-1.77	0.25	-14.40	-1.96
β_1	0.18	-13.05	-5.51	0.07	-10.12	-6.08	0.14	-9.78	-8.58
β_2	0.60	-24.37	-3.58	1.02	-25.41	4.58	-2.10	-28.60	8.04
β_3	-0.61	4.90	6.93	0.09	4.32	11.96	-0.52	3.51	19.49
$\sigma_{u_0}^2$	0.39	-34.14	-1.03	0.63	-29.59	-0.11	-0.11	-29.37	-0.26
$\sigma_{u_1}^2$	5.17	-13.41	2.03	0.47	-20.00	-1.52	-0.00	-20.52	1.45
σ_{u_0, u_1}	-0.50	-69.00	-37.94	-2.10	-55.00	-23.22	-0.65	-50.93	-15.96
σ_e^2	-0.40	-7.52	0.22	-0.01	-7.50	0.48	0.05	-7.67	0.54
ρ_{u_0, u_1}	15.80	-65.70	-31.70	0.01	-40.30	-20.56	0.12	-34.69	-16.22
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.05	-17.56	0.06	0.03	-15.22	-0.92	-0.09	-14.73	-2.32
β_1	-0.22	-13.69	-4.00	0.18	-10.28	-5.56	-0.16	-9.92	-8.46
β_2	-0.70	-25.72	-5.04	-0.56	-27.66	2.63	0.65	-25.99	13.11
β_3	0.45	6.15	4.63	-0.51	3.46	10.44	0.30	3.83	19.27
$\sigma_{u_0}^2$	0.25	-33.88	-0.24	0.13	-30.57	0.21	-0.49	-30.00	-0.13
$\sigma_{u_1}^2$	1.14	-24.41	-10.49	0.42	-21.39	-3.43	0.27	-20.58	-0.15
σ_{u_0, u_1}	0.05	-69.61	-30.05	-0.07	-56.03	-20.41	0.01	-52.05	-15.79
σ_e^2	-0.33	-7.26	0.70	0.00	-7.47	0.56	0.07	-7.54	0.57
ρ_{u_0, u_1}	5.68	-55.02	-20.87	-0.10	-40.56	-18.90	0.14	-36.15	-15.72

Simulation 2: ICC = 0.50; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.25	-19.18	-1.52	-0.37	-17.92	-1.99	-0.23	-17.01	-1.61
β_1	1.07	-16.56	-8.22	-0.16	-13.58	-5.79	-0.04	-12.15	-5.48
β_2	-2.13	-24.68	-3.58	0.60	-22.95	4.42	-0.24	-27.13	2.37
β_3	-1.50	-1.07	16.27	0.14	0.71	15.52	0.02	-1.13	22.05
$\sigma_{u_0}^2$	-1.43	-34.75	-4.73	1.19	-29.83	-1.19	0.37	-28.95	-1.46
$\sigma_{u_1}^2$	27.40	12.47	33.99	-0.02	-19.25	-4.19	-2.27	-21.34	-6.21
σ_{u_0, u_1}	8.04	-62.64	-50.76	0.05	-55.30	-30.73	-2.27	-52.81	-25.43
σ_e^2	-1.48	-9.58	-1.46	0.11	-7.98	0.78	-0.15	-8.34	0.39
ρ_{u_0, u_1}	12.99	-60.42	-53.37	9.14	-41.55	-23.82	-0.10	-41.45	-21.71
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.40	-20.04	-1.52	-0.46	-17.96	-1.44	-0.24	-17.13	-1.34
β_1	-0.19	-16.95	-6.34	0.03	-12.75	-4.23	-0.20	-12.58	-5.26
β_2	1.27	-26.16	0.35	0.91	-26.72	2.68	1.43	-26.94	5.79
β_3	0.64	0.85	9.75	1.48	0.37	12.45	0.74	0.65	20.54
$\sigma_{u_0}^2$	0.34	-34.34	-1.73	0.56	-30.34	-0.90	-0.16	-29.96	-1.14
$\sigma_{u_1}^2$	5.70	-12.24	1.96	0.26	-21.24	-9.55	-0.13	-20.97	-8.45
σ_{u_0, u_1}	-0.28	-69.25	-43.78	-2.34	-56.85	-28.18	-0.40	-52.18	-22.34
σ_e^2	-0.42	-7.83	0.29	-0.01	-7.84	0.85	0.05	-7.83	0.93
ρ_{u_0, u_1}	14.46	-70.50	-38.65	0.00	-42.82	-21.60	0.48	-36.29	-17.43
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.02	-19.70	-0.29	0.02	-17.51	-0.24	-0.09	-16.96	-0.68
β_1	-0.04	-17.02	-3.90	0.03	-13.18	-3.87	-0.22	-12.48	-4.76
β_2	0.04	-28.09	-2.17	-1.15	-30.95	-1.35	1.39	-27.98	5.75
β_3	-0.97	-0.73	2.15	-0.23	-1.53	8.38	1.43	-0.56	18.59
$\sigma_{u_0}^2$	0.22	-34.29	0.33	0.14	-31.09	0.42	-0.50	-30.46	-0.13
$\sigma_{u_1}^2$	1.33	-26.83	-17.10	0.44	-22.41	-11.84	0.30	-21.49	-10.20
σ_{u_0, u_1}	0.04	-71.95	-31.97	0.06	-57.91	-24.57	0.07	-53.42	-21.85
σ_e^2	-0.34	-7.40	1.25	0.00	-7.65	1.13	0.07	-7.72	1.07
ρ_{u_0, u_1}	6.58	-59.91	-18.32	0.06	-42.68	-19.38	0.21	-37.52	-17.40

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.11	-21.18	-2.00	-0.13	-19.62	-0.97	-0.02	-18.98	-0.70
β_1	-0.89	-20.06	-8.80	-0.28	-18.74	-3.71	-0.56	-18.94	-3.18
β_2	13.68	-26.81	-8.57	0.36	-39.70	-19.80	0.83	-35.53	-18.74
β_3	2.55	-24.22	21.68	2.29	-25.13	24.09	2.87	-21.95	22.73
$\sigma_{u_0}^2$	29.73	-17.70	27.77	-0.52	-43.22	-0.19	-1.22	-41.87	-0.46
$\sigma_{u_1}^2$	22.04	4.57	50.27	2.58	-23.42	5.10	-0.71	-29.71	-4.05
σ_{u_0, u_1}	-22.50	-80.20	-90.95	0.15	-64.62	-38.45	-3.71	-61.63	-29.68
σ_e^2	-3.40	-17.87	-4.89	-0.06	-14.13	0.04	0.07	-13.82	0.52
ρ_{u_0, u_1}	-29.50	-90.85	-101.88	8.47	-41.01	-37.55	1.26	-41.95	-25.21

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.09	-21.58	-0.74	0.19	-19.38	-0.09	0.04	-18.90	-0.17
β_1	0.08	-20.56	-5.55	-0.03	-19.20	-2.90	0.12	-18.15	-2.08
β_2	2.22	-38.06	-8.52	-0.03	-39.45	-8.70	-1.23	-39.08	-11.13
β_3	1.27	-28.08	24.16	-0.44	-28.75	24.26	-1.28	-26.30	24.83
$\sigma_{u_0}^2$	12.56	-40.65	13.03	0.41	-46.59	2.71	0.10	-41.80	2.81
$\sigma_{u_1}^2$	12.27	-12.71	24.39	-0.02	-28.18	-4.76	0.84	-28.25	-7.26
σ_{u_0, u_1}	-2.20	-70.72	-63.98	3.05	-64.41	-25.99	-1.29	-59.30	-22.86
σ_e^2	-0.98	-15.26	-1.09	-0.01	-13.57	0.84	0.03	-13.55	0.94
ρ_{u_0, u_1}	6.95	-58.97	-70.30	8.82	-41.84	-21.24	-0.28	-38.41	-19.25

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.04	-21.75	-0.08	-0.04	-19.69	0.08	-0.10	-19.00	0.05
β_1	0.27	-20.89	-3.03	-0.18	-19.44	-2.45	-0.06	-18.75	-2.11
β_2	-1.97	-43.19	0.03	0.51	-39.01	4.07	2.27	-37.07	4.73
β_3	0.70	-29.63	28.15	-0.20	-27.23	28.02	0.74	-25.76	31.59
$\sigma_{u_0}^2$	-0.18	-65.15	4.25	-0.21	-45.95	4.11	-0.52	-41.94	3.62
$\sigma_{u_1}^2$	-1.33	-28.66	-5.38	-0.41	-29.61	-11.34	-0.73	-29.23	-10.97
σ_{u_0, u_1}	-2.73	-82.25	-41.95	-0.40	-67.06	-22.51	0.37	-60.30	-18.24
σ_e^2	0.07	-13.07	1.21	-0.05	-13.52	1.28	0.01	-13.59	1.20
ρ_{u_0, u_1}	7.79	-46.95	-35.28	1.02	-46.82	-17.93	1.30	-38.17	-14.43

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.43	-20.76	-2.59	-0.27	-19.10	-1.83	-0.35	-18.78	-1.69
β_1	-0.35	-18.46	-8.48	0.17	-14.40	-3.64	0.39	-13.40	-2.66
β_2	-0.60	-28.30	-16.43	1.74	-26.16	-14.52	1.60	-25.18	-13.88
β_3	0.20	-54.72	88.87	8.22	-33.52	109.33	-5.74	-48.39	110.64
$\sigma_{u_0}^2$	1.59	-30.71	-0.64	0.40	-30.14	-0.03	0.33	-29.43	0.89
$\sigma_{u_1}^2$	26.68	15.09	50.91	2.52	-16.83	2.13	1.02	-19.42	-2.46
σ_{u_0, u_1}	5.62	-49.82	-47.42	0.43	-51.50	-33.08	-0.99	-51.55	-29.56
σ_e^2	-0.89	-9.64	-1.53	-0.16	-8.34	0.40	0.04	-8.09	0.77
ρ_{u_0, u_1}	-1.46	-55.15	-58.70	6.72	-35.13	-28.91	1.12	-36.95	-27.07

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.01	-20.63	-1.21	0.03	-18.76	-0.73	0.14	-18.10	-0.62
β_1	0.63	-17.82	-5.32	-0.14	-15.18	-3.50	0.11	-13.60	-2.54
β_2	0.45	-28.71	-7.23	-0.74	-28.35	-8.71	1.12	-27.59	-6.65
β_3	-5.49	-68.87	96.70	-4.19	-50.14	100.72	-0.88	-47.07	128.95
$\sigma_{u_0}^2$	0.55	-32.95	0.39	-0.39	-30.07	0.68	0.41	-28.63	1.77
$\sigma_{u_1}^2$	13.26	-7.62	24.64	0.98	-20.80	-5.74	0.27	-21.09	-7.90
σ_{u_0, u_1}	2.73	-62.53	-43.22	0.20	-54.56	-28.85	-0.37	-48.61	-25.29
σ_e^2	-0.74	-8.41	-0.42	0.04	-7.95	1.13	0.06	-7.80	1.22
ρ_{u_0, u_1}	14.87	-60.30	-45.38	3.95	-39.32	-23.56	-0.04	-31.22	-21.40

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.05	-20.78	-0.39	0.00	-18.73	-0.33	0.12	-18.16	-0.14
β_1	-0.06	-19.38	-4.71	0.22	-14.90	-2.90	-0.18	-14.07	-2.92
β_2	0.28	-28.42	2.89	-0.39	-29.12	2.34	1.39	-27.36	5.70
β_3	-0.97	-68.44	102.33	1.30	-49.84	117.48	-1.96	-47.73	135.73
$\sigma_{u_0}^2$	0.15	-33.79	1.47	-0.61	-30.51	1.16	-0.12	-29.33	1.79
$\sigma_{u_1}^2$	-0.54	-28.50	-4.66	0.52	-22.23	-11.15	-0.12	-21.04	-10.46
σ_{u_0, u_1}	-0.23	-69.45	-32.99	-0.24	-55.22	-24.73	0.15	-50.66	-22.36
σ_e^2	-0.04	-7.36	1.40	0.07	-7.75	1.66	0.04	-7.78	1.49
ρ_{u_0, u_1}	8.43	-53.15	-26.44	0.20	-39.62	-19.91	0.28	-34.29	-18.39

Simulation 4: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.21	-20.98	-1.46	0.07	-19.50	-0.74	-0.36	-19.40	-0.93
β_1	-0.52	-20.46	-8.25	0.11	-18.59	-3.15	-0.30	-18.83	-2.50
β_2	1.70	-35.95	-13.01	-2.56	-45.02	-16.72	-0.36	-42.55	-17.60
β_3	-0.25	-24.10	13.05	-0.80	-23.05	14.58	0.89	-20.39	15.77
$\sigma_{u_0}^2$	28.16	-23.91	28.58	-0.33	-43.71	2.17	2.44	-39.20	5.24
$\sigma_{u_1}^2$	22.98	-0.01	50.20	-1.58	-28.93	1.83	0.78	-28.51	-2.27
σ_{u_0, u_1}	-7.09	-65.87	-91.06	-2.91	-70.08	-44.05	1.95	-57.79	-24.47
σ_e^2	-2.73	-16.79	-4.06	-0.17	-13.77	-0.07	0.05	-13.27	0.43
ρ_{u_0, u_1}	-10.95	-68.90	-97.48	8.02	-54.62	-41.54	2.32	-44.09	-26.00

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.00	-21.42	-0.70	0.01	-19.46	-0.13	-0.07	-19.02	-0.17
β_1	0.33	-20.37	-5.37	0.29	-18.73	-2.54	0.06	-18.53	-2.00
β_2	4.08	-39.77	-2.52	-1.13	-42.71	-8.51	1.87	-41.60	-4.25
β_3	-0.44	-25.72	16.65	0.52	-21.81	17.57	-1.24	-24.08	16.54
$\sigma_{u_0}^2$	7.24	-45.27	8.56	0.07	-44.43	5.16	-0.39	-41.78	4.33
$\sigma_{u_1}^2$	5.79	-18.91	20.09	-0.99	-30.52	-4.36	1.03	-28.40	-5.84
σ_{u_0, u_1}	-8.64	-81.69	-77.51	0.80	-65.84	-33.16	-0.36	-59.76	-24.62
σ_e^2	-1.10	-15.09	-1.06	-0.02	-13.06	0.71	-0.10	-13.37	0.66
ρ_{u_0, u_1}	4.04	-69.66	-80.92	6.43	-45.78	-30.15	0.78	-38.80	-22.51

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.04	-21.58	0.04	-0.13	-19.64	0.11	0.02	-18.86	0.30
β_1	-0.02	-20.90	-3.43	0.10	-19.01	-2.29	0.00	-18.61	-2.10
β_2	0.05	-44.75	0.54	0.38	-43.47	2.17	1.21	-42.63	1.11
β_3	-0.47	-25.40	18.62	0.09	-23.12	19.95	-0.39	-22.85	18.56
$\sigma_{u_0}^2$	-0.72	-63.45	6.37	-0.18	-44.98	6.55	0.32	-40.98	6.81
$\sigma_{u_1}^2$	-0.33	-30.57	-3.69	-0.05	-29.40	-6.94	0.35	-29.12	-8.29
σ_{u_0, u_1}	0.34	-86.46	-49.11	-0.75	-67.10	-28.27	0.34	-61.77	-22.11
σ_e^2	0.13	-12.53	1.31	-0.06	-13.16	1.00	-0.03	-13.12	0.99
ρ_{u_0, u_1}	12.35	-62.70	-44.31	0.33	-47.23	-26.80	0.32	-41.49	-20.88

Simulation 4: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.18	-19.92	-2.05	-0.11	-17.81	-0.84	0.15	-17.43	-0.68
β_1	0.85	-19.34	-7.33	-0.19	-15.88	-3.68	0.10	-15.08	-1.83
β_2	1.96	-32.50	-15.03	1.86	-30.24	-9.55	-2.97	-37.05	-18.49
β_3	2.05	-24.24	23.22	1.41	-20.85	27.18	0.83	-23.04	27.93
$\sigma_{u_0}^2$	-0.87	-32.62	-0.17	-0.46	-29.83	2.26	0.64	-27.61	3.15
$\sigma_{u_1}^2$	22.14	9.00	46.55	3.16	-17.00	6.26	0.48	-20.27	-0.95
σ_{u_0, u_1}	4.63	-54.97	-63.06	1.60	-51.50	-36.93	1.71	-45.79	-27.05
σ_e^2	-1.08	-9.57	-1.92	-0.28	-8.32	-0.02	-0.10	-7.97	0.21
ρ_{u_0, u_1}	10.23	-52.79	-68.01	7.65	-36.08	-35.07	4.39	-26.85	-25.50

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.39	-20.07	-1.07	-0.18	-18.29	-0.37	-0.23	-17.64	-0.38
β_1	0.53	-19.28	-5.22	0.14	-15.68	-2.63	-0.06	-14.69	-2.10
β_2	-0.26	-34.11	-7.77	-0.93	-34.31	-7.32	-0.29	-32.27	-7.09
β_3	1.52	-28.02	29.40	-0.03	-23.22	29.16	-0.63	-21.79	28.66
$\sigma_{u_0}^2$	-0.65	-33.51	2.65	-0.52	-29.90	3.46	-0.23	-28.56	3.79
$\sigma_{u_1}^2$	6.63	-16.34	20.97	-0.64	-23.35	-1.65	0.42	-21.14	-3.08
σ_{u_0, u_1}	-3.03	-66.56	-56.42	-1.87	-55.15	-36.08	-0.98	-48.83	-29.63
σ_e^2	-0.45	-7.78	-0.30	-0.01	-7.92	0.68	-0.09	-7.87	0.53
ρ_{u_0, u_1}	9.69	-62.47	-57.70	2.77	-37.03	-33.89	-0.78	-32.12	-29.32

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.11	-19.61	0.19	-0.03	-17.94	0.33	0.22	-17.27	0.61
β_1	0.30	-19.65	-3.99	0.12	-15.68	-2.81	-0.04	-15.02	-2.41
β_2	0.39	-34.38	0.84	0.00	-33.68	0.75	0.41	-31.93	2.27
β_3	0.12	-29.25	33.24	0.13	-23.08	31.91	0.43	-21.32	32.15
$\sigma_{u_0}^2$	-0.15	-33.18	5.53	0.38	-29.14	6.00	0.19	-28.28	5.40
$\sigma_{u_1}^2$	1.33	-27.16	1.20	-0.34	-23.62	-4.50	-0.33	-21.68	-5.19
σ_{u_0, u_1}	1.29	-65.28	-39.84	0.71	-52.88	-31.68	1.36	-48.80	-26.40
σ_e^2	-0.06	-7.02	1.35	-0.00	-7.55	1.11	-0.07	-7.77	0.82
ρ_{u_0, u_1}	8.42	-46.55	-37.00	1.19	-36.17	-31.29	1.51	-32.02	-26.11

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.19	-21.45	-1.66	-0.07	-19.56	-0.07	-0.13	-19.27	0.36
β_1	0.08	-26.58	-12.97	0.10	-27.27	-7.00	-0.38	-27.07	-5.33
β_2	7.97	-32.49	-1.14	-0.44	-35.13	6.73	3.12	-31.69	10.79
β_3	-0.13	-26.10	29.11	2.33	-26.65	57.46	0.24	-26.82	60.02
$\sigma_{u_0}^2$	18.76	-28.15	21.00	-0.91	-45.27	3.14	-0.39	-42.70	5.62
$\sigma_{u_1}^2$	32.59	14.30	210.63	0.66	-32.47	104.04	-0.38	-38.00	75.42
σ_{u_0, u_1}	-9.40	-63.06	3.04	-3.02	-68.47	5.23	0.16	-66.98	1.89
σ_e^2	-2.85	-16.73	-1.62	-0.31	-13.37	4.81	0.28	-12.71	6.45
ρ_{u_0, u_1}	-14.95	-62.44	-64.72	5.20	-55.23	-32.30	7.20	-50.03	-24.69
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.09	-21.50	-0.29	-0.14	-19.83	0.50	0.01	-19.10	0.95
β_1	0.84	-27.62	-9.93	-0.06	-27.52	-6.33	-0.11	-27.12	-4.48
β_2	-1.22	-35.71	5.24	-0.86	-38.43	12.29	1.25	-33.80	18.86
β_3	1.01	-28.39	44.05	0.29	-27.43	60.92	-0.57	-27.20	65.97
$\sigma_{u_0}^2$	1.56	-50.38	-3.73	-0.49	-47.93	4.60	0.33	-42.03	7.69
$\sigma_{u_1}^2$	12.18	-19.84	172.62	-0.81	-39.91	86.86	0.70	-40.62	70.36
σ_{u_0, u_1}	-6.07	-77.70	-20.62	-0.29	-68.90	-3.64	3.49	-67.66	9.83
σ_e^2	-0.67	-14.45	2.53	0.11	-12.58	6.14	0.04	-12.80	6.80
ρ_{u_0, u_1}	18.83	-59.18	-56.85	5.17	-41.37	-32.07	4.19	-49.38	-19.02
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.16	-21.80	0.24	0.01	-19.82	0.99	0.03	-19.15	1.30
β_1	0.04	-29.93	-9.42	-0.01	-28.07	-5.88	0.00	-27.13	-4.34
β_2	0.12	-34.29	18.64	0.18	-36.56	23.68	0.94	-35.18	29.72
β_3	0.13	-28.92	54.52	0.19	-28.16	68.36	0.25	-27.07	73.85
$\sigma_{u_0}^2$	-5.20	-69.77	-17.66	0.06	-47.22	6.19	0.81	-41.34	8.41
$\sigma_{u_1}^2$	-0.65	-41.39	146.52	0.15	-42.43	84.65	0.44	-40.17	69.54
σ_{u_0, u_1}	-0.91	-73.42	-25.45	-2.56	-75.52	-4.30	0.71	-68.20	10.38
σ_e^2	0.48	-11.65	5.71	0.05	-12.53	6.72	0.05	-12.76	7.32
ρ_{u_0, u_1}	21.76	-5.59	-49.13	-1.93	-54.14	-32.01	0.42	-47.43	-18.69

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.59	-20.43	-2.81	0.40	-18.02	-0.85	0.32	-17.48	-0.79
β_1	-0.30	-25.56	-12.56	0.63	-21.22	-6.28	0.31	-20.42	-5.12
β_2	1.66	-25.61	-4.33	0.07	-26.99	-3.64	-0.56	-27.24	-1.92
β_3	0.33	-27.28	36.90	-1.06	-25.50	52.91	-1.12	-24.68	62.49
$\sigma_{u_0}^2$	-1.12	-35.11	-3.01	-0.01	-30.41	1.68	0.51	-28.93	2.38
$\sigma_{u_1}^2$	33.87	32.06	139.30	3.33	-22.21	65.11	1.36	-26.30	55.15
σ_{u_0, u_1}	1.79	-59.57	-58.05	-1.37	-62.94	-43.73	0.15	-58.04	-37.94
σ_e^2	-1.14	-9.56	-0.57	0.18	-7.63	3.32	0.05	-7.78	3.82
ρ_{u_0, u_1}	-3.55	-72.23	-78.36	5.01	-56.38	-56.06	1.77	-46.02	-49.15
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.10	-19.77	-1.05	0.10	-18.19	-0.61	0.04	-17.68	-0.42
β_1	0.01	-25.29	-10.27	0.04	-21.96	-6.72	0.25	-20.38	-4.79
β_2	0.48	-28.55	0.41	0.40	-28.16	3.90	1.18	-26.52	8.81
β_3	-2.06	-32.02	39.26	-1.01	-25.71	59.30	1.23	-23.52	70.75
$\sigma_{u_0}^2$	0.32	-33.28	-0.09	0.36	-29.65	2.39	1.09	-28.36	3.85
$\sigma_{u_1}^2$	6.89	-14.69	88.85	0.51	-29.13	56.89	0.44	-27.38	47.27
σ_{u_0, u_1}	0.49	-72.85	-55.12	-0.39	-60.87	-40.21	1.25	-57.12	-31.80
σ_e^2	-0.38	-7.89	1.81	-0.04	-7.78	3.89	-0.05	-7.74	4.29
ρ_{u_0, u_1}	13.33	-71.94	-66.81	2.62	-44.31	-51.13	0.81	-42.79	-44.21
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.10	-20.16	-0.75	0.14	-18.06	-0.27	-0.02	-17.77	-0.20
β_1	0.15	-26.23	-8.79	0.02	-22.12	-6.75	0.07	-20.73	-5.20
β_2	-0.35	-29.44	6.97	-0.07	-28.46	11.53	1.09	-27.20	15.56
β_3	-0.45	-31.86	50.91	-0.15	-25.81	65.18	-0.06	-23.71	72.72
$\sigma_{u_0}^2$	0.20	-33.32	0.94	-0.22	-30.17	2.31	-0.13	-28.98	3.16
$\sigma_{u_1}^2$	0.64	-32.94	74.66	-0.09	-30.66	49.88	0.41	-28.55	42.57
σ_{u_0, u_1}	-0.37	-75.31	-53.16	-1.49	-63.16	-38.18	0.21	-58.33	-30.15
σ_e^2	0.09	-6.96	3.15	-0.02	-7.47	4.39	0.01	-7.58	4.75
ρ_{u_0, u_1}	6.42	-60.99	-63.28	-0.74	-46.83	-49.45	0.24	-41.94	-42.18

L Tables of Percent Bias: Missing Data 30%; Complete data, Listwise deletion, JAV

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.10	-38.94	-4.52	-0.12	-36.40	-2.37	0.08	-34.99	-1.48
β_1	1.47	-27.79	-13.98	0.28	-26.25	-6.10	0.15	-26.44	-4.74
β_2	3.04	-45.68	-16.89	-0.12	-53.27	-20.76	0.63	-49.02	-18.59
β_3	0.94	-29.95	15.82	0.31	-27.54	17.05	2.06	-27.07	17.70
$\sigma_{u_0}^2$	22.71	-29.06	20.11	1.36	-55.35	1.31	0.91	-54.89	1.67
$\sigma_{u_1}^2$	18.63	6.29	65.79	1.22	-31.40	9.08	-0.57	-36.54	-4.25
σ_{u_0, u_1}	-2.73	-50.71	-115.27	-4.98	-73.52	-71.09	-0.18	-65.19	-52.00
σ_e^2	-2.86	-25.17	-6.07	-0.09	-20.86	-0.31	-0.03	-20.01	0.53
ρ_{u_0, u_1}	-13.98	-54.71	-122.53	2.52	-62.33	-72.99	6.83	-44.69	-50.36

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.05	-39.19	-2.00	-0.24	-36.66	-1.18	-0.21	-35.62	-0.83
β_1	-0.93	-30.14	-11.57	0.06	-27.61	-4.92	-0.19	-27.36	-4.39
β_2	4.08	-45.74	0.57	-3.24	-52.54	-7.09	-0.97	-51.49	-5.04
β_3	-1.91	-32.59	17.47	-0.52	-28.99	18.82	0.27	-28.52	19.98
$\sigma_{u_0}^2$	7.82	-55.98	6.16	0.42	-58.86	4.62	-0.04	-58.29	4.02
$\sigma_{u_1}^2$	9.20	-17.13	38.87	-0.98	-36.19	-3.27	0.66	-38.22	-9.22
σ_{u_0, u_1}	-3.10	-73.74	-111.22	-1.55	-72.41	-59.26	-0.84	-70.88	-45.55
σ_e^2	-0.92	-22.87	-1.83	0.20	-20.04	0.86	0.00	-19.96	1.08
ρ_{u_0, u_1}	1.02	-48.08	-114.58	2.54	-53.65	-58.82	1.25	-44.26	-42.31

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.07	-39.53	-0.34	0.10	-36.33	0.18	0.06	-35.30	0.17
β_1	0.14	-29.18	-5.26	0.06	-28.03	-4.02	0.15	-27.13	-3.44
β_2	-0.24	-49.80	8.74	-1.13	-52.11	7.74	0.17	-50.68	7.78
β_3	0.03	-29.98	22.73	0.21	-29.35	23.18	0.19	-28.91	22.67
$\sigma_{u_0}^2$	-0.49	-77.30	6.28	0.18	-62.48	7.83	0.36	-56.88	7.25
$\sigma_{u_1}^2$	0.82	-34.41	0.61	-0.65	-38.46	-10.06	-0.82	-38.52	-12.98
σ_{u_0, u_1}	0.68	-77.05	-79.13	0.59	-73.78	-47.38	-0.26	-68.54	-40.14
σ_e^2	-0.06	-19.92	1.01	-0.06	-19.66	1.42	0.11	-19.71	1.52
ρ_{u_0, u_1}	9.82	-0.66	-76.17	1.69	-45.36	-45.34	0.16	-39.98	-37.63

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.03	-37.20	-4.66	-0.16	-34.11	-2.90	0.15	-33.03	-2.46
β_1	1.02	-27.41	-13.39	0.03	-23.98	-6.82	0.16	-21.60	-4.29
β_2	0.93	-40.50	-20.36	1.55	-36.14	-15.89	1.81	-38.74	-18.88
β_3	-0.58	-33.32	26.88	-0.70	-27.08	30.75	-0.19	-25.35	32.30
$\sigma_{u_0}^2$	0.79	-45.65	-3.27	-0.46	-42.60	-1.01	0.49	-41.21	0.62
$\sigma_{u_1}^2$	18.88	17.91	67.28	2.44	-21.68	13.17	-0.14	-27.34	0.25
σ_{u_0, u_1}	-1.89	-56.51	-102.08	1.24	-59.00	-63.53	-1.77	-56.38	-54.92
σ_e^2	-1.15	-14.43	-3.93	-0.02	-12.56	-0.09	0.16	-12.22	0.45
ρ_{u_0, u_1}	4.83	-66.35	-104.57	6.42	-45.24	-63.30	1.37	-35.62	-53.53

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.33	-37.15	-1.94	-0.10	-34.11	-1.43	-0.15	-33.66	-1.42
β_1	-0.03	-30.12	-11.31	-0.20	-24.64	-6.07	-0.22	-22.64	-4.56
β_2	-1.25	-43.21	-10.65	-0.85	-41.86	-9.68	0.22	-40.44	-8.69
β_3	0.82	-34.29	33.88	-0.90	-28.23	34.80	-1.72	-27.15	33.85
$\sigma_{u_0}^2$	-0.45	-47.87	-0.34	-0.31	-43.41	2.16	0.19	-41.99	2.79
$\sigma_{u_1}^2$	5.55	-14.35	39.49	-0.83	-28.29	2.48	0.40	-27.98	-3.81
σ_{u_0, u_1}	-0.44	-67.10	-84.52	0.46	-59.59	-56.95	-2.94	-58.26	-52.51
σ_e^2	-0.21	-12.49	-0.88	-0.05	-12.26	0.83	-0.16	-12.40	0.78
ρ_{u_0, u_1}	12.68	-67.65	-87.73	4.16	-37.18	-55.78	-2.85	-38.75	-50.98

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.14	-37.34	-0.36	0.13	-34.10	-0.02	0.15	-33.22	0.09
β_1	0.07	-29.88	-7.31	0.35	-23.96	-5.08	0.01	-22.59	-4.28
β_2	-0.30	-41.84	4.43	0.12	-40.15	4.35	0.15	-40.60	3.10
β_3	0.63	-34.00	41.08	0.78	-27.15	39.79	1.16	-25.42	40.11
$\sigma_{u_0}^2$	-0.02	-47.25	3.79	0.06	-43.21	4.56	0.05	-42.18	4.47
$\sigma_{u_1}^2$	-1.24	-34.29	9.51	0.55	-29.70	-2.54	-0.26	-28.05	-5.93
σ_{u_0, u_1}	1.40	-70.02	-63.30	1.08	-61.78	-51.83	0.27	-57.29	-46.54
σ_e^2	-0.18	-11.68	1.02	-0.07	-11.87	1.50	-0.10	-12.05	1.22
ρ_{u_0, u_1}	8.41	-53.04	-63.05	1.46	-39.72	-51.40	0.38	-34.37	-45.73

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.06	-37.58	-1.99	0.21	-33.98	0.17	0.54	-32.94	0.01
β_1	0.64	-23.27	-16.06	0.09	-22.55	-11.00	0.61	-21.84	-12.58
β_2	2.10	-36.62	-24.10	-2.45	-44.27	-30.75	-4.19	-45.15	-19.05
β_3	-0.65	16.70	26.87	0.32	16.46	24.41	-0.47	14.57	33.46
$\sigma_{u_0}^2$	20.34	-35.99	15.86	0.76	-55.26	-2.13	-0.13	-56.59	-3.65
$\sigma_{u_1}^2$	24.23	16.92	60.82	2.29	-28.83	18.19	-0.62	-33.93	21.07
σ_{u_0, u_1}	-14.96	-61.13	-98.64	-3.90	-72.68	-46.23	1.17	-71.52	-30.41
σ_e^2	-2.89	-24.78	-4.10	-0.09	-20.17	-0.07	0.15	-19.54	0.02
ρ_{u_0, u_1}	-24.28	-75.54	-111.82	4.62	-60.08	-51.18	5.23	-53.64	-35.35

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.56	37.98	-0.04	-0.22	-34.83	0.28	0.11	-33.55	-0.08
β_1	0.50	-24.40	-9.51	0.00	-23.08	-8.74	0.38	-22.32	-11.14
β_2	8.81	-34.01	-32.19	0.67	-39.17	-25.81	-0.78	-41.66	-13.16
β_3	-0.04	18.52	15.16	-0.36	15.62	18.30	-0.71	14.94	29.25
$\sigma_{u_0}^2$	6.21	-57.91	0.99	-0.38	-61.15	-2.90	-0.01	-57.98	-1.92
$\sigma_{u_1}^2$	8.59	-11.52	19.51	-1.66	-34.21	6.15	-0.53	-35.43	12.57
σ_{u_0, u_1}	-8.22	-71.70	-87.68	-0.23	-74.26	-37.93	-0.77	-71.63	-27.51
σ_e^2	-0.65	-21.94	-0.44	-0.10	-19.56	0.19	0.05	-19.54	0.11
ρ_{u_0, u_1}	4.29	-56.87	-92.95	6.55	-51.31	-37.05	0.48	-52.06	-31.04

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.20	-37.70	2.16	0.00	-34.69	1.10	-0.00	-33.60	0.25
β_1	-0.17	-24.96	-5.09	0.02	-23.34	-6.94	0.04	-22.58	-10.33
β_2	0.72	-38.75	-45.38	0.22	-41.39	-26.13	0.96	-41.32	-9.81
β_3	-0.12	18.12	5.98	0.00	15.78	14.95	-0.04	14.94	27.23
$\sigma_{u_0}^2$	-0.38	-78.19	-2.97	-0.26	-62.85	-1.37	-0.17	-57.47	-0.75
$\sigma_{u_1}^2$	0.27	-31.89	-5.49	-0.26	-36.12	1.71	0.26	-36.41	8.52
σ_{u_0, u_1}	-1.54	-80.59	-64.32	0.59	-77.81	-31.42	0.04	-71.88	-23.63
σ_e^2	-0.01	-19.35	1.02	-0.06	-19.30	0.36	0.02	-19.36	0.25
ρ_{u_0, u_1}	6.92	-14.91	-59.01	1.73	-54.77	-30.95	0.22	-47.18	-26.27

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.16	-39.80	-4.12	0.10	-36.31	-1.47	0.46	-35.10	-0.95
β_1	0.91	-26.95	-16.83	0.07	-26.03	-8.75	0.66	-25.49	-7.29
β_2	-4.64	-47.80	-7.91	-5.24	-42.00	-21.95	-10.59	-47.51	-19.38
β_3	-8.16	18.27	65.98	2.64	9.39	50.48	-1.93	1.23	57.79
$\sigma_{u_0}^2$	21.09	-34.37	11.82	1.85	-56.04	-2.47	0.30	-57.60	-4.38
$\sigma_{u_1}^2$	27.80	16.06	64.35	2.81	-28.90	5.43	-0.53	-34.72	-1.11
σ_{u_0, u_1}	-8.39	-46.20	-103.08	-0.88	-70.91	-51.80	1.19	-71.05	-37.65
σ_e^2	-2.73	-25.45	-5.34	-0.15	-20.72	0.04	0.11	-20.04	0.65
ρ_{u_0, u_1}	-20.72	-58.77	-114.90	5.57	-65.80	-53.28	5.59	-53.99	-34.55

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.27	-39.87	-2.21	-0.10	-36.88	-0.82	0.07	-35.82	-0.65
β_1	1.16	-27.40	-9.91	-0.31	-27.09	-6.93	0.35	-25.83	-5.92
β_2	8.79	-34.71	-6.07	-3.47	-46.57	-22.04	-0.51	-46.71	-12.63
β_3	-7.13	9.47	33.26	2.65	6.49	32.64	-2.70	1.45	40.41
$\sigma_{u_0}^2$	6.40	-58.30	-1.14	-0.42	-62.02	-3.28	0.16	-58.53	-2.46
$\sigma_{u_1}^2$	10.41	-14.48	19.71	-1.42	-35.61	-8.51	-0.68	-37.47	-9.66
σ_{u_0, u_1}	-5.45	-68.52	-97.22	0.09	-73.82	-42.86	-1.19	-72.26	-35.10
σ_e^2	-0.73	-22.42	-1.03	-0.09	-20.15	0.82	0.05	-20.17	0.99
ρ_{u_0, u_1}	1.70	-44.65	-100.61	6.85	-52.53	-36.40	0.21	-51.37	-29.63

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.20	-39.84	0.25	0.02	-36.87	0.28	0.04	-35.79	0.18
β_1	-0.13	-28.41	-5.35	0.05	-26.96	-4.50	-0.06	-26.32	-5.21
β_2	-1.04	-44.06	-25.40	-0.11	-45.80	-20.76	0.79	-46.96	-13.93
β_3	-3.30	1.93	7.07	-0.27	0.49	15.07	1.72	0.31	34.85
$\sigma_{u_0}^2$	-0.27	-78.45	-1.42	-0.23	-63.45	0.83	-0.13	-58.52	0.59
$\sigma_{u_1}^2$	0.20	-34.96	-14.86	-0.24	-37.86	-16.12	0.24	-38.63	-13.91
σ_{u_0, u_1}	-1.59	-80.47	-60.98	0.53	-77.14	-33.41	0.04	-72.79	-28.67
σ_e^2	-0.01	-19.98	1.37	-0.06	-19.93	1.35	0.02	-20.01	1.33
ρ_{u_0, u_1}	7.56	-21.80	-52.88	1.68	-53.51	-26.06	0.20	-47.70	-22.84

Simulation 2: ICC = 0.50; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.12	-32.57	-1.78	0.38	-29.34	-1.41	-0.27	-29.39	-3.44
β_1	0.66	-20.38	-15.11	0.05	-16.77	-12.44	-0.01	-15.94	-15.57
β_2	0.88	-42.52	-14.31	-1.93	-45.03	-9.03	-1.36	-41.67	1.79
β_3	-0.76	10.23	23.16	-0.01	8.47	24.12	0.38	7.98	35.54
$\sigma_{u_0}^2$	-1.96	-48.52	-7.58	-0.92	-43.95	-4.34	-0.58	-42.77	-3.87
$\sigma_{u_1}^2$	18.86	19.97	42.83	-0.76	-23.28	10.22	-0.40	-25.04	17.17
σ_{u_0, u_1}	-0.61	-62.09	-74.64	-2.55	-64.70	-45.55	-1.58	-62.47	-36.00
σ_e^2	-0.72	-13.39	-1.15	-0.11	-11.81	-0.01	0.21	-11.79	0.48
ρ_{u_0, u_1}	9.25	-75.58	-81.26	5.79	-49.82	-46.33	-0.25	-49.72	-40.69
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.29	-33.94	-1.13	0.45	-29.66	-0.96	-0.01	-28.82	-2.55
β_1	-0.31	-21.86	-10.30	0.15	-16.93	-10.40	0.08	-15.82	-14.14
β_2	-0.51	-41.16	-12.43	-1.24	-42.58	-3.94	1.03	-42.37	6.81
β_3	0.26	10.77	13.90	-0.35	7.26	19.39	0.08	7.00	32.20
$\sigma_{u_0}^2$	-1.31	-48.98	-4.75	0.34	-43.37	-1.72	0.35	-42.64	-1.03
$\sigma_{u_1}^2$	4.44	-10.25	5.35	0.44	-24.74	2.08	1.29	-25.97	11.66
σ_{u_0, u_1}	-0.34	-76.18	-58.90	2.58	-64.51	-34.98	1.96	-62.14	-28.58
σ_e^2	-0.06	-12.06	0.27	0.23	-11.62	0.69	0.10	-11.60	0.50
ρ_{u_0, u_1}	15.31	-75.72	-55.41	5.50	-49.53	-33.29	1.43	-43.16	-31.96
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.32	-34.18	-0.03	-0.30	-30.16	-1.18	0.01	-28.68	-1.88
β_1	-0.48	-21.81	-6.53	0.01	-16.71	-9.25	0.02	-15.64	-12.82
β_2	0.39	-41.40	-11.04	1.23	-41.75	0.34	0.03	-43.93	7.55
β_3	0.35	10.76	7.22	0.25	7.35	17.46	-0.03	6.54	29.03
$\sigma_{u_0}^2$	0.02	-48.23	-1.76	0.38	-43.57	-0.16	-0.23	-43.08	-0.02
$\sigma_{u_1}^2$	0.08	-30.82	-17.54	0.57	-27.30	-2.91	-0.31	-26.62	5.00
σ_{u_0, u_1}	-0.15	-81.30	-42.61	0.08	-67.42	-33.89	-0.48	-63.62	-29.00
σ_e^2	0.30	-10.52	1.62	-0.06	-11.58	0.56	0.01	-11.61	0.49
ρ_{u_0, u_1}	5.69	-71.03	-30.87	0.17	-49.76	-32.30	-0.10	-44.40	-30.69

Simulation 2: ICC = 0.50; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.37	-36.48	-4.00	0.52	-33.28	-1.91	-0.24	-32.98	-2.87
β_1	0.62	-25.63	-16.01	0.48	-20.80	-9.22	0.28	-19.35	-8.63
β_2	-4.38	-49.89	-9.30	-7.39	-42.60	-13.04	-4.54	-40.20	-2.89
β_3	-0.72	24.17	33.34	-3.01	6.58	23.78	-1.61	3.85	31.24
$\sigma_{u_0}^2$	-0.77	-48.52	-9.00	-0.80	-44.50	-5.03	-0.29	-43.26	-4.51
$\sigma_{u_1}^2$	21.17	17.00	47.63	-0.80	-23.64	-1.92	-0.24	-25.69	-7.21
σ_{u_0, u_1}	3.10	-61.04	-83.46	-1.29	-66.53	-52.98	-0.77	-61.22	-41.30
σ_e^2	-0.68	-13.72	-2.00	-0.12	-12.07	0.53	0.20	-11.97	1.23
ρ_{u_0, u_1}	9.03	-75.00	-90.77	8.69	-62.68	-49.54	1.18	-51.19	-38.19
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.46	-37.68	-3.12	0.25	-33.48	-1.37	0.14	-32.52	-1.75
β_1	-0.30	-26.77	-11.68	0.09	-20.74	-7.43	0.36	-19.36	-7.59
β_2	1.17	-37.96	-1.92	0.22	-41.44	-3.43	0.39	-40.86	1.78
β_3	-1.44	0.86	18.36	-0.97	1.14	17.58	-1.42	1.46	26.59
$\sigma_{u_0}^2$	-1.07	-49.88	-6.05	0.25	-43.76	-2.37	0.35	-43.20	-2.20
$\sigma_{u_1}^2$	5.12	-9.58	8.21	0.76	-25.79	-12.11	1.19	-27.03	-11.49
σ_{u_0, u_1}	1.00	-73.35	-69.07	2.56	-62.90	-41.73	1.89	-62.07	-36.59
σ_e^2	-0.09	-12.28	0.22	0.23	-12.02	1.52	0.10	-11.98	1.46
ρ_{u_0, u_1}	17.28	-71.35	-66.63	5.55	-45.53	-33.83	1.52	-42.10	-30.47
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.22	-37.82	-0.74	-0.19	-33.90	-0.62	0.03	-32.67	-0.63
β_1	-0.65	-27.02	-7.23	0.15	-20.68	-5.99	-0.05	-19.43	-6.90
β_2	-0.84	-42.95	-7.31	1.07	-41.92	-2.54	0.11	-42.42	0.74
β_3	1.75	6.27	9.35	-0.14	1.49	12.63	0.79	1.10	23.49
$\sigma_{u_0}^2$	0.03	-48.97	-0.22	0.39	-44.31	0.49	-0.23	-43.90	-0.10
$\sigma_{u_1}^2$	0.14	-33.81	-24.32	0.58	-29.13	-19.30	-0.32	-28.10	-16.48
σ_{u_0, u_1}	-0.17	-80.80	-47.06	0.08	-68.01	-37.76	-0.52	-64.27	-35.34
σ_e^2	0.29	-10.80	2.48	-0.06	-11.93	1.71	0.01	-11.93	1.58
ρ_{u_0, u_1}	6.33	-70.07	-32.32	0.21	-49.49	-29.72	-0.12	-44.34	-28.78

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.19	-38.71	-4.32	-0.07	-36.56	-2.21	-0.08	-35.56	-1.68
β_1	-0.79	-27.71	-15.55	-0.91	-27.77	-7.14	0.02	-27.00	4.71
β_2	2.72	-48.79	-24.12	2.09	-47.91	-32.77	-0.61	-50.59	-36.05
β_3	1.39	-32.80	27.73	1.60	-29.78	28.02	3.14	-29.69	29.96
$\sigma_{u_0}^2$	24.40	-27.98	18.33	2.81	-53.87	2.12	-0.87	-56.06	0.97
$\sigma_{u_1}^2$	26.54	17.82	74.19	2.04	-30.35	7.35	0.19	-35.44	-3.75
σ_{u_0, u_1}	-16.91	-55.68	-128.81	-1.48	-65.81	-62.36	-1.17	-67.02	-49.77
σ_e^2	-3.22	-27.09	-6.83	-0.23	-21.22	-0.29	-0.22	-21.02	0.28
ρ_{u_0, u_1}	-26.32	-62.72	-129.27	6.11	-46.69	-65.73	3.65	-44.03	-48.28

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.05	-39.52	-2.25	-0.06	-36.55	-0.98	-0.10	-35.65	-0.83
β_1	-0.11	-28.59	-10.00	-0.06	-27.82	-5.17	0.03	-26.89	-3.43
β_2	0.86	-48.32	-15.35	0.53	-50.10	-18.66	-1.45	-49.69	-22.44
β_3	1.01	-32.63	32.71	0.71	-33.71	32.58	0.37	-32.14	31.50
$\sigma_{u_0}^2$	9.05	-52.39	6.37	0.55	-61.05	4.60	-0.60	-57.99	3.65
$\sigma_{u_1}^2$	9.25	-16.42	34.55	0.16	-36.25	-5.28	0.85	-37.19	-12.12
σ_{u_0, u_1}	-6.94	-69.03	-105.86	-1.39	-74.61	-55.89	0.67	-67.69	-41.44
σ_e^2	-1.02	-23.23	-1.95	0.04	-20.12	1.08	0.12	-20.44	1.21
ρ_{u_0, u_1}	0.32	-38.95	-112.08	3.65	-48.92	-54.43	1.64	-44.88	-37.82

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.02	-39.75	-0.38	0.02	-36.62	0.06	-0.01	-35.49	0.11
β_1	0.15	-28.87	-4.79	0.01	-27.84	-3.40	0.14	-27.12	-3.08
β_2	-2.30	-52.36	-2.36	0.26	-49.32	0.16	0.48	-48.86	-2.10
β_3	1.03	-33.71	39.58	0.10	-33.66	37.20	1.39	-31.48	38.71
$\sigma_{u_0}^2$	-1.98	-78.29	4.68	-0.10	-64.60	7.55	-0.94	-58.29	6.50
$\sigma_{u_1}^2$	0.91	-32.94	-2.53	0.29	-37.89	-15.73	0.38	-37.46	-16.30
σ_{u_0, u_1}	-3.07	-75.87	-74.33	0.86	-76.34	-40.84	0.07	-68.81	-36.37
σ_e^2	-0.07	-20.66	1.07	-0.07	-20.17	1.71	-0.04	-20.37	1.68
ρ_{u_0, u_1}	9.19	6.49	-71.08	1.90	-48.59	-36.16	0.60	-39.49	-31.75

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.20	-39.30	-5.57	0.17	-35.50	-2.98	-0.12	-34.93	-3.09
β_1	-0.17	-27.89	-4.79	0.01	-27.84	-3.40	0.14	-27.12	-3.08
β_2	-2.65	-42.71	-29.90	1.76	-38.48	-30.38	1.07	-37.80	-29.70
β_3	7.72	-60.63	156.20	1.96	-54.19	161.64	-4.66	-53.09	169.33
$\sigma_{u_0}^2$	0.12	-47.42	-6.41	0.66	-43.24	0.21	-2.02	-44.31	-1.82
$\sigma_{u_1}^2$	24.73	35.22	77.55	1.31	-21.22	8.68	-1.13	-26.78	-3.99
σ_{u_0, u_1}	3.73	-47.58	-80.28	0.72	-59.44	-57.73	-2.83	-60.73	-56.03
σ_e^2	-1.72	-16.41	-4.12	0.24	-12.65	0.85	0.07	-12.69	0.96
ρ_{u_0, u_1}	-3.94	-52.13	-88.38	7.77	-50.71	-56.53	0.86	-45.34	-52.12

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.24	-39.58	-3.17	-0.15	-35.89	-1.85	0.13	-34.82	-1.47
β_1	0.42	-28.17	-10.95	-0.15	-23.21	-5.97	-0.14	-21.59	-4.67
β_2	-1.05	-41.15	-12.96	2.03	-38.30	-16.92	-1.99	-40.16	-19.93
β_3	-2.07	-71.55	168.14	2.85	-45.52	164.67	-3.31	-49.81	173.53
$\sigma_{u_0}^2$	1.01	-48.03	-1.38	0.27	-43.95	2.13	-0.11	-43.15	1.74
$\sigma_{u_1}^2$	9.23	-4.21	40.85	0.68	-27.30	-5.30	-1.01	-29.52	-12.12
σ_{u_0, u_1}	4.29	-62.74	-74.02	1.96	-62.97	-51.03	-0.91	-60.09	-48.52
σ_e^2	-0.64	-12.56	-0.88	-0.11	-12.43	1.45	0.01	-12.51	1.71
ρ_{u_0, u_1}	16.41	-65.12	-79.15	4.95	-42.19	-46.62	0.32	-39.73	-43.94

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.00	-39.17	-0.84	-0.02	-35.75	-0.61	-0.04	-34.77	-0.56
β_1	-0.06	-28.82	-7.29	0.23	-22.64	-4.74	0.04	-21.56	-4.42
β_2	0.34	-41.41	-0.26	-0.10	-40.03	-1.24	0.13	-39.88	-1.20
β_3	-2.86	-72.70	168.72	2.26	-47.78	173.39	0.35	-47.07	186.93
$\sigma_{u_0}^2$	-0.40	-48.08	1.94	0.12	-43.86	3.22	0.00	-42.82	3.17
$\sigma_{u_1}^2$	0.18	-31.99	3.23	0.69	-28.08	-15.03	0.15	-27.73	-16.16
σ_{u_0, u_1}	-1.72	-76.08	-55.55	0.16	-62.74	-43.61	0.15	-59.99	-40.74
σ_e^2	-0.10	-11.72	1.55	-0.02	-12.05	2.39	0.11	-12.09	2.41
ρ_{u_0, u_1}	7.38	-61.28	-53.50	0.45	-41.37	-38.35	-0.02	-38.58	-35.78

Simulation 4: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.13	-39.41	-4.28	-0.01	-36.41	-2.00	-0.04	-35.59	-1.58
β_1	0.21	-29.88	-15.47	-0.27	-27.72	-6.49	-0.07	-26.91	4.33
β_2	9.53	-47.82	-18.08	-0.93	-55.41	-28.01	2.42	-54.25	-25.13
β_3	-0.71	-31.58	13.51	0.82	-28.94	20.93	1.06	-30.24	19.75
$\sigma_{u_0}^2$	23.34	-30.56	23.50	0.75	-55.93	3.58	-0.33	-54.76	3.23
$\sigma_{u_1}^2$	28.39	9.47	77.20	1.50	-31.09	11.24	0.34	-35.51	-2.13
σ_{u_0, u_1}	-2.19	-57.48	-121.85	-0.15	-68.75	-70.18	-1.30	-63.58	-52.73
σ_e^2	-2.62	-25.47	-5.89	-0.28	-20.94	-0.48	-0.14	-20.29	0.23
ρ_{u_0, u_1}	-13.43	-63.57	-128.32	2.74	-55.49	-76.76	1.23	-39.63	-53.97

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.10	-39.31	-1.92	0.04	-36.40	-0.85	-0.07	-35.41	-0.53
β_1	-0.50	-28.79	-10.45	0.10	-27.49	-4.70	-0.08	-27.29	-3.95
β_2	2.51	-52.00	-15.63	-1.31	-58.24	-18.73	-0.40	-57.52	-16.72
β_3	-1.84	-30.70	21.70	0.18	-29.84	22.36	-0.45	-31.27	21.80
$\sigma_{u_0}^2$	9.22	-53.30	12.13	0.86	-59.53	6.98	-0.57	-58.27	6.44
$\sigma_{u_1}^2$	11.00	-13.31	41.35	-0.15	-38.40	-2.69	0.41	-37.29	-7.31
σ_{u_0, u_1}	-8.88	-71.72	-126.49	-0.81	-73.72	-62.09	1.08	-69.58	-48.48
σ_e^2	-1.12	-23.09	-2.26	-0.14	-19.91	0.59	0.02	-19.83	0.99
ρ_{u_0, u_1}	-0.37	-50.03	-126.50	2.72	-46.09	-61.76	2.48	-46.85	-46.99

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.09	-39.48	-0.27	0.01	-36.47	0.22	0.02	-35.34	0.33
β_1	-0.03	-28.97	-5.20	0.27	-27.74	-3.63	0.06	-27.20	-3.52
β_2	-0.32	-52.54	-0.46	0.54	-53.24	-0.35	0.68	-53.82	-2.43
β_3	-0.12	-29.93	25.69	0.29	-30.48	24.32	0.32	-29.51	23.33
$\sigma_{u_0}^2$	0.80	-77.41	10.55	0.68	-62.55	11.08	-0.19	-57.19	9.83
$\sigma_{u_1}^2$	0.46	-32.05	2.99	-0.49	-38.97	-9.63	0.26	-38.02	-11.42
σ_{u_0, u_1}	0.91	-75.66	-84.27	0.01	-75.99	-51.80	0.01	-67.77	-42.99
σ_e^2	-0.06	-20.15	0.81	0.08	-19.48	1.49	-0.02	-19.80	1.35
ρ_{u_0, u_1}	9.38	-3.00	-83.73	0.64	-51.60	-50.69	0.43	-38.47	-41.43

Simulation 4: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.35	-37.73	-4.51	0.03	-34.49	-2.50	-0.39	-33.91	-2.52
β_1	-0.97	-31.05	-15.50	-0.13	-25.29	-6.65	0.25	-22.57	-3.95
β_2	0.65	-48.90	-29.01	-0.62	-44.04	-26.80	-4.60	-48.47	-32.80
β_3	2.25	-37.39	30.09	0.34	-32.48	33.76	-0.85	-29.86	33.10
$\sigma_{u_0}^2$	-2.87	-48.62	-4.36	-0.05	-43.99	1.71	1.22	-41.74	3.94
$\sigma_{u_1}^2$	23.17	20.29	75.00	2.10	-22.30	14.07	-1.19	-29.50	-1.22
σ_{u_0, u_1}	1.14	-52.10	-99.20	3.00	-58.82	-64.24	-0.25	-58.14	-56.53
σ_e^2	-1.06	-15.02	-3.90	-0.15	-12.43	-0.24	-0.16	-12.46	0.18
ρ_{u_0, u_1}	9.42	-54.04	-102.93	9.41	-51.72	-65.15	2.20	-37.97	-55.55

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.13	-37.55	-2.05	-0.01	-34.43	-1.11	-0.09	-33.59	-0.79
β_1	0.05	-29.33	-10.55	-0.56	-24.60	-6.16	0.26	-22.24	-3.69
β_2	0.87	-44.82	-13.13	1.82	-44.89	-17.72	-0.78	-47.48	-19.86
β_3	0.11	-37.25	39.56	-0.88	-32.04	37.73	0.08	-29.74	38.38
$\sigma_{u_0}^2$	-0.92	-48.07	1.95	-0.05	-43.66	5.21	0.83	-41.36	6.58
$\sigma_{u_1}^2$	7.88	-16.16	42.34	-0.73	-30.29	3.34	-0.96	-28.84	-3.51
σ_{u_0, u_1}	0.28	-65.95	-90.48	-3.47	-63.49	-67.15	1.41	-56.26	-53.25
σ_e^2	-0.38	-12.44	-1.30	-0.04	-12.01	0.74	0.21	-12.07	0.94
ρ_{u_0, u_1}	15.36	-54.86	-91.92	0.90	-47.95	-66.14	1.92	-35.63	-53.10

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.22	-38.03	-0.40	-0.09	-34.41	0.20	-0.06	-33.29	0.39
β_1	-0.36	-30.23	-7.34	0.17	-24.23	-4.96	0.01	-22.37	-4.00
β_2	-0.28	-47.19	-3.87	-0.75	-45.88	-5.53	0.27	-44.53	-6.42
β_3	0.51	-37.84	47.46	-0.57	-31.39	42.22	0.19	-28.81	41.09
$\sigma_{u_0}^2$	0.02	-47.66	7.13	0.15	-43.43	7.68	-0.13	-41.69	7.70
$\sigma_{u_1}^2$	-0.70	-36.14	12.69	0.39	-30.01	-0.92	0.48	-28.26	-4.90
σ_{u_0, u_1}	-0.66	-72.99	-75.18	0.35	-62.35	-60.39	-0.32	-57.58	-52.80
σ_e^2	0.16	-11.18	1.15	0.09	-11.79	1.48	0.02	-11.98	1.24
ρ_{u_0, u_1}	5.83	-54.34	-75.21	0.58	-40.31	-60.89	-0.34	-34.94	-53.02

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.08	-39.40	-4.23	0.03	-36.20	-1.20	-0.01	-35.61	-0.39
β_1	1.36	-35.17	-19.88	0.60	-37.28	-12.99	0.46	-35.20	-8.03
β_2	0.39	-47.13	-10.60	2.26	-41.54	-5.47	-0.10	-46.14	-10.21
β_3	-0.68	-33.67	36.18	-0.96	-34.44	56.50	-0.22	-33.98	60.53
$\sigma_{u_0}^2$	19.04	-34.80	16.61	-0.71	-57.89	0.84	-0.60	-56.38	3.65
$\sigma_{u_1}^2$	29.58	40.54	277.17	3.94	-29.54	140.54	-0.78	-40.63	102.85
σ_{u_0, u_1}	0.43	-27.57	7.39	-0.91	-65.44	-27.01	-6.49	-69.51	-30.28
σ_e^2	-3.41	-25.35	-3.71	-0.28	-20.94	5.18	0.23	-19.80	7.24
ρ_{u_0, u_1}	-4.72	-46.94	-66.57	5.97	-42.54	-58.14	-3.41	-49.56	-55.20

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.03	-39.27	-2.07	-0.09	-36.66	-0.18	-0.15	-35.89	0.35
β_1	0.47	-36.42	-16.41	-0.27	-37.37	-10.76	-0.41	-36.99	-9.11
β_2	0.13	-44.22	-0.47	0.25	-46.05	4.49	-1.00	-47.55	6.24
β_3	-3.41	-37.00	41.79	2.17	-31.65	66.80	0.02	-33.90	70.60
$\sigma_{u_0}^2$	3.17	-58.73	-4.05	1.73	-62.71	4.70	-0.17	-58.69	5.91
$\sigma_{u_1}^2$	7.71	-8.47	234.20	2.43	-37.01	130.73	-0.68	-46.43	93.60
σ_{u_0, u_1}	-10.92	-67.73	-33.23	1.78	-68.34	-29.61	0.04	-70.39	-27.92
σ_e^2	-0.59	-22.68	1.05	-0.06	-19.95	6.53	0.08	-19.84	8.20
ρ_{u_0, u_1}	13.12	-59.62	-74.25	5.17	-30.67	-55.56	2.26	-40.75	-49.89

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.03	-39.49	-0.30	0.06	-36.68	0.88	0.02	-35.66	1.29
β_1	0.14	-39.52	-13.89	-0.11	-38.06	-9.92	-0.11	-37.16	-8.19
β_2	0.36	-44.01	16.42	0.37	-45.53	18.38	-0.25	-46.73	19.96
β_3	-1.05	-36.68	60.43	0.42	-34.33	74.04	0.35	-34.27	78.27
$\sigma_{u_0}^2$	-5.89	-79.72	-22.03	0.63	-70.77	4.60	-0.42	-58.57	4.91
$\sigma_{u_1}^2$	-0.22	-42.38	208.89	0.56	-45.60	120.32	-0.51	-47.84	93.10
σ_{u_0, u_1}	0.72	-79.18	-52.24	0.77	-74.75	-34.70	0.40	-73.28	-27.14
σ_e^2	0.60	-19.75	5.56	-0.04	-18.98	7.80	0.03	-19.73	8.84
ρ_{u_0, u_1}	22.75	-30.05	-71.43	1.26	-20.37	-57.28	1.22	-43.83	-48.85

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.30	-36.57	-4.46	-0.01	-34.48	-3.37	0.39	-33.24	-2.08
β_1	1.21	-33.15	-18.92	0.15	-31.19	-12.83	0.03	-29.24	-10.17
β_2	-4.02	-38.73	-18.73	-1.61	-40.77	-23.15	1.91	-39.58	-19.32
β_3	-1.86	-34.45	41.66	0.65	-32.02	62.52	-0.23	-29.77	67.13
$\sigma_{u_0}^2$	-3.04	-49.57	-8.24	-1.68	-44.84	-1.07	-0.53	-42.15	1.18
$\sigma_{u_1}^2$	32.26	49.13	193.41	3.36	-21.20	99.52	-0.14	-32.54	68.00
σ_{u_0, u_1}	-3.15	-52.20	-93.00	0.64	-68.38	-87.34	0.99	-64.46	-73.59
σ_e^2	-1.14	-14.24	-2.39	-0.15	-12.84	3.14	-0.15	-12.54	4.43
ρ_{u_0, u_1}	2.25	-66.48	-102.36	10.29	-65.75	-90.79	3.71	-47.66	-77.88

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.10	-37.36	-2.60	-0.13	-35.07	-1.67	-0.03	-33.71	-1.28
β_1	0.01	-36.31	-15.93	-0.07	-32.31	-12.37	0.19	-29.05	-9.62
β_2	-1.09	-40.59	-6.88	-0.35	-40.53	-7.68	0.26	-38.44	-6.23
β_3	-1.76	-39.61	51.74	-0.21	-32.69	67.04	-0.43	-30.09	75.02
$\sigma_{u_0}^2$	-0.50	-48.87	-2.26	0.62	-43.63	2.71	-0.43	-42.84	2.39
$\sigma_{u_1}^2$	9.63	-3.38	142.39	1.02	-32.19	78.94	0.63	-33.48	63.49
σ_{u_0, u_1}	-1.01	-74.36	-92.52	2.14	-70.45	-79.09	-2.15	-65.12	-73.33
σ_e^2	-0.80	-12.95	-0.06	-0.04	-12.03	4.55	0.07	-12.23	5.36
ρ_{u_0, u_1}	14.31	-78.47	-96.71	6.10	-57.14	-83.34	-0.99	-45.35	-77.49

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	-0.10	-37.80	-1.28	0.20	-34.52	-0.44	-0.00	-33.74	-0.27
β_1	0.24	-37.28	-13.91	-0.05	-32.34	-11.46	0.17	-29.86	-9.63
β_2	0.41	-38.48	6.17	-0.62	-39.39	5.15	-0.43	-38.76	6.18
β_3	0.32	-38.06	65.61	-0.08	-33.05	74.93	-0.32	-30.45	79.53
$\sigma_{u_0}^2$	-0.21	-47.39	-0.19	0.28	-43.85	3.31	-0.40	-43.10	3.51
$\sigma_{u_1}^2$	1.28	-35.75	117.90	0.30	-36.69	76.51	0.33	-34.82	59.76
σ_{u_0, u_1}	-0.02	-77.42	-88.92	1.36	-70.94	-73.88	0.08	-66.77	-69.23
σ_e^2	-0.17	-11.51	2.71	0.06	-11.82	5.21	0.04	-11.88	5.86
ρ_{u_0, u_1}	6.38	-59.21	-92.08	1.56	-52.62	-80.29	0.31	-46.56	-75.67

M Tables of Coverage: Missing Data 15%; Complete data, Listwise deletion, JAV

Tables begin on the next page.

Simulation 1: ICC = 0.10

L1 = 5; L2 = 25 L1 = 15; L2 = 25 L1 = 25; L2 = 25										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.96	0.50	0.96		0.95	0.26	0.95			0.96	0.17	0.96						
β_1	0.96	0.88	0.97		0.95	0.81	0.96			0.95	0.76	0.95						
β_2	0.95	0.95	0.96		0.95	0.92	0.95			0.96	0.92	0.95						
β_3	0.96	0.95	0.95		0.95	0.93	0.93			0.96	0.92	0.92						

L1 = 5; L2 = 50 L1 = 15; L2 = 50 L1 = 25; L2 = 50										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.15	0.96		0.95	0.03	0.95			0.94	0.02	0.95						
β_1	0.96	0.80	0.96		0.95	0.64	0.94			0.95	0.59	0.95						
β_2	0.95	0.93	0.94		0.96	0.90	0.95			0.95	0.88	0.95						
β_3	0.95	0.93	0.93		0.96	0.90	0.90			0.95	0.87	0.89						

L1 = 5; L2 = 200 L1 = 15; L2 = 200 L1 = 25; L2 = 200										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.00	0.95		0.95	0.00	0.95			0.95	0.00	0.95						
β_1	0.95	0.35	0.94		0.94	0.12	0.93			0.95	0.06	0.93						
β_2	0.95	0.86	0.96		0.95	0.72	0.94			0.95	0.68	0.94						
β_3	0.95	0.82	0.86		0.95	0.69	0.75			0.96	0.66	0.69						

Simulation 1: ICC = 0.50

L1 = 5; L2 = 25 L1 = 15; L2 = 25 L1 = 25; L2 = 25										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.68	0.95		0.94	0.67	0.96			0.96	0.66	0.96						
β_1	0.95	0.90	0.96		0.95	0.88	0.95			0.95	0.86	0.95						
β_2	0.94	0.91	0.95		0.96	0.92	0.95			0.95	0.92	0.96						
β_3	0.95	0.94	0.94		0.96	0.93	0.91			0.96	0.93	0.90						

L1 = 5; L2 = 50 L1 = 15; L2 = 50 L1 = 25; L2 = 50										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.94	0.43	0.94		0.95	0.44	0.95			0.95	0.44	0.95						
β_1	0.94	0.84	0.95		0.94	0.80	0.94			0.95	0.76	0.95						
β_2	0.95	0.90	0.94		0.96	0.90	0.95			0.95	0.90	0.95						
β_3	0.95	0.92	0.92		0.95	0.90	0.84			0.95	0.91	0.80						

L1 = 5; L2 = 200 L1 = 15; L2 = 200 L1 = 25; L2 = 200										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.02	0.95		0.95	0.03	0.95			0.96	0.02	0.96						
β_1	0.95	0.51	0.93		0.96	0.38	0.94			0.96	0.31	0.93						
β_2	0.95	0.77	0.95		0.96	0.74	0.94			0.95	0.74	0.94						
β_3	0.95	0.80	0.77		0.95	0.77	0.57			0.95	0.75	0.45						

Simulation 2: ICC = 0.10; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.68	0.96	0.96	0.51	0.94	0.95	0.44	0.94
β_1	0.94	0.88	0.96	0.96	0.84	0.97	0.95	0.79	0.96
β_2	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.94	0.94
β_3	0.93	0.94	0.96	0.95	0.93	0.97	0.95	0.93	0.97

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.42	0.95	0.96	0.21	0.95	0.94	0.15	0.94
β_1	0.95	0.82	0.96	0.95	0.69	0.96	0.94	0.64	0.94
β_2	0.96	0.96	0.95	0.95	0.94	0.95	0.94	0.93	0.94
β_3	0.95	0.93	0.95	0.96	0.93	0.96	0.95	0.92	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.01	0.93	0.95	0.00	0.95	0.95	0.00	0.95
β_1	0.95	0.44	0.96	0.95	0.20	0.91	0.95	0.11	0.84
β_2	0.96	0.94	0.94	0.95	0.91	0.95	0.95	0.89	0.95
β_3	0.96	0.89	0.96	0.95	0.85	0.93	0.95	0.84	0.81

Simulation 2: ICC = 0.10; Split = 0.80

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.80	0.94	0.95	0.81	0.94	0.95	0.82	0.93
β_1	0.95	0.90	0.97	0.95	0.89	0.97	0.95	0.88	0.95
β_2	0.95	0.93	0.94	0.95	0.93	0.93	0.95	0.93	0.93
β_3	0.95	0.95	0.97	0.94	0.95	0.96	0.95	0.94	0.96

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.69	0.94	0.95	0.70	0.95	0.95	0.73	0.94
β_1	0.95	0.87	0.96	0.95	0.86	0.95	0.94	0.82	0.92
β_2	0.94	0.92	0.94	0.95	0.93	0.94	0.95	0.91	0.94
β_3	0.95	0.95	0.96	0.95	0.95	0.96	0.95	0.95	0.92

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.22	0.95	0.94	0.27	0.94	0.95	0.25	0.94
β_1	0.94	0.64	0.94	0.95	0.57	0.88	0.94	0.51	0.69
β_2	0.96	0.86	0.95	0.95	0.84	0.95	0.94	0.84	0.93
β_3	0.95	0.94	0.96	0.95	0.94	0.90	0.94	0.93	0.65

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.93	0.71	0.93	0.95	0.70	0.94	0.95	0.72	0.94
β_1	0.95	0.89	0.96	0.95	0.88	0.96	0.95	0.87	0.95
β_2	0.95	0.94	0.94	0.95	0.94	0.94	0.96	0.94	0.94
β_3	0.95	0.96	0.97	0.95	0.96	0.96	0.95	0.95	0.96

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.49	0.94	0.95	0.51	0.95	0.95	0.53	0.94
β_1	0.94	0.84	0.95	0.96	0.83	0.96	0.95	0.78	0.93
β_2	0.94	0.94	0.95	0.95	0.93	0.94	0.95	0.92	0.93
β_3	0.95	0.95	0.96	0.95	0.95	0.95	0.94	0.95	0.93

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.04	0.95	0.94	0.06	0.94	0.95	0.05	0.95
β_1	0.94	0.54	0.92	0.95	0.45	0.91	0.94	0.39	0.86
β_2	0.94	0.87	0.95	0.95	0.83	0.95	0.95	0.85	0.94
β_3	0.95	0.95	0.95	0.95	0.96	0.94	0.94	0.95	0.90

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.47	0.96	0.95	0.22	0.96	0.95	0.16	0.95
β_1	0.95	0.89	0.97	0.95	0.82	0.95	0.95	0.76	0.96
β_2	0.95	0.95	0.96	0.95	0.93	0.95	0.96	0.94	0.95
β_3	0.96	0.95	0.94	0.95	0.93	0.92	0.94	0.92	0.91

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.16	0.96	0.95	0.03	0.96	0.95	0.01	0.96
β_1	0.95	0.80	0.95	0.95	0.67	0.94	0.96	0.62	0.95
β_2	0.95	0.94	0.95	0.95	0.91	0.95	0.96	0.91	0.94
β_3	0.95	0.95	0.92	0.93	0.92	0.89	0.95	0.92	0.87

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.95	0.96	0.00	0.96	0.94	0.00	0.95
β_1	0.94	0.39	0.94	0.94	0.14	0.92	0.95	0.06	0.93
β_2	0.96	0.87	0.96	0.95	0.80	0.95	0.94	0.77	0.93
β_3	0.94	0.87	0.84	0.95	0.82	0.75	0.95	0.81	0.65

Simulation 3: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.64	0.95	0.96	0.63	0.96	0.95	0.65	0.96
β_1	0.96	0.90	0.97	0.96	0.89	0.96	0.95	0.87	0.95
β_2	0.95	0.93	0.95	0.95	0.92	0.93	0.95	0.92	0.93
β_3	0.95	0.94	0.94	0.96	0.95	0.91	0.95	0.94	0.86

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.41	0.95	0.95	0.40	0.95	0.95	0.44	0.95
β_1	0.95	0.86	0.95	0.94	0.78	0.94	0.96	0.79	0.94
β_2	0.95	0.90	0.95	0.95	0.89	0.93	0.95	0.89	0.92
β_3	0.95	0.94	0.91	0.95	0.94	0.85	0.96	0.94	0.79

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.01	0.95	0.95	0.02	0.95	0.95	0.02	0.96
β_1	0.95	0.52	0.93	0.95	0.41	0.93	0.95	0.33	0.92
β_2	0.95	0.78	0.94	0.94	0.75	0.94	0.95	0.76	0.93
β_3	0.94	0.91	0.81	0.95	0.90	0.63	0.95	0.91	0.49

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25				L1 = 15; L2 = 25				L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV		
β_0	0.96	0.49	0.96	0.95	0.24	0.95	0.95	0.17	0.96		
β_1	0.95	0.87	0.97	0.95	0.81	0.96	0.95	0.78	0.96		
β_2	0.95	0.97	0.96	0.95	0.94	0.96	0.96	0.93	0.95		
β_3	0.97	0.95	0.95	0.95	0.93	0.92	0.96	0.94	0.90		

L1 = 5; L2 = 50				L1 = 15; L2 = 50				L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV		
β_0	0.94	0.17	0.95	0.95	0.03	0.95	0.95	0.02	0.95		
β_1	0.95	0.79	0.96	0.95	0.65	0.95	0.95	0.59	0.95		
β_2	0.95	0.94	0.94	0.94	0.90	0.95	0.95	0.89	0.94		
β_3	0.94	0.92	0.91	0.95	0.90	0.88	0.95	0.88	0.86		

L1 = 5; L2 = 200				L1 = 15; L2 = 200				L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV		
β_0	0.95	0.00	0.95	0.95	0.00	0.95	0.94	0.00	0.94		
β_1	0.94	0.35	0.94	0.96	0.12	0.94	0.95	0.05	0.93		
β_2	0.95	0.84	0.95	0.96	0.74	0.94	0.95	0.70	0.94		
β_3	0.95	0.83	0.84	0.95	0.75	0.70	0.95	0.69	0.66		

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.68	0.95	0.95	0.68	0.96	0.95	0.68	0.96
β_1	0.95	0.90	0.97	0.95	0.87	0.96	0.95	0.86	0.95
β_2	0.95	0.93	0.95	0.95	0.92	0.94	0.96	0.92	0.94
β_3	0.94	0.93	0.93	0.95	0.94	0.88	0.94	0.92	0.85

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.44	0.95	0.95	0.43	0.95	0.95	0.45	0.95
β_1	0.95	0.84	0.96	0.95	0.80	0.95	0.95	0.77	0.94
β_2	0.95	0.91	0.95	0.95	0.91	0.95	0.94	0.89	0.94
β_3	0.95	0.91	0.89	0.95	0.91	0.80	0.95	0.91	0.77

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.02	0.95	0.95	0.02	0.96	0.95	0.02	0.95
β_1	0.95	0.53	0.95	0.95	0.41	0.92	0.96	0.31	0.93
β_2	0.95	0.78	0.95	0.94	0.74	0.94	0.95	0.75	0.94
β_3	0.94	0.81	0.68	0.95	0.78	0.48	0.95	0.75	0.38

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.48	0.96	0.95	0.24	0.95	0.95	0.17	0.96
β_1	0.94	0.86	0.98	0.95	0.71	0.97	0.95	0.62	0.97
β_2	0.95	0.95	0.96	0.95	0.93	0.95	0.96	0.93	0.95
β_3	0.95	0.95	0.89	0.95	0.93	0.73	0.94	0.89	0.65

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.16	0.96	0.95	0.03	0.95	0.95	0.01	0.95
β_1	0.93	0.74	0.97	0.94	0.49	0.97	0.95	0.36	0.97
β_2	0.93	0.93	0.94	0.95	0.89	0.95	0.94	0.90	0.93
β_3	0.93	0.91	0.81	0.95	0.87	0.57	0.96	0.84	0.45

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.94	0.95	0.00	0.94	0.95	0.00	0.93
β_1	0.94	0.20	0.94	0.94	0.03	0.93	0.95	0.01	0.93
β_2	0.95	0.87	0.93	0.95	0.77	0.91	0.95	0.73	0.85
β_3	0.94	0.80	0.52	0.95	0.66	0.15	0.94	0.57	0.06

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.65	0.96	0.95	0.65	0.96	0.94	0.67	0.96
β_1	0.94	0.88	0.97	0.94	0.84	0.97	0.95	0.80	0.96
β_2	0.94	0.92	0.95	0.95	0.92	0.95	0.95	0.92	0.96
β_3	0.94	0.94	0.90	0.95	0.93	0.75	0.96	0.91	0.66

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.45	0.95	0.96	0.44	0.96	0.96	0.43	0.96
β_1	0.94	0.79	0.95	0.94	0.69	0.95	0.94	0.66	0.96
β_2	0.94	0.90	0.93	0.95	0.90	0.94	0.95	0.90	0.94
β_3	0.94	0.90	0.83	0.95	0.87	0.59	0.95	0.88	0.42

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.02	0.95	0.95	0.02	0.95	0.95	0.02	0.95
β_1	0.95	0.37	0.93	0.95	0.20	0.91	0.94	0.13	0.90
β_2	0.95	0.78	0.93	0.94	0.75	0.91	0.95	0.78	0.90
β_3	0.95	0.77	0.52	0.95	0.72	0.14	0.95	0.69	0.05

N Tables of Coverage: Missing Data 30%; Complete data, Listwise deletion, JAV

Tables begin on the next page.

Simulation 1: ICC = 0.10

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.11	0.96	0.95	0.01	0.96	0.95	0.00	0.96
β_1	0.95	0.83	0.97	0.96	0.73	0.97	0.95	0.64	0.96
β_2	0.95	0.94	0.95	0.95	0.92	0.96	0.95	0.91	0.95
β_3	0.96	0.94	0.96	0.96	0.93	0.93	0.94	0.90	0.90

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.94	0.00	0.95	0.95	0.00	0.95
β_1	0.95	0.70	0.96	0.95	0.48	0.95	0.96	0.34	0.94
β_2	0.95	0.92	0.95	0.95	0.88	0.95	0.95	0.84	0.94
β_3	0.96	0.92	0.92	0.95	0.87	0.88	0.95	0.85	0.82

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.96	0.95	0.00	0.95
β_1	0.95	0.19	0.94	0.94	0.01	0.92	0.95	0.00	0.92
β_2	0.94	0.81	0.94	0.96	0.63	0.95	0.95	0.56	0.94
β_3	0.95	0.79	0.81	0.95	0.62	0.64	0.95	0.54	0.55

Simulation 1: ICC = 0.50

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.30	0.95	0.95	0.27	0.96	0.95	0.27	0.95
β_1	0.95	0.88	0.97	0.95	0.81	0.97	0.95	0.81	0.96
β_2	0.94	0.90	0.95	0.95	0.91	0.96	0.95	0.90	0.95
β_3	0.95	0.93	0.95	0.95	0.91	0.88	0.96	0.92	0.84

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.07	0.96	0.95	0.04	0.95	0.95	0.05	0.96
β_1	0.95	0.75	0.96	0.95	0.65	0.95	0.95	0.63	0.94
β_2	0.95	0.84	0.94	0.94	0.84	0.94	0.96	0.85	0.95
β_3	0.95	0.89	0.88	0.95	0.88	0.77	0.95	0.88	0.71

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.95	0.95	0.00	0.95
β_1	0.95	0.27	0.93	0.95	0.14	0.91	0.95	0.10	0.90
β_2	0.95	0.64	0.94	0.95	0.59	0.94	0.95	0.56	0.94
β_3	0.95	0.76	0.59	0.95	0.71	0.31	0.95	0.68	0.22

Simulation 2: ICC = 0.10; Split = 0.50

	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.36	0.94	0.96	0.12	0.94	0.94	0.08	0.92
β_1	0.95	0.86	0.97	0.95	0.75	0.97	0.94	0.68	0.97
β_2	0.95	0.95	0.94	0.95	0.93	0.91	0.95	0.92	0.92
β_3	0.95	0.95	0.98	0.95	0.93	0.97	0.95	0.93	0.97

	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.07	0.93	0.95	0.01	0.93	0.95	0.00	0.94
β_1	0.95	0.74	0.96	0.95	0.52	0.95	0.95	0.46	0.92
β_2	0.95	0.94	0.93	0.95	0.91	0.93	0.94	0.90	0.94
β_3	0.95	0.94	0.97	0.95	0.90	0.95	0.95	0.91	0.92

	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.92	0.96	0.00	0.95	0.95	0.00	0.94
β_1	0.95	0.24	0.94	0.95	0.04	0.87	0.95	0.01	0.66
β_2	0.94	0.90	0.91	0.96	0.83	0.94	0.94	0.78	0.95
β_3	0.94	0.85	0.96	0.96	0.79	0.88	0.95	0.76	0.55

Simulation 2: ICC = 0.10; Split = 0.80

	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.15	0.94	0.96	0.02	0.95	0.95	0.01	0.93
β_1	0.96	0.85	0.97	0.95	0.74	0.96	0.94	0.67	0.96
β_2	0.96	0.96	0.92	0.95	0.94	0.93	0.95	0.93	0.92
β_3	0.97	0.97	0.97	0.95	0.96	0.97	0.96	0.95	0.97

	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.01	0.94	0.94	0.00	0.94	0.95	0.00	0.93
β_1	0.95	0.75	0.96	0.96	0.49	0.94	0.95	0.42	0.93
β_2	0.95	0.95	0.92	0.95	0.92	0.93	0.95	0.90	0.92
β_3	0.95	0.95	0.97	0.95	0.95	0.96	0.95	0.96	0.96

	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.95	0.96	0.00	0.96	0.96	0.00	0.96
β_1	0.95	0.23	0.94	0.95	0.03	0.91	0.95	0.00	0.87
β_2	0.95	0.90	0.95	0.96	0.84	0.96	0.96	0.78	0.95
β_3	0.94	0.94	0.95	0.95	0.96	0.95	0.95	0.95	0.91

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.57	0.93	0.96	0.57	0.93	0.96	0.54	0.93
β_1	0.95	0.87	0.97	0.95	0.85	0.96	0.95	0.81	0.95
β_2	0.94	0.92	0.92	0.95	0.90	0.93	0.95	0.91	0.92
β_3	0.95	0.95	0.97	0.95	0.95	0.98	0.95	0.94	0.95

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.30	0.94	0.95	0.29	0.93	0.96	0.29	0.93
β_1	0.94	0.76	0.96	0.95	0.72	0.93	0.95	0.69	0.88
β_2	0.94	0.89	0.93	0.96	0.89	0.94	0.95	0.88	0.93
β_3	0.94	0.93	0.96	0.94	0.94	0.94	0.96	0.94	0.87

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.95	0.95	0.00	0.95	0.95	0.00	0.94
β_1	0.95	0.35	0.92	0.95	0.27	0.76	0.94	0.21	0.47
β_2	0.95	0.74	0.95	0.95	0.71	0.95	0.95	0.65	0.94
β_3	0.95	0.91	0.95	0.94	0.90	0.79	0.95	0.91	0.41

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.37	0.93	0.95	0.35	0.93	0.96	0.33	0.93
β_1	0.95	0.84	0.97	0.95	0.81	0.96	0.95	0.80	0.95
β_2	0.96	0.93	0.92	0.95	0.92	0.91	0.96	0.93	0.92
β_3	0.95	0.96	0.97	0.94	0.95	0.97	0.96	0.95	0.97

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.09	0.93	0.95	0.09	0.94	0.95	0.09	0.94
β_1	0.95	0.73	0.94	0.95	0.67	0.93	0.95	0.64	0.92
β_2	0.94	0.92	0.92	0.95	0.91	0.93	0.95	0.90	0.92
β_3	0.94	0.95	0.96	0.96	0.96	0.96	0.96	0.95	0.94

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.95	0.95	0.00	0.95	0.96	0.00	0.95
β_1	0.95	0.26	0.92	0.94	0.18	0.87	0.95	0.12	0.80
β_2	0.95	0.78	0.94	0.95	0.75	0.95	0.95	0.73	0.95
β_3	0.94	0.95	0.96	0.94	0.95	0.92	0.95	0.96	0.86

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25 L1 = 15; L2 = 25 L1 = 25; L2 = 25										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.12	0.95		0.95	0.01	0.96			0.96	0.00	0.96						
β_1	0.95	0.86	0.97		0.95	0.73	0.97			0.95	0.67	0.95						
β_2	0.96	0.96	0.96		0.95	0.93	0.94			0.96	0.91	0.94						
β_3	0.95	0.95	0.96		0.95	0.94	0.91			0.96	0.93	0.90						

L1 = 5; L2 = 50 L1 = 15; L2 = 50 L1 = 25; L2 = 50										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.00	0.95		0.96	0.00	0.96			0.96	0.00	0.96						
β_1	0.95	0.74	0.96		0.95	0.50	0.94			0.95	0.40	0.94						
β_2	0.95	0.94	0.95		0.95	0.91	0.94			0.95	0.88	0.93						
β_3	0.95	0.94	0.91		0.95	0.91	0.83			0.95	0.90	0.83						

L1 = 5; L2 = 200 L1 = 15; L2 = 200 L1 = 25; L2 = 200										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.00	0.95		0.94	0.00	0.95			0.95	0.00	0.95						
β_1	0.95	0.21	0.94		0.95	0.02	0.92			0.95	0.01	0.91						
β_2	0.94	0.85	0.94		0.96	0.74	0.94			0.96	0.69	0.94						
β_3	0.95	0.88	0.76		0.95	0.80	0.62			0.95	0.77	0.53						

Simulation 3: ICC = 0.50

L1 = 5; L2 = 25 L1 = 15; L2 = 25 L1 = 25; L2 = 25										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.26	0.95		0.95	0.25	0.96			0.96	0.23	0.95						
β_1	0.95	0.88	0.98		0.95	0.82	0.96			0.94	0.79	0.95						
β_2	0.94	0.89	0.95		0.95	0.89	0.93			0.95	0.90	0.91						
β_3	0.94	0.95	0.93		0.95	0.95	0.87			0.95	0.94	0.81						

L1 = 5; L2 = 50 L1 = 15; L2 = 50 L1 = 25; L2 = 50										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.04	0.94		0.94	0.04	0.95			0.94	0.04	0.95						
β_1	0.94	0.79	0.95		0.95	0.67	0.94			0.95	0.64	0.94						
β_2	0.94	0.86	0.95		0.95	0.86	0.92			0.96	0.85	0.91						
β_3	0.95	0.94	0.88		0.94	0.94	0.75			0.94	0.93	0.67						

L1 = 5; L2 = 200 L1 = 15; L2 = 200 L1 = 25; L2 = 200										Complete			Listwise			JAV		
Parameter	Complete			Listwise			JAV			Complete			Listwise			JAV		
β_0	0.95	0.00	0.95		0.95	0.00	0.95			0.96	0.00	0.96						
β_1	0.95	0.31	0.92		0.96	0.15	0.91			0.96	0.10	0.88						
β_2	0.95	0.63	0.95		0.94	0.58	0.93			0.95	0.57	0.94						
β_3	0.94	0.91	0.66		0.95	0.93	0.40			0.95	0.91	0.26						

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.12	0.96	0.95	0.02	0.95	0.95	0.00	0.96
β_1	0.95	0.85	0.98	0.95	0.72	0.96	0.95	0.66	0.96
β_2	0.95	0.96	0.97	0.96	0.93	0.95	0.95	0.91	0.95
β_3	0.95	0.95	0.95	0.95	0.93	0.90	0.95	0.92	0.88

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.96	0.94	0.00	0.95
β_1	0.96	0.73	0.96	0.95	0.49	0.96	0.94	0.37	0.94
β_2	0.95	0.93	0.94	0.95	0.88	0.93	0.95	0.85	0.93
β_3	0.95	0.92	0.91	0.95	0.88	0.83	0.95	0.86	0.81

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.95	0.95	0.00	0.95
β_1	0.95	0.19	0.94	0.95	0.02	0.92	0.95	0.00	0.92
β_2	0.95	0.84	0.94	0.95	0.69	0.94	0.96	0.61	0.95
β_3	0.95	0.83	0.77	0.95	0.67	0.60	0.96	0.60	0.54

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.30	0.96	0.95	0.28	0.96	0.95	0.28	0.96
β_1	0.95	0.87	0.97	0.95	0.81	0.96	0.95	0.80	0.96
β_2	0.94	0.91	0.95	0.96	0.91	0.95	0.95	0.88	0.93
β_3	0.95	0.94	0.94	0.95	0.91	0.87	0.96	0.92	0.81

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.06	0.96	0.94	0.05	0.95	0.95	0.05	0.95
β_1	0.95	0.77	0.95	0.94	0.67	0.94	0.95	0.64	0.96
β_2	0.95	0.89	0.94	0.94	0.86	0.94	0.95	0.86	0.93
β_3	0.95	0.91	0.88	0.94	0.89	0.74	0.94	0.89	0.65

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.95	0.95	0.00	0.95
β_1	0.95	0.27	0.93	0.94	0.14	0.91	0.95	0.10	0.91
β_2	0.96	0.68	0.94	0.95	0.61	0.94	0.96	0.60	0.94
β_3	0.94	0.78	0.54	0.95	0.71	0.30	0.96	0.69	0.19

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.96	0.12	0.96	0.95	0.01	0.96	0.95	0.00	0.97
β_1	0.94	0.85	0.98	0.95	0.65	0.98	0.94	0.58	0.97
β_2	0.95	0.95	0.96	0.95	0.92	0.95	0.95	0.90	0.96
β_3	0.95	0.95	0.91	0.95	0.92	0.72	0.94	0.88	0.64

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.96	0.95	0.00	0.96	0.95	0.00	0.96
β_1	0.93	0.72	0.97	0.95	0.40	0.97	0.95	0.24	0.96
β_2	0.96	0.94	0.96	0.94	0.89	0.94	0.94	0.86	0.95
β_3	0.94	0.92	0.81	0.94	0.88	0.53	0.95	0.83	0.41

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.95	0.95	0.00	0.94	0.94	0.00	0.91
β_1	0.94	0.14	0.93	0.94	0.00	0.89	0.95	0.00	0.88
β_2	0.95	0.85	0.94	0.95	0.69	0.92	0.94	0.62	0.91
β_3	0.95	0.81	0.49	0.95	0.61	0.11	0.95	0.49	0.03

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25				L1 = 15; L2 = 25			L1 = 25; L2 = 25		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.32	0.95	0.95	0.26	0.95	0.95	0.28	0.95
β_1	0.95	0.84	0.97	0.92	0.75	0.96	0.94	0.71	0.96
β_2	0.95	0.90	0.95	0.94	0.89	0.96	0.94	0.89	0.96
β_3	0.93	0.92	0.89	0.94	0.90	0.71	0.95	0.90	0.63

L1 = 5; L2 = 50				L1 = 15; L2 = 50			L1 = 25; L2 = 50		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.94	0.07	0.95	0.95	0.04	0.95	0.94	0.05	0.95
β_1	0.93	0.72	0.96	0.95	0.54	0.94	0.95	0.52	0.95
β_2	0.95	0.88	0.95	0.94	0.84	0.95	0.95	0.85	0.96
β_3	0.93	0.88	0.81	0.94	0.88	0.53	0.95	0.85	0.37

L1 = 5; L2 = 200				L1 = 15; L2 = 200			L1 = 25; L2 = 200		
Parameter	Complete	Listwise	JAV	Complete	Listwise	JAV	Complete	Listwise	JAV
β_0	0.95	0.00	0.94	0.95	0.00	0.96	0.95	0.00	0.95
β_1	0.94	0.20	0.90	0.95	0.05	0.85	0.95	0.03	0.83
β_2	0.95	0.68	0.94	0.95	0.61	0.94	0.95	0.61	0.94
β_3	0.94	0.76	0.41	0.95	0.66	0.09	0.94	0.61	0.03

O Tables of Percent Bias: Missing Data 15%; Bayesian Estimation with Three Priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.95	-0.34	-0.88	-0.44	-0.00	-0.31	-0.55	-0.21	-0.44
β_1	-3.01	-4.29	-2.67	-1.42	-1.35	-1.43	-0.49	-0.43	-0.60
β_2	0.09	-8.72	-4.21	-2.21	-9.49	-4.34	-2.25	-7.72	-2.48
β_3	-6.57	-11.99	-7.65	-4.04	-8.14	-5.11	-0.85	-3.73	-1.50
$\sigma_{u_0}^2$	-52.03	186.92	29.27	-32.66	68.83	5.35	-19.04	55.72	8.28
$\sigma_{u_1}^2$	-47.60	300.49	58.40	-34.07	101.92	12.87	-29.03	68.49	7.02
σ_{u_0,u_1}	-78.29	-12.21	-83.25	-23.90	31.54	-59.23	-6.01	38.34	-45.37
σ_e^2	5.09	-4.10	-2.60	3.17	0.22	0.48	1.96	0.45	0.37
ρ_{u_0,u_1}	—	—	-92.04	—	—	-69.15	—	—	-53.72

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.85	-0.42	-0.73	-0.36	-0.13	-0.29	-0.28	-0.12	-0.23
β_1	-2.27	-2.40	-1.96	-0.40	-0.47	-0.59	0.37	0.15	0.09
β_2	1.46	-7.25	-3.05	2.42	-1.94	1.64	-4.27	-6.39	-3.47
β_3	-2.30	-6.59	-3.87	-1.42	-3.75	-2.13	-1.24	-2.92	-1.79
$\sigma_{u_0}^2$	-49.76	73.22	6.85	-20.63	27.35	3.10	-10.63	22.05	3.60
$\sigma_{u_1}^2$	-44.94	123.47	24.14	-30.00	40.07	5.22	-19.34	27.78	4.07
σ_{u_0,u_1}	-60.13	-14.30	-75.00	-1.17	15.18	-39.77	3.63	14.59	-29.23
σ_e^2	6.88	-1.43	0.61	2.56	0.22	0.30	1.28	0.36	0.25
ρ_{u_0,u_1}	—	—	-84.04	—	—	-45.57	—	—	-32.48

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.27	-0.09	-0.20	-0.15	-0.10	-0.15	-0.04	-0.01	-0.04
β_1	-0.85	-0.86	-0.99	0.21	0.03	0.01	0.17	0.08	0.06
β_2	4.07	-0.28	1.89	-1.75	-2.34	-1.34	-0.90	-1.37	-0.59
β_3	-0.26	-1.88	-0.73	-0.68	-1.23	-0.83	-0.22	-0.66	-0.38
$\sigma_{u_0}^2$	-32.49	11.87	-2.60	-4.37	6.49	1.33	-2.30	4.76	0.75
$\sigma_{u_1}^2$	-37.77	23.15	-0.44	-9.53	8.85	1.84	-4.53	5.60	0.55
σ_{u_0,u_1}	-14.86	-8.84	-48.30	5.25	4.01	-13.17	1.86	4.19	-8.06
σ_e^2	4.81	-0.06	0.79	0.65	0.09	0.07	0.09	-0.03	-0.07
ρ_{u_0,u_1}	—	—	-50.95	—	—	-13.34	—	—	-7.95

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.06	-0.02	-0.60	-0.87	-0.33	-0.77	-0.90	-0.39	-0.69
β_1	-4.30	-4.82	-4.08	-1.15	-0.86	-1.52	-0.34	-0.10	-0.76
β_2	-2.87	-9.16	-4.80	-5.61	-10.05	-5.22	-6.03	-10.29	-5.71
β_3	-5.68	-11.15	-5.91	-2.72	-6.28	-3.29	-2.97	-6.47	-3.98
$\sigma_{u_0}^2$	-13.80	48.59	7.19	-2.03	41.73	9.10	-2.02	38.91	8.51
$\sigma_{u_1}^2$	-23.63	292.76	52.42	-43.22	101.11	8.21	-34.42	69.41	5.29
σ_{u_0,u_1}	-38.57	3.60	-70.56	-6.91	38.22	-44.67	-5.49	38.58	-36.67
σ_e^2	6.92	1.10	0.45	2.75	0.69	0.63	1.55	0.47	0.34
ρ_{u_0,u_1}	—	—	-81.14	—	—	-54.29	—	—	-44.15

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.78	-0.35	-0.67	-0.34	-0.06	-0.26	-0.55	-0.28	-0.48
β_1	-2.28	-2.49	-2.63	-0.35	-0.20	-0.68	-0.24	-0.17	-0.59
β_2	-1.50	-5.05	-2.20	-0.40	-3.38	-0.20	-0.06	-2.39	0.69
β_3	-4.83	-8.38	-4.89	-0.45	-2.90	-1.03	0.22	-1.79	-0.38
$\sigma_{u_0}^2$	-2.05	18.77	4.05	-1.28	15.28	2.85	-0.29	16.41	4.37
$\sigma_{u_1}^2$	-50.92	119.90	19.19	-38.98	38.95	1.30	-22.98	25.94	0.36
σ_{u_0,u_1}	-22.35	-0.34	-56.31	-7.73	13.32	-31.11	-4.79	12.70	-24.21
σ_e^2	4.83	0.13	0.49	2.25	0.56	0.60	0.86	0.26	0.19
ρ_{u_0,u_1}	—	—	-65.19	—	—	-35.04	—	—	-26.48

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.14	0.01	-0.11	0.06	0.13	0.06	-0.29	-0.24	-0.29
β_1	-0.45	-0.36	-0.78	-0.07	-0.07	-0.25	-0.15	-0.14	-0.26
β_2	-1.14	-2.47	-1.16	0.33	-0.36	0.51	-0.56	-1.23	-0.50
β_3	-0.39	-1.47	-0.33	-0.25	-0.87	-0.41	-0.13	-0.63	-0.24
$\sigma_{u_0}^2$	1.88	3.74	0.99	0.03	3.78	1.06	-0.56	3.16	0.61
$\sigma_{u_1}^2$	-50.24	24.28	0.24	-9.96	8.88	0.53	-4.13	6.15	0.66
σ_{u_0,u_1}	-4.70	4.52	-21.69	0.28	4.77	-8.06	-0.05	4.02	-5.89
σ_e^2	3.45	0.28	0.62	0.36	0.03	0.02	0.20	0.14	0.12
ρ_{u_0,u_1}	—	—	-22.11	—	—	-7.42	—	—	-6.07

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.23	-0.92	-1.17	-0.27	0.08	0.10	-0.13	0.14	0.27
β_1	-2.92	-6.68	-3.85	-0.11	-2.06	-0.94	-0.22	-1.66	-0.84
β_2	-1.91	-2.65	-2.55	-5.44	-7.37	-10.56	-7.95	-10.10	-14.30
β_3	-3.67	5.37	-0.57	-1.65	3.25	-0.04	-2.04	1.59	-1.23
$\sigma_{u_0}^2$	-53.81	165.87	23.02	-28.88	66.33	7.51	-16.57	53.51	9.35
$\sigma_{u_1}^2$	-45.25	290.45	53.70	-35.57	99.76	10.13	-30.65	66.35	4.32
σ_{u_0, u_1}	-82.35	-45.71	-89.18	-30.63	3.26	-65.64	-10.38	16.90	-51.51
σ_e^2	6.14	-3.18	-1.53	3.22	0.21	0.48	2.10	0.57	0.50
ρ_{u_0, u_1}	—	—	-94.66	—	—	-72.79	—	—	-57.37

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.29	-0.15	-0.30	0.02	0.21	0.35	-0.09	0.07	0.22
β_1	-1.42	-3.60	-2.03	-0.16	-1.38	-0.84	-0.17	-1.09	-0.77
β_2	-5.53	-3.76	-5.79	-4.29	-5.06	-9.18	-2.66	-3.91	-7.34
β_3	-2.48	2.81	-0.69	-1.40	1.53	-0.50	-0.92	1.20	-0.13
$\sigma_{u_0}^2$	-52.22	60.83	0.42	-19.19	24.84	2.68	-10.23	19.89	2.98
$\sigma_{u_1}^2$	-44.58	119.99	23.56	-30.85	39.35	3.74	-20.09	27.17	2.82
σ_{u_0, u_1}	-64.11	-29.21	-78.32	-2.25	4.21	-44.99	-0.88	3.27	-34.71
σ_e^2	6.72	-1.82	0.22	2.72	0.39	0.48	1.31	0.39	0.29
ρ_{u_0, u_1}	—	—	-85.17	—	—	-48.35	—	—	-36.02

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.12	-0.13	0.04	0.03	0.09	0.17	0.01	0.04	0.11
β_1	-0.07	-0.96	-0.57	0.08	-0.31	-0.20	-0.06	-0.30	-0.22
β_2	-0.92	0.69	-2.91	-2.05	-2.31	-4.04	-0.95	-1.06	-2.39
β_3	-1.33	0.94	-0.70	-0.29	0.53	-0.01	-0.22	0.32	-0.07
$\sigma_{u_0}^2$	-29.23	10.27	-2.08	-5.45	4.52	-0.08	-2.48	4.16	0.54
$\sigma_{u_1}^2$	-37.71	23.00	-0.54	-11.07	7.33	0.11	-4.83	5.48	0.24
σ_{u_0, u_1}	-9.59	-9.63	-48.07	2.68	-0.04	-16.35	-0.48	0.57	-11.11
σ_e^2	4.89	0.07	0.86	0.58	0.04	0.01	0.25	0.13	0.10
ρ_{u_0, u_1}	—	—	-49.37	—	—	-14.76	—	—	-10.29

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.30	-0.32	-0.94	-0.49	0.24	-0.09	-0.42	0.17	-0.04
β_1	-4.10	-6.68	-4.33	-0.24	-1.50	-0.81	-0.70	-1.61	-1.23
β_2	-0.92	0.69	-2.91	-2.05	-2.31	-4.04	-0.95	-1.06	-2.39
β_3	-24.91	-14.12	-21.99	-10.05	-4.95	-7.81	-10.68	-7.14	-8.94
$\sigma_{u_0}^2$	-55.05	163.81	23.54	-29.46	65.94	7.55	-17.10	53.84	9.36
$\sigma_{u_1}^2$	-44.44	297.21	57.11	-35.94	96.77	9.45	-32.53	62.07	2.77
σ_{u_0, u_1}	-81.83	-43.67	-88.48	-28.12	9.26	-63.06	-7.28	22.38	-48.14
σ_e^2	5.96	-3.55	-1.97	3.14	0.18	0.42	2.06	0.53	0.46
ρ_{u_0, u_1}	—	—	-93.82	—	—	-70.42	—	—	-53.70

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.70	-0.09	-0.43	-0.21	0.19	0.09	-0.24	0.07	-0.00
β_1	-2.06	-3.47	-2.29	-0.18	-1.18	-0.84	0.12	-0.67	-0.43
β_2	-2.22	-12.68	-9.62	-7.60	-14.35	-14.77	-6.46	-12.47	-12.69
β_3	-17.91	-12.17	-16.92	-8.05	-2.05	-5.06	-12.52	-6.99	-9.56
$\sigma_{u_0}^2$	-52.95	58.46	0.00	-19.28	24.26	2.43	-11.01	19.19	2.26
$\sigma_{u_1}^2$	-45.82	121.49	23.25	-32.50	37.57	2.95	-21.72	25.13	2.04
σ_{u_0, u_1}	-59.72	-22.23	-75.75	0.19	6.29	-42.49	1.54	5.41	-32.27
σ_e^2	6.65	-1.93	0.15	2.63	0.28	0.40	1.36	0.42	0.33
ρ_{u_0, u_1}	—	—	-83.29	—	—	-45.25	—	—	-32.90

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.26	-0.07	-0.11	-0.06	0.03	0.03	0.01	0.06	0.07
β_1	-0.22	-0.85	-0.73	0.13	-0.25	-0.16	0.11	-0.13	-0.04
β_2	1.44	-2.07	-2.62	-2.52	-4.20	-4.82	-3.23	-4.28	-4.74
β_3	-6.99	-2.16	-4.69	-0.64	1.88	0.86	-3.37	-1.64	-2.67
$\sigma_{u_0}^2$	-28.83	9.38	-2.17	-5.47	4.25	-0.27	-2.69	3.86	0.29
$\sigma_{u_1}^2$	-39.03	22.27	-1.11	-11.98	6.63	-0.16	-5.14	4.97	0.06
σ_{u_0, u_1}	-6.94	-10.12	-46.56	3.65	0.38	-15.18	0.59	1.40	-9.58
σ_e^2	4.85	0.06	0.85	0.58	0.02	-0.00	0.23	0.11	0.08
ρ_{u_0, u_1}	—	—	-46.74	—	—	-13.04	—	—	-8.53

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.61	0.05	-0.02	-0.19	-0.02	0.11	0.52	0.77	1.08
β_1	-1.24	-4.33	-1.96	-1.22	-2.97	-2.17	-0.12	-1.50	-0.91
β_2	-5.68	-8.38	-8.30	-5.96	-6.99	-7.77	-7.46	-9.46	-11.63
β_3	-3.31	2.66	-2.07	-0.54	3.46	0.98	-2.31	0.95	-1.00
$\sigma_{u_0}^2$	-12.65	43.35	5.89	-1.02	40.14	10.20	-0.85	38.19	9.54
$\sigma_{u_1}^2$	-18.56	290.79	57.19	-44.30	96.70	5.97	-34.27	66.27	3.86
σ_{u_0,u_1}	-32.48	-11.54	-72.44	-17.70	10.40	-54.04	-12.53	13.67	-44.08
σ_e^2	5.75	0.20	-0.44	2.79	0.74	0.70	1.45	0.38	0.26
ρ_{u_0,u_1}	—	—	-80.94	—	—	-60.50	—	—	-49.13
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.35	-0.26	-0.13	-0.33	-0.20	-0.01	0.65	0.67	0.83
β_1	-0.45	-2.40	-1.46	-0.00	-0.97	-0.68	-0.01	-0.72	-0.51
β_2	-3.43	-4.58	-4.89	-2.61	-3.39	-4.57	-6.58	-6.90	-8.06
β_3	-3.47	0.66	-1.64	-1.28	1.14	-0.17	-1.41	0.25	-0.62
$\sigma_{u_0}^2$	-1.39	17.27	4.46	0.60	16.22	4.99	-0.69	14.93	4.07
$\sigma_{u_1}^2$	-51.70	110.80	14.60	-37.88	37.29	0.37	-20.59	26.93	2.37
σ_{u_0,u_1}	-25.03	-12.98	-58.36	-9.87	2.17	-35.77	-5.41	5.69	-26.24
σ_e^2	4.43	-0.10	0.24	2.06	0.39	0.46	0.96	0.37	0.29
ρ_{u_0,u_1}	—	—	-66.08	—	—	-38.39	—	—	-27.88
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.25	0.10	0.22	0.23	0.24	0.32	-0.07	-0.01	0.04
β_1	-0.16	-0.84	-0.68	0.21	-0.06	0.01	-0.17	-0.34	-0.28
β_2	-2.80	-2.27	-2.77	-2.62	-2.63	-3.16	0.13	-0.23	-0.54
β_3	-1.29	0.74	-0.19	-1.11	-0.51	-0.86	0.03	0.35	0.10
$\sigma_{u_0}^2$	2.39	3.79	1.65	0.09	3.55	1.21	-0.70	2.83	0.54
$\sigma_{u_1}^2$	-50.64	21.48	-1.76	-10.20	7.51	-0.30	-4.08	5.87	0.53
σ_{u_0,u_1}	-9.13	-2.94	-25.68	-2.34	0.11	-11.22	-1.27	0.90	-7.87
σ_e^2	3.01	-0.16	0.21	0.46	0.14	0.14	0.21	0.15	0.13
ρ_{u_0,u_1}	—	—	-24.48	—	—	-10.06	—	—	-7.59

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.84	0.43	-0.17	-0.86	-0.10	-0.46	-0.37	0.45	0.12
β_1	-2.54	-4.75	-3.20	-1.17	-2.33	-2.15	-0.41	-1.40	-1.12
β_2	-10.84	-20.84	-16.05	-6.95	-14.03	-11.16	-11.13	-18.18	-15.83
β_3	-10.28	-4.46	-7.60	-6.13	-2.50	-3.56	-6.83	-2.87	-4.11
$\sigma_{u_0}^2$	-12.61	44.00	5.88	-1.37	40.59	9.95	-1.58	38.47	9.02
$\sigma_{u_1}^2$	-22.08	291.15	53.80	-46.26	93.10	2.88	-35.60	63.88	2.67
σ_{u_0,u_1}	-35.67	-11.91	-72.83	-15.80	14.23	-52.90	-11.17	16.49	-42.73
σ_e^2	5.53	0.13	-0.48	2.82	0.79	0.81	1.35	0.26	0.16
ρ_{u_0,u_1}	—	—	-81.22	—	—	-58.75	—	—	-47.80
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.89	-0.33	-0.59	-0.64	-0.20	-0.32	-0.34	0.09	-0.04
β_1	-1.71	-3.13	-2.53	-0.01	-0.75	-0.75	-0.43	-1.01	-0.98
β_2	-4.56	-10.19	-7.35	-5.04	-9.18	-8.19	-4.62	-7.99	-7.31
β_3	-10.27	-5.41	-7.29	-3.87	-0.43	-1.20	-1.12	1.22	0.70
$\sigma_{u_0}^2$	-1.86	17.12	3.96	-0.00	16.04	4.57	-1.33	14.83	3.60
$\sigma_{u_1}^2$	-51.93	113.60	15.43	-40.13	35.05	-1.36	-21.59	25.45	1.40
σ_{u_0,u_1}	-23.97	-11.26	-57.74	-9.17	2.73	-35.25	-3.83	6.77	-25.22
σ_e^2	4.26	-0.23	0.12	2.02	0.31	0.40	0.95	0.35	0.29
ρ_{u_0,u_1}	—	—	-66.31	—	—	-37.54	—	—	-25.94
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.06	-0.03	-0.03	0.10	0.19	0.18	-0.14	-0.04	-0.09
β_1	-0.26	-0.70	-0.84	-0.02	-0.28	-0.29	-0.23	-0.41	-0.40
β_2	-2.31	-3.58	-3.14	-4.37	-5.40	-5.28	0.17	-1.07	-0.54
β_3	-5.52	-1.68	-2.30	-1.80	-0.75	-0.82	0.43	1.00	0.85
$\sigma_{u_0}^2$	1.99	3.46	1.23	-0.10	3.44	1.04	-0.96	2.65	0.29
$\sigma_{u_1}^2$	-52.37	21.38	-1.80	-10.49	7.32	-0.10	-4.29	5.60	0.43
σ_{u_0,u_1}	-8.07	-2.72	-25.37	-1.61	0.40	-10.22	-0.83	1.29	-7.33
σ_e^2	3.06	-0.19	0.19	0.47	0.14	0.14	0.21	0.15	0.13
ρ_{u_0,u_1}	—	—	-23.38	—	—	-9.06	—	—	-6.74

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.28	-0.73	-1.22	-0.73	-0.34	-0.64	-0.47	-0.19	-0.38
β_1	-3.40	-5.72	-3.53	-0.52	-1.04	-0.60	-0.54	-0.87	-0.69
β_2	3.46	-1.06	0.93	-5.49	-10.65	-7.67	-2.33	-7.29	-3.70
β_3	-12.31	-16.95	-13.04	-2.86	-8.20	-4.27	-0.88	-4.17	-1.48
$\sigma_{u_0}^2$	-48.17	212.13	38.03	-33.93	73.32	4.41	-23.20	55.53	5.48
$\sigma_{u_1}^2$	-44.35	305.27	59.96	-35.32	103.54	12.99	-29.55	67.40	6.96
σ_{u_0, u_1}	-77.75	-17.43	-84.63	-28.49	29.24	-60.75	-10.22	31.81	-48.31
σ_e^2	4.48	-4.13	-2.62	3.19	0.27	0.60	2.08	0.53	0.46
ρ_{u_0, u_1}	—	—	-92.90	—	—	-69.81	—	—	-55.44

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.42	-0.09	-0.39	-0.05	0.15	-0.00	-0.14	0.01	-0.09
β_1	-1.13	-2.08	-1.24	0.30	-0.18	0.00	0.78	0.31	0.46
β_2	1.49	-4.82	-2.32	1.53	-2.02	-0.08	-2.65	-4.32	-2.74
β_3	-3.81	-9.06	-5.46	-2.77	-6.17	-3.95	-2.11	-4.51	-2.91
$\sigma_{u_0}^2$	-46.29	88.47	13.72	-22.92	29.37	2.88	-11.75	23.66	4.24
$\sigma_{u_1}^2$	-41.00	133.82	34.05	-29.90	39.81	5.52	-18.72	28.73	5.55
σ_{u_0, u_1}	-53.87	-5.71	-71.78	2.92	19.36	-39.91	7.40	16.70	-27.84
σ_e^2	6.02	-2.21	-0.22	2.72	0.37	0.46	1.32	0.34	0.22
ρ_{u_0, u_1}	—	—	-83.20	—	—	-45.01	—	—	-31.68

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.01	0.13	0.02	0.04	0.09	0.05	-0.03	-0.00	-0.03
β_1	0.79	0.38	0.35	0.59	0.30	0.34	0.47	0.29	0.35
β_2	2.96	0.15	1.21	4.36	4.42	4.45	5.54	5.55	5.51
β_3	0.55	-1.81	-0.45	1.13	0.35	0.96	1.93	1.41	1.73
$\sigma_{u_0}^2$	-31.10	17.43	0.90	-5.09	7.15	1.71	-2.44	5.22	1.05
$\sigma_{u_1}^2$	-30.46	30.60	9.76	-10.15	8.81	2.54	-3.85	6.34	1.58
σ_{u_0, u_1}	3.40	5.95	-39.37	11.92	8.61	-10.44	5.80	7.19	-5.38
σ_e^2	4.43	-0.24	0.44	0.81	0.19	0.13	0.28	0.15	0.11
ρ_{u_0, u_1}	—	—	-44.95	—	—	-10.43	—	—	-5.61

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.75	-1.11	-1.39	-1.11	-0.58	-0.86	-1.15	-0.78	-0.97
β_1	-3.98	-6.06	-4.53	-1.30	-2.02	-1.84	-0.51	-1.05	-1.08
β_2	-6.94	-9.42	-8.57	-5.26	-7.54	-6.65	-4.67	-7.16	-6.40
β_3	-37.49	-33.07	-35.76	-15.60	-13.12	-13.41	-24.83	-21.19	-20.46
$\sigma_{u_0}^2$	-10.71	50.08	9.44	-2.19	41.37	9.83	-1.83	38.76	9.29
$\sigma_{u_1}^2$	-21.50	310.53	62.06	-46.96	96.54	5.44	-35.75	66.05	4.04
σ_{u_0, u_1}	-31.81	28.50	-65.81	-13.26	20.82	-50.99	-8.89	23.36	-41.20
σ_e^2	6.01	0.23	-0.24	2.72	0.54	0.54	1.78	0.62	0.54
ρ_{u_0, u_1}	—	—	-80.17	—	—	-58.16	—	—	-46.27

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.29	-0.10	-0.17	-0.13	0.04	-0.04	-0.08	0.08	-0.01
β_1	-1.42	-2.28	-2.13	-0.81	-1.14	-1.23	-0.18	-0.55	-0.56
β_2	-2.35	-3.34	-2.31	-2.92	-4.35	-2.89	-1.21	-3.37	-2.37
β_3	-51.69	-38.29	-41.77	-21.29	-17.39	-16.36	-19.07	-17.34	-16.39
$\sigma_{u_0}^2$	-0.67	20.37	6.02	0.07	16.51	4.62	0.10	16.61	5.04
$\sigma_{u_1}^2$	-47.24	131.91	28.50	-40.12	37.47	1.23	-22.97	25.32	1.28
σ_{u_0, u_1}	-8.23	8.42	-51.55	-2.62	10.79	-31.09	-1.43	11.07	-23.10
σ_e^2	4.41	-0.59	-0.13	2.27	0.45	0.52	1.06	0.39	0.34
ρ_{u_0, u_1}	—	—	-62.95	—	—	-33.70	—	—	-24.53

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.41	0.41	0.42	0.21	0.25	0.23	0.28	0.31	0.29
β_1	-0.26	-0.32	-0.65	0.22	0.06	0.03	-0.26	-0.37	-0.39
β_2	2.56	3.11	3.65	1.48	1.03	1.44	3.24	2.64	3.10
β_3	-30.28	-19.06	-19.87	-9.21	-8.31	-7.68	-8.85	-8.87	-8.38
$\sigma_{u_0}^2$	3.46	5.58	2.83	0.41	3.99	1.48	0.47	4.12	1.69
$\sigma_{u_1}^2$	-49.91	28.05	6.35	-10.44	8.29	0.88	-4.38	5.63	0.55
σ_{u_0, u_1}	12.20	10.53	-15.89	3.00	5.54	-6.38	1.75	4.55	-4.82
σ_e^2	3.35	-0.03	0.23	0.63	0.26	0.26	0.24	0.17	0.15
ρ_{u_0, u_1}	—	—	-17.39	—	—	-5.89	—	—	-5.05

Simulation 4: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.93	-0.25	-0.73	-0.60	-0.14	-0.47	-0.84	-0.49	-0.72
β_1	-4.21	-5.46	-3.94	-0.44	-0.52	-0.53	0.04	-0.04	-0.15
β_2	-3.71	-10.95	-7.75	-5.85	-12.42	-7.82	-5.11	-10.38	-5.30
β_3	-9.23	-14.77	-11.15	-2.90	-6.23	-3.82	0.92	-2.21	0.03
$\sigma_{u_0}^2$	-51.25	191.06	33.55	-32.18	69.37	5.49	-16.52	59.02	11.29
$\sigma_{u_1}^2$	-46.83	297.67	57.95	-34.98	100.77	12.07	-23.87	76.18	13.81
σ_{u_0,u_1}	-76.72	-11.81	-82.84	-25.39	31.70	-59.43	6.30	55.05	-36.47
σ_e^2	6.37	-2.83	-1.36	3.26	0.36	0.63	2.05	0.57	0.45
ρ_{u_0,u_1}	—	—	-92.12	—	—	-68.40	—	—	-48.94

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.63	-0.15	-0.52	-0.23	0.00	-0.17	-0.26	-0.11	-0.22
β_1	-1.92	-2.21	-1.60	0.44	0.18	0.16	0.66	0.37	0.34
β_2	4.96	-5.80	-0.72	-2.63	-6.82	-3.46	-0.58	-2.99	0.10
β_3	-4.07	-8.93	-5.86	0.37	-2.07	-0.30	-1.05	-2.88	-1.63
$\sigma_{u_0}^2$	-50.33	72.41	5.95	-19.84	28.14	3.78	-10.11	22.44	4.19
$\sigma_{u_1}^2$	-44.80	125.00	24.88	-28.62	41.08	6.46	-14.67	32.89	9.16
σ_{u_0,u_1}	-61.44	-14.89	-75.15	4.76	22.02	-36.43	12.73	24.60	-22.18
σ_e^2	6.24	-2.05	-0.01	2.70	0.40	0.48	1.06	0.16	0.03
ρ_{u_0,u_1}	—	—	-83.68	—	—	-43.04	—	—	-28.25

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.15	0.02	-0.09	-0.11	-0.06	-0.10	0.05	0.09	0.06
β_1	-0.28	-0.37	-0.55	0.72	0.50	0.48	0.59	0.47	0.46
β_2	0.95	-4.26	-1.71	-0.78	-1.61	-0.51	0.75	0.16	0.84
β_3	-1.34	-3.65	-2.14	0.15	-0.60	-0.00	0.72	0.15	0.62
$\sigma_{u_0}^2$	-31.09	12.73	-1.44	-4.28	6.59	1.53	-1.08	6.03	2.06
$\sigma_{u_1}^2$	-33.98	27.13	5.30	-5.42	12.87	6.10	0.23	10.45	5.48
σ_{u_0,u_1}	-3.71	1.28	-41.70	11.90	10.78	-7.46	8.83	11.33	-1.80
σ_e^2	4.85	0.05	0.78	0.56	0.03	-0.02	0.17	0.06	0.02
ρ_{u_0,u_1}	—	—	-45.24	—	—	-9.62	—	—	-4.72

Simulation 4: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.46	-0.51	-1.10	-0.43	0.15	-0.25	-0.16	0.22	-0.05
β_1	-3.51	-4.02	-2.94	-0.57	-0.49	-1.08	0.54	0.50	0.04
β_2	-5.75	-11.04	-7.76	0.46	-4.97	0.45	-6.84	-11.06	-5.86
β_3	-5.07	-9.12	-4.05	2.17	-1.22	2.27	0.27	-3.29	-0.09
$\sigma_{u_0}^2$	-12.07	50.34	8.42	-1.04	42.35	10.11	0.32	42.04	10.88
$\sigma_{u_1}^2$	-18.40	298.92	57.82	-40.42	108.10	14.51	-29.47	77.09	11.99
σ_{u_0,u_1}	-27.97	18.73	-65.34	-3.78	41.58	-43.39	7.28	52.98	-28.65
σ_e^2	6.25	0.48	-0.02	2.61	0.51	0.42	1.54	0.45	0.31
ρ_{u_0,u_1}	—	—	-78.14	—	—	-53.36	—	—	-39.02

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.67	-0.25	-0.54	-0.27	-0.01	-0.21	-0.19	0.04	-0.16
β_1	-0.98	-1.29	-1.54	0.49	0.54	0.11	0.40	0.39	0.04
β_2	-1.58	-5.71	-2.28	-0.93	-4.22	-0.64	-0.62	-3.15	-0.39
β_3	-1.78	-4.96	-1.38	1.33	-1.25	1.02	1.02	-1.14	0.65
$\sigma_{u_0}^2$	-1.10	19.46	4.93	0.68	17.35	4.80	0.76	17.48	5.34
$\sigma_{u_1}^2$	-47.91	123.27	23.69	-36.26	41.62	4.58	-16.57	32.63	7.10
σ_{u_0,u_1}	-12.88	11.31	-49.83	-0.11	20.72	-26.16	2.67	21.12	-17.88
σ_e^2	4.64	-0.07	0.26	2.06	0.37	0.40	0.82	0.24	0.16
ρ_{u_0,u_1}	—	—	-62.03	—	—	-31.21	—	—	-22.74

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.28	0.38	0.27	0.19	0.26	0.18	0.40	0.47	0.40
β_1	0.36	0.45	-0.14	0.77	0.73	0.52	0.53	0.54	0.37
β_2	0.71	-1.08	0.53	0.91	0.02	0.76	2.61	1.95	2.35
β_3	0.39	-0.70	0.68	2.16	1.45	2.22	2.88	2.31	2.88
$\sigma_{u_0}^2$	3.44	5.30	2.42	1.75	5.54	2.78	1.16	4.93	2.35
$\sigma_{u_1}^2$	-46.45	28.80	6.75	-6.37	11.85	4.48	-0.46	9.90	4.62
σ_{u_0,u_1}	3.87	13.03	-14.37	8.39	12.77	-1.12	8.50	12.64	1.14
σ_e^2	3.32	0.11	0.37	0.42	0.10	0.09	0.05	-0.01	-0.04
ρ_{u_0,u_1}	—	—	-16.38	—	—	-3.38	—	—	-1.76

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.61	0.19	-0.47	0.46	1.01	0.51	0.60	1.02	0.64
β_1	-2.40	2.67	0.81	4.68	8.71	6.36	5.67	8.89	6.61
β_2	3.70	-11.86	-5.31	5.71	-6.32	1.25	6.62	-2.10	4.82
β_3	5.94	-3.88	3.03	20.68	14.60	20.05	19.64	15.23	18.13
$\sigma_{u_0}^2$	-48.50	209.56	25.57	-28.67	77.63	5.86	-17.84	61.43	9.04
$\sigma_{u_1}^2$	-7.84	760.05	237.55	19.49	295.20	122.34	22.85	208.10	97.47
σ_{u_0,u_1}	-42.78	407.46	-46.52	36.30	188.69	-17.41	53.95	154.57	-4.97
σ_e^2	8.17	-2.33	-0.55	6.92	3.22	3.71	6.72	4.57	4.67
ρ_{u_0,u_1}	—	—	-85.86	—	—	-57.99	—	—	-41.76

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.50	1.16	0.65	0.80	1.12	0.86	1.06	1.27	1.07
β_1	3.02	9.02	5.99	7.24	9.86	8.15	8.48	9.82	8.71
β_2	7.14	-8.81	-1.11	3.21	-4.27	0.14	4.34	-0.17	3.45
β_3	17.51	7.29	14.58	21.73	18.53	21.60	21.55	19.21	21.58
$\sigma_{u_0}^2$	-43.16	77.05	3.69	-19.00	30.53	3.47	-8.29	26.42	6.47
$\sigma_{u_1}^2$	18.77	364.77	181.24	31.20	160.91	101.07	41.47	127.20	87.53
σ_{u_0,u_1}	4.83	188.29	-28.98	74.41	123.59	10.79	80.30	112.36	28.06
σ_e^2	8.01	-0.99	0.92	6.43	3.60	3.74	5.28	4.02	3.94
ρ_{u_0,u_1}	—	—	-70.99	—	—	-30.00	—	—	-11.66

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	1.16	0.88	1.29	1.36	1.27	1.33	1.37	1.31
β_1	9.01	11.31	9.26	10.52	10.91	10.33	10.43	10.63	10.22
β_2	7.36	0.77	4.05	3.11	1.66	2.71	3.95	3.10	3.79
β_3	21.05	18.25	22.43	23.70	22.88	24.12	24.17	23.52	24.32
$\sigma_{u_0}^2$	-25.96	14.84	-1.56	-3.25	8.39	3.06	0.85	8.39	4.23
$\sigma_{u_1}^2$	63.78	165.63	144.02	71.31	102.72	93.43	69.24	86.97	80.15
σ_{u_0,u_1}	124.59	138.35	37.35	91.52	94.19	59.47	76.77	83.01	59.64
σ_e^2	5.43	0.81	1.01	3.74	3.08	3.01	3.91	3.75	3.71
ρ_{u_0,u_1}	—	—	-16.07	—	—	13.49	—	—	17.24

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.28	-1.26	-1.93	-0.31	0.12	-0.37	-0.56	-0.06	-0.60
β_1	-3.69	-2.33	-2.38	1.94	5.21	3.45	3.48	5.95	4.54
β_2	-2.53	-9.18	-4.99	-3.62	-10.43	-5.43	-5.80	-11.79	-7.08
β_3	3.06	-4.91	3.24	8.83	5.30	9.89	11.73	7.67	12.48
$\sigma_{u_0}^2$	-15.03	48.48	3.11	-2.12	42.94	7.79	-1.83	40.73	7.87
$\sigma_{u_1}^2$	30.83	563.37	170.14	-14.70	222.93	70.02	-4.54	166.48	60.34
σ_{u_0,u_1}	-9.41	85.33	-55.27	3.85	62.15	-37.31	11.46	61.64	-24.79
σ_e^2	7.68	1.27	0.67	5.42	2.72	2.83	4.29	2.72	2.71
ρ_{u_0,u_1}	—	—	-78.34	—	—	-57.16	—	—	-45.08

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.24	0.09	-0.30	-0.33	-0.04	-0.35	-0.35	-0.08	-0.43
β_1	-0.01	2.35	0.63	4.01	6.24	4.67	6.11	7.29	6.43
β_2	-1.76	-7.59	-3.60	-3.97	-8.49	-5.13	-3.93	-7.21	-4.27
β_3	3.76	0.18	4.71	13.15	10.64	13.38	16.11	13.63	15.99
$\sigma_{u_0}^2$	-2.50	17.12	1.75	-0.13	16.54	3.26	-0.01	17.51	4.06
$\sigma_{u_1}^2$	-15.82	238.99	95.52	-2.95	118.83	61.30	18.03	95.28	54.34
σ_{u_0,u_1}	13.04	46.25	-36.40	21.15	47.38	-11.86	20.93	42.71	-1.25
σ_e^2	6.51	1.42	1.54	4.23	2.17	2.28	3.14	2.36	2.34
ρ_{u_0,u_1}	—	—	-59.38	—	—	-32.16	—	—	-22.09

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.12	0.01	-0.17	-0.08	-0.03	-0.10	-0.33	-0.28	-0.38
β_1	3.50	5.40	4.29	6.24	6.65	6.24	6.97	7.18	6.86
β_2	-1.65	-4.35	-2.77	-3.34	-4.52	-3.48	-3.39	-4.25	-3.36
β_3	10.27	9.34	11.21	15.71	15.05	15.80	17.36	16.80	17.45
$\sigma_{u_0}^2$	0.91	2.04	-1.18	-1.60	2.17	-0.69	-1.17	2.68	-0.22
$\sigma_{u_1}^2$	-8.99	91.25	63.33	37.37	63.52	52.11	40.19	55.69	47.71
σ_{u_0,u_1}	29.47	35.43	3.82	25.24	31.03	15.14	24.91	29.84	17.45
σ_e^2	4.46	1.36	1.47	2.25	1.91	1.91	2.28	2.19	2.18
ρ_{u_0,u_1}	—	—	-16.20	—	—	-4.99	—	—	-2.50

P Tables of Percent Bias: Missing Data 30%; Bayesian Estimation with Three Priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.20	-1.63	-2.66	-1.93	-0.82	-1.53	-1.22	-0.33	-0.89
β_1	-5.78	-9.32	-5.59	-1.09	-1.69	-1.12	-0.62	-0.74	-0.94
β_2	-8.00	-19.85	-14.25	-6.63	-20.61	-11.32	-5.77	-16.09	-5.72
β_3	-15.55	-23.61	-17.42	-5.43	-12.29	-6.67	-2.81	-8.85	-3.64
$\sigma_{u_0}^2$	-57.65	192.83	24.05	-35.20	73.85	4.25	-23.00	57.04	5.53
$\sigma_{u_1}^2$	-50.50	338.82	60.54	-38.79	117.92	11.26	-31.52	80.46	7.20
σ_{u_0, u_1}	-78.37	2.19	-83.11	-32.83	28.12	-63.38	-9.08	45.35	-47.95
σ_e^2	4.43	-4.37	-2.86	2.88	-0.01	0.33	1.94	0.44	0.40
ρ_{u_0, u_1}	—	—	-92.90	—	—	-72.23	—	—	-56.48

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.71	-0.57	-1.29	-1.19	-0.60	-0.97	-0.91	-0.47	-0.74
β_1	-5.74	-7.23	-5.60	-0.50	-0.98	-0.96	0.01	-0.47	-0.63
β_2	6.14	-10.06	-2.50	-5.21	-13.89	-7.26	-5.40	-10.04	-3.56
β_3	-7.17	-15.15	-9.96	-1.99	-6.88	-3.20	-1.44	-5.27	-2.64
$\sigma_{u_0}^2$	-55.16	73.83	1.80	-22.98	28.61	1.66	-13.35	22.08	2.06
$\sigma_{u_1}^2$	-46.34	150.54	31.81	-34.72	45.68	3.67	-24.17	32.10	4.12
σ_{u_0, u_1}	-70.03	-26.29	-79.73	-7.72	11.40	-46.06	5.08	19.40	-30.46
σ_e^2	5.96	-2.55	-0.30	2.71	0.28	0.46	1.39	0.28	0.19
ρ_{u_0, u_1}	—	—	-87.30	—	—	-52.07	—	—	-34.06

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.72	-0.25	-0.52	-0.11	0.03	-0.07	-0.06	0.02	-0.05
β_1	-1.11	-1.40	-1.47	0.27	-0.24	-0.27	0.33	0.07	0.06
β_2	4.89	-4.16	-0.08	-2.85	-3.99	-1.84	-1.61	-2.49	-0.83
β_3	0.45	-2.88	-0.53	-0.02	-1.46	-0.55	-0.23	-1.25	-0.59
$\sigma_{u_0}^2$	-35.57	11.97	-4.89	-5.78	6.06	0.49	-2.37	5.28	0.91
$\sigma_{u_1}^2$	-39.44	29.82	1.84	-15.42	8.72	0.29	-7.03	5.75	-0.23
σ_{u_0, u_1}	-19.66	-12.33	-51.55	8.15	5.08	-14.57	2.63	4.58	-9.12
σ_e^2	4.60	-0.39	0.62	0.86	0.10	0.09	0.42	0.25	0.21
ρ_{u_0, u_1}	—	—	-53.96	—	—	-14.12	—	—	-8.87

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.03	-1.17	-2.57	-1.92	-0.57	-1.37	-1.58	-0.38	-1.19
β_1	-7.38	-10.03	-6.67	-2.43	-2.86	-3.28	-0.22	-0.14	-1.23
β_2	-9.11	-19.42	-12.72	-4.55	-12.80	-4.76	-6.01	-13.45	-4.48
β_3	-16.01	-25.10	-15.52	-7.47	-13.93	-7.38	-2.42	-9.60	-4.06
$\sigma_{u_0}^2$	-19.12	52.75	6.11	-5.23	41.92	7.63	-3.41	40.70	7.95
$\sigma_{u_1}^2$	-13.19	343.65	64.92	-44.45	117.75	6.93	-39.53	79.93	3.41
σ_{u_0, u_1}	-55.83	-23.20	-77.96	-18.46	24.99	-53.71	-11.73	35.57	-43.40
σ_e^2	5.17	-1.13	-1.39	2.74	0.49	0.71	1.89	0.54	0.61
ρ_{u_0, u_1}	—	—	-85.89	—	—	-61.77	—	—	-49.98

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.31	-0.17	-0.89	-0.99	-0.34	-0.80	-0.95	-0.43	-0.83
β_1	-4.77	-6.31	-5.59	-0.85	-1.22	-2.02	-0.25	-0.42	-1.06
β_2	-7.49	-14.93	-9.78	-5.16	-10.60	-4.66	-5.52	-9.25	-3.45
β_3	-8.15	-14.49	-7.78	-2.89	-7.97	-3.88	-2.64	-7.27	-3.89
$\sigma_{u_0}^2$	-5.54	18.72	2.70	-1.12	16.82	3.34	-0.58	16.86	3.89
$\sigma_{u_1}^2$	-43.29	145.05	28.64	-44.37	46.06	0.75	-26.78	32.53	2.06
σ_{u_0, u_1}	-30.03	-8.50	-60.09	-6.90	14.38	-34.67	-6.18	13.81	-26.67
σ_e^2	4.50	-0.46	0.07	2.28	0.24	0.49	0.99	0.10	0.13
ρ_{u_0, u_1}	—	—	-70.29	—	—	-38.91	—	—	-29.71

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.28	0.04	-0.24	-0.07	0.11	-0.04	0.03	0.17	0.04
β_1	-0.60	-1.09	-1.81	0.10	-0.03	-0.37	0.12	0.10	-0.18
β_2	-0.60	-2.86	-0.33	-0.43	-1.74	0.01	-1.33	-2.49	-1.31
β_3	-0.23	-2.13	0.43	0.96	-0.64	0.48	0.62	-0.44	0.44
$\sigma_{u_0}^2$	1.63	3.82	0.75	-0.05	3.84	0.85	-0.14	3.80	1.02
$\sigma_{u_1}^2$	-56.49	26.80	-2.50	-14.15	9.71	0.10	-5.57	7.03	0.74
σ_{u_0, u_1}	-8.18	0.53	-27.73	-1.62	3.55	-10.93	0.21	4.82	-7.03
σ_e^2	3.27	-0.21	0.35	0.66	0.13	0.18	0.10	-0.02	-0.02
ρ_{u_0, u_1}	—	—	-27.77	—	—	-9.89	—	—	-7.29

Simulation 2: ICC = 0.10; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.96	-0.78	-1.72	0.04	0.87	0.58	0.29	1.06	1.10
β_1	-3.93	-11.43	-5.75	-1.43	5.48	-2.82	-0.09	-3.62	-1.84
β_2	-23.07	-27.81	-25.03	-28.19	-31.51	-34.55	-21.08	-26.78	-32.34
β_3	-4.33	11.72	1.28	-2.85	7.15	0.06	-3.60	4.86	-0.84
$\sigma_{u_0}^2$	-56.92	172.95	18.00	-32.82	66.65	3.68	-21.66	51.02	4.86
$\sigma_{u_1}^2$	-45.31	354.75	70.78	-37.28	119.55	11.07	-31.29	83.71	7.91
σ_{u_0, u_1}	-87.65	-60.53	-91.15	-43.70	-19.12	-73.50	-19.79	-2.98	-61.26
σ_e^2	4.52	-4.96	-3.23	2.96	-0.06	0.33	1.98	0.38	0.37
ρ_{u_0, u_1}	—	—	-96.56	—	—	-79.00	—	—	-65.03
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.25	-0.62	-1.13	-0.48	0.04	0.20	-0.11	0.37	0.59
β_1	-1.64	-6.41	-3.27	-0.36	-3.25	-1.94	0.47	-1.85	-0.95
β_2	-11.05	-10.87	-11.70	-10.06	-12.74	-19.26	-8.77	-12.70	-18.83
β_3	-4.70	6.57	-0.22	-3.61	3.31	-1.10	-2.98	2.20	-1.24
$\sigma_{u_0}^2$	-54.99	63.69	-1.77	-21.80	24.17	0.56	-11.72	20.16	2.67
$\sigma_{u_1}^2$	-46.42	145.89	28.70	-35.97	45.30	0.98	-24.38	33.33	3.13
σ_{u_0, u_1}	-75.08	-55.27	-85.39	-15.04	-12.21	-56.05	-2.16	-4.25	-41.83
σ_e^2	6.40	-2.37	-0.10	2.54	0.14	0.35	1.21	0.13	0.06
ρ_{u_0, u_1}	—	—	-89.72	—	—	-57.99	—	—	-43.07
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.04	0.19	0.37	-0.09	0.12	0.29	-0.02	0.11	0.21
β_1	-0.04	-2.29	-1.31	0.30	-0.80	-0.49	0.16	-0.48	-0.30
β_2	-8.16	-5.81	-11.85	-2.68	-4.17	-8.06	-1.71	-2.65	-5.07
β_3	-3.80	1.65	-1.82	-1.57	0.70	-0.74	-1.04	0.36	-0.55
$\sigma_{u_0}^2$	-32.48	9.49	-4.61	-5.98	4.92	0.25	-2.98	4.16	0.49
$\sigma_{u_1}^2$	-40.12	30.16	-0.17	-15.81	9.00	-0.18	-6.12	7.25	0.81
σ_{u_0, u_1}	-18.80	-21.35	-56.67	4.64	-2.98	-20.99	-0.49	-1.76	-14.06
σ_e^2	4.70	-0.30	0.75	0.79	0.05	0.03	0.25	0.08	0.04
ρ_{u_0, u_1}	—	—	-57.66	—	—	-18.44	—	—	-12.87

Simulation 2: ICC = 0.10; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.39	-0.32	-1.70	-1.20	0.38	-0.42	-0.67	0.78	0.21
β_1	-4.20	-10.09	-4.79	-1.02	-3.85	-2.04	0.37	-2.01	-0.92
β_2	-42.66	-75.08	-59.81	-30.66	-53.74	-45.80	-29.24	-51.16	-46.32
β_3	-55.22	-24.86	-46.19	-27.93	-14.27	-23.14	-27.34	-16.86	-22.93
$\sigma_{u_0}^2$	-57.96	173.08	20.74	-32.14	68.34	5.44	-22.57	52.12	5.64
$\sigma_{u_1}^2$	-46.28	358.44	70.83	-39.76	112.31	8.86	-33.59	74.31	4.83
σ_{u_0, u_1}	-83.01	-36.65	-86.36	-31.76	-0.70	-67.43	-10.55	14.78	-53.11
σ_e^2	4.85	-5.04	-3.22	2.87	-0.14	0.25	1.94	0.36	0.34
ρ_{u_0, u_1}	—	—	-94.55	—	—	-74.01	—	—	-57.28
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.98	-0.52	-1.36	-0.90	0.05	-0.25	-0.64	0.16	-0.04
β_1	-2.16	-5.38	-2.53	-0.19	-2.45	-1.56	0.71	-1.17	-0.57
β_2	-6.59	-30.10	-21.21	-19.70	-34.57	-33.82	-16.15	-29.28	-29.33
β_3	-43.32	-28.03	-38.88	-21.24	-9.47	-15.50	-20.88	-8.69	-13.80
$\sigma_{u_0}^2$	-55.81	62.45	-1.46	-22.59	23.65	0.46	-13.24	19.55	1.89
$\sigma_{u_1}^2$	-46.00	144.41	27.95	-37.80	40.44	-0.46	-26.49	27.58	0.88
σ_{u_0, u_1}	-72.63	-50.99	-82.92	-6.08	-3.09	-49.76	2.09	0.66	-36.92
σ_e^2	6.20	-2.61	-0.34	2.46	0.04	0.28	1.22	0.14	0.08
ρ_{u_0, u_1}	—	—	-87.95	—	—	-51.41	—	—	-36.85
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.42	0.11	-0.02	-0.20	0.06	0.03	-0.06	0.12	0.10
β_1	-0.37	-2.02	-1.56	0.59	-0.48	-0.24	0.20	-0.41	-0.24
β_2	-3.42	-11.21	-11.92	-5.00	-9.24	-10.83	-5.33	-8.27	-9.21
β_3	-22.14	-11.22	-16.47	-13.50	-5.59	-8.01	-7.24	-2.49	-4.35
$\sigma_{u_0}^2$	-31.49	8.90	-3.93	-6.06	4.69	0.12	-3.19	4.01	0.32
$\sigma_{u_1}^2$	-41.56	27.73	-1.13	-16.47	7.49	-0.35	-6.77	5.61	0.04
σ_{u_0, u_1}	-13.94	-19.36	-53.10	7.16	-1.09	-17.26	0.67	-0.72	-11.84
σ_e^2	4.69	-0.30	0.75	0.77	0.02	-0.01	0.27	0.11	0.07
ρ_{u_0, u_1}	—	—	-53.51	—	—	-14.22	—	—	-10.16

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.65	0.34	-0.25	0.41	1.37	1.55	-0.29	0.68	0.48
β_1	-4.56	-11.08	-5.97	-1.47	5.44	-3.53	-1.11	-4.35	-2.84
β_2	-13.77	-21.07	-18.72	-16.62	-21.83	-22.93	-12.18	-18.03	-17.67
β_3	-3.34	8.69	0.13	-3.23	5.59	0.57	-1.03	5.63	1.55
$\sigma_{u_0}^2$	-19.25	42.47	2.24	-4.64	37.04	7.18	-3.56	35.79	7.14
$\sigma_{u_1}^2$	-11.88	333.23	63.20	-46.76	113.55	4.91	-35.89	82.51	6.45
σ_{u_0,u_1}	-61.29	-55.52	-83.29	-30.70	-19.12	-65.18	-20.53	-7.62	-53.96
σ_e^2	5.46	-0.40	-0.82	2.38	0.14	0.34	1.89	0.55	0.62
ρ_{u_0,u_1}	—	—	-89.01	—	—	-69.77	—	—	-58.50
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.74	-0.12	-0.04	0.68	0.97	1.41	0.46	0.66	1.03
β_1	-2.72	-7.01	-4.50	-0.03	-2.61	-1.78	-0.20	-2.17	-1.58
β_2	-9.85	-12.69	-13.48	-9.47	-11.33	-13.69	-7.08	-8.86	-11.13
β_3	-3.74	4.86	-0.15	-3.92	1.91	-0.98	-1.81	2.43	0.25
$\sigma_{u_0}^2$	-5.24	14.54	1.64	-0.43	15.48	4.40	-0.69	15.15	4.30
$\sigma_{u_1}^2$	-46.50	135.97	21.05	-43.03	46.57	1.13	-24.66	33.87	3.88
σ_{u_0,u_1}	-42.41	-41.04	-70.22	-13.01	-6.60	-42.47	-7.79	-1.95	-32.61
σ_e^2	4.18	-0.54	-0.01	2.31	0.28	0.53	1.17	0.30	0.34
ρ_{u_0,u_1}	—	—	-75.53	—	—	-44.79	—	—	-34.14
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.17	-0.10	0.21	-0.12	-0.09	0.07	0.16	0.29	0.35
β_1	-0.30	-2.16	-1.69	0.32	-0.47	-0.30	-0.16	-0.66	-0.43
β_2	-5.33	-4.08	-5.64	-1.70	-1.96	-2.91	-2.35	-3.08	-3.60
β_3	-3.54	1.02	-1.08	-1.31	0.37	-0.39	-0.33	0.56	-0.17
$\sigma_{u_0}^2$	2.27	3.42	1.62	0.34	3.75	1.48	-0.55	3.03	0.69
$\sigma_{u_1}^2$	-57.41	25.27	-4.55	-14.51	9.21	-0.25	-5.12	7.37	0.86
σ_{u_0,u_1}	-15.10	-11.93	-34.71	-3.73	-2.96	-14.34	-4.20	-3.27	-11.55
σ_e^2	3.81	0.29	0.94	0.46	-0.07	-0.02	0.15	0.02	0.03
ρ_{u_0,u_1}	—	—	-32.55	—	—	-12.53	—	—	-10.94

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.62	0.51	-0.90	-0.47	1.50	0.57	-0.96	0.75	-0.08
β_1	-5.11	-10.82	-6.20	-1.85	-4.56	-3.34	-0.82	-3.24	-2.66
β_2	-25.20	-44.85	-36.22	-29.38	-44.68	-37.67	-22.19	-36.97	-30.80
β_3	-18.60	-6.18	-14.05	-10.62	-3.38	-6.42	-10.24	-2.70	-3.33
$\sigma_{u_0}^2$	-19.13	44.35	3.03	-5.42	38.05	6.72	-4.46	36.92	6.75
$\sigma_{u_1}^2$	-15.47	331.68	60.78	-47.07	107.98	2.11	-39.91	72.74	1.56
σ_{u_0,u_1}	-54.30	-42.86	-78.95	-27.70	-11.45	-61.76	-16.11	0.75	-50.95
σ_e^2	5.02	-0.66	-1.09	2.37	0.13	0.39	1.93	0.59	0.68
ρ_{u_0,u_1}	—	—	-86.13	—	—	-66.30	—	—	-54.74
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.79	-0.35	-0.96	0.05	0.94	0.64	-0.06	0.75	0.32
β_1	-4.09	-7.45	-5.45	0.04	-2.04	-1.77	0.23	-1.43	-1.25
β_2	-13.38	-24.80	-20.12	-15.90	-24.02	-21.66	-13.67	-21.62	-18.64
β_3	-20.89	-9.62	-15.60	-14.24	-5.77	-7.66	-9.10	-3.14	-3.55
$\sigma_{u_0}^2$	-6.57	14.47	0.75	-1.03	15.65	3.89	-1.54	15.12	3.43
$\sigma_{u_1}^2$	-47.27	135.42	19.27	-44.92	42.33	-0.71	-26.52	29.21	1.39
σ_{u_0,u_1}	-39.32	-35.42	-68.65	-7.96	-1.86	-39.25	-4.85	1.32	-30.09
σ_e^2	4.04	-0.68	-0.08	2.31	0.25	0.54	1.15	0.29	0.33
ρ_{u_0,u_1}	—	—	-73.17	—	—	-40.72	—	—	-30.22
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.26	-0.08	-0.12	-0.25	-0.01	-0.05	-0.03	0.21	0.10
β_1	-1.02	-2.50	-2.55	0.32	-0.38	-0.39	-0.11	-0.57	-0.54
β_2	-7.86	-10.26	-9.53	-4.36	-6.69	-6.39	-4.27	-6.67	-5.87
β_3	-8.92	-1.03	-2.50	-3.78	-0.87	-1.12	-1.08	0.60	0.46
$\sigma_{u_0}^2$	1.75	3.18	1.13	-0.13	3.47	1.08	-1.01	2.73	0.27
$\sigma_{u_1}^2$	-58.34	23.88	-5.42	-14.95	7.94	-0.74	-6.20	5.76	-0.08
σ_{u_0,u_1}	-12.37	-10.96	-33.99	-2.49	-2.12	-13.60	-2.87	-2.01	-10.71
σ_e^2	3.85	0.33	1.01	0.48	-0.04	0.01	0.16	0.04	0.05
ρ_{u_0,u_1}	—	—	-31.74	—	—	-11.01	—	—	-9.27

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.01	-1.42	-2.66	-1.85	-0.74	-1.51	-1.52	-0.64	-1.18
β_1	-6.33	-10.94	-6.21	-2.58	-3.71	-2.64	-0.61	-1.41	-0.94
β_2	-7.91	-18.14	-13.45	-6.26	-17.59	-10.26	-6.50	-16.95	-8.56
β_3	-21.57	-30.74	-23.18	-6.43	-15.84	-8.89	-4.23	-11.97	-5.70
$\sigma_{u_0}^2$	-56.25	212.50	25.23	-35.85	83.37	4.63	-26.70	59.88	4.14
$\sigma_{u_1}^2$	-47.44	357.63	73.23	-39.47	116.22	10.41	-32.88	78.75	7.23
σ_{u_0,u_1}	-88.01	-46.53	-90.91	-34.63	21.73	-63.52	-12.51	31.54	-51.00
σ_e^2	3.12	-5.67	-3.97	2.79	-0.17	0.29	1.63	-0.01	-0.01
ρ_{u_0,u_1}	—	—	-95.80	—	—	-73.23	—	—	-57.96

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.76	-0.76	-1.46	-0.85	-0.25	-0.65	-0.81	-0.36	-0.64
β_1	-3.27	-5.46	-3.13	-0.47	-1.53	-0.93	1.05	0.04	0.38
β_2	-3.11	-13.63	-9.41	2.69	-5.65	-0.37	-3.29	-7.55	-3.20
β_3	-8.53	-18.34	-11.74	-3.02	-10.42	-5.33	-2.13	-7.60	-3.57
$\sigma_{u_0}^2$	-53.03	87.43	6.99	-24.86	33.09	2.08	-15.15	24.22	2.41
$\sigma_{u_1}^2$	-46.71	150.01	30.68	-34.34	46.74	4.35	-25.59	30.62	3.50
σ_{u_0,u_1}	-66.25	-22.97	-78.30	-5.49	8.81	-46.18	9.21	17.05	-29.92
σ_e^2	5.24	-3.02	-0.71	2.90	0.42	0.64	1.51	0.32	0.21
ρ_{u_0,u_1}	—	—	-86.07	—	—	-51.99	—	—	-33.53

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.34	0.06	-0.21	-0.05	0.10	-0.01	-0.03	0.06	-0.01
β_1	0.94	0.02	0.14	1.12	0.42	0.59	0.91	0.50	0.64
β_2	6.71	-0.26	2.25	7.23	6.95	7.56	8.86	8.63	9.00
β_3	4.89	-1.17	2.71	3.05	0.91	2.39	4.86	3.51	4.49
$\sigma_{u_0}^2$	-33.07	18.53	-0.61	-5.42	8.54	2.40	-3.00	5.54	0.92
$\sigma_{u_1}^2$	-32.78	36.70	10.62	-13.95	10.48	2.87	-5.02	7.57	1.99
σ_{u_0,u_1}	-0.03	3.79	-42.64	16.97	9.96	-10.50	6.64	6.77	-6.51
σ_e^2	4.12	-0.66	0.24	0.94	0.12	0.06	0.28	0.11	0.06
ρ_{u_0,u_1}	—	—	-48.03	—	—	-10.95	—	—	-6.79

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.64	-2.32	-3.34	-1.89	-0.68	-1.26	-2.13	-1.11	-1.54
β_1	-9.43	-13.30	-9.64	-3.69	-5.70	-4.74	-1.45	-2.90	-2.66
β_2	-12.74	-17.78	-16.14	-9.68	-14.20	-11.36	-9.27	-14.28	-12.52
β_3	-59.56	-42.79	-52.00	-43.01	-36.16	-36.51	-42.34	-33.23	-33.49
$\sigma_{u_0}^2$	-20.06	48.02	4.16	-3.42	43.91	10.14	-5.72	37.98	7.02
$\sigma_{u_1}^2$	-12.31	363.21	73.53	-47.82	112.39	4.18	-42.57	71.05	-0.72
σ_{u_0,u_1}	-59.77	-1.51	-75.43	-20.69	8.29	-57.16	-14.12	10.71	-48.84
σ_e^2	4.13	-2.27	-2.27	2.93	0.58	0.87	1.78	0.34	0.46
ρ_{u_0,u_1}	—	—	-86.13	—	—	-63.87	—	—	-52.38

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.57	-0.87	-1.22	-0.83	-0.40	-0.59	-0.64	-0.20	-0.39
β_1	-4.57	-7.18	-5.73	-1.09	-2.57	-2.49	-0.64	-1.55	-1.59
β_2	-2.02	-4.99	-3.42	-2.58	-4.78	-3.79	-5.03	-7.99	-6.88
β_3	-66.30	-46.69	-51.65	-28.85	-18.88	-17.67	-33.44	-24.68	-24.20
$\sigma_{u_0}^2$	-2.82	21.17	5.50	0.71	18.65	6.00	-0.89	16.57	4.73
$\sigma_{u_1}^2$	-42.37	154.77	35.47	-44.78	45.02	1.95	-31.10	25.95	-1.81
σ_{u_0,u_1}	-19.52	-9.99	-57.91	-0.60	7.28	-34.70	-2.60	6.59	-28.22
σ_e^2	3.84	-1.43	-0.71	2.17	-0.01	0.29	1.21	0.21	0.29
ρ_{u_0,u_1}	—	—	-69.57	—	—	-38.13	—	—	-28.58

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.41	0.44	0.43	0.17	0.26	0.23	0.12	0.19	0.16
β_1	0.06	-0.71	-1.07	0.43	-0.04	-0.04	0.11	-0.19	-0.20
β_2	2.50	3.57	4.19	4.86	3.97	4.57	4.41	3.23	3.97
β_3	-50.88	-28.91	-29.81	-12.48	-8.77	-7.61	-11.06	-10.01	-9.10
$\sigma_{u_0}^2$	4.35	6.51	3.76	1.65	5.45	2.84	0.94	4.85	2.30
$\sigma_{u_1}^2$	-49.56	40.20	15.04	-12.88	10.92	2.44	-5.25	6.71	1.13
σ_{u_0,u_1}	16.06	10.42	-16.13	6.01	6.97	-5.76	4.16	6.01	-4.02
σ_e^2	2.92	-0.91	-0.49	0.58	0.00	0.04	0.28	0.15	0.16
ρ_{u_0,u_1}	—	—	-22.03	—	—	-5.59	—	—	-4.42

Simulation 4: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.29	-1.62	-2.84	-1.86	-0.72	-1.48	-1.43	-0.55	-1.12
β_1	-8.34	-11.50	-7.72	-2.18	2.56	-2.23	-0.15	-0.32	-0.54
β_2	-11.19	-24.62	-17.44	-10.25	-23.08	-14.27	-8.30	-18.29	-9.30
β_3	-22.65	-26.62	-21.64	-6.15	-11.87	-7.33	-5.13	-9.19	-5.23
$\sigma_{u_0}^2$	-56.95	192.87	21.91	-35.38	73.06	3.31	-23.00	57.35	6.02
$\sigma_{u_1}^2$	-48.40	362.04	72.45	-34.90	125.34	17.32	-25.25	89.52	15.47
σ_{u_0, u_1}	-80.56	-3.09	-84.38	-26.70	36.55	-59.89	0.11	54.76	-42.28
σ_e^2	5.20	-4.09	-2.35	2.86	-0.11	0.28	1.79	0.21	0.18
ρ_{u_0, u_1}	—	—	-93.57	—	—	-71.88	—	—	-53.85

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.65	-0.57	-1.29	-0.86	-0.25	-0.65	-0.56	-0.17	-0.42
β_1	-4.69	-6.46	-4.73	-0.01	-0.65	-0.52	0.96	0.20	0.29
β_2	-6.67	-21.72	-15.00	-6.36	-15.77	-8.94	-5.88	-10.77	-4.95
β_3	-9.28	-15.65	-11.70	-1.99	-6.73	-3.16	-2.09	-5.80	-2.98
$\sigma_{u_0}^2$	-52.51	78.49	5.79	-22.29	29.23	2.53	-12.42	22.67	3.12
$\sigma_{u_1}^2$	-44.14	155.78	35.85	-31.71	49.73	7.66	-17.72	39.33	11.10
σ_{u_0, u_1}	-67.07	-29.67	-78.28	2.53	23.35	-38.74	15.30	29.13	-22.79
σ_e^2	5.89	-2.79	-0.50	2.60	0.19	0.35	1.38	0.30	0.18
ρ_{u_0, u_1}	—	—	-86.56	—	—	-46.46	—	—	-30.16

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.52	-0.08	-0.35	-0.09	0.04	-0.06	0.01	0.08	0.02
β_1	-0.33	-0.84	-0.96	0.96	0.42	0.41	0.74	0.43	0.47
β_2	3.12	-7.53	-2.56	0.27	-1.65	0.80	0.78	-0.47	1.24
β_3	-1.27	-5.55	-2.56	-1.00	-2.72	-1.46	0.93	-0.33	0.58
$\sigma_{u_0}^2$	-32.72	14.65	-1.60	-5.09	6.91	1.33	-2.30	5.36	1.10
$\sigma_{u_1}^2$	-33.38	36.68	9.47	-8.34	15.54	7.41	0.72	13.51	7.56
σ_{u_0, u_1}	-4.41	0.96	-43.16	15.73	12.54	-7.93	11.27	13.35	-0.99
σ_e^2	4.54	-0.43	0.48	0.92	0.20	0.16	0.22	0.07	0.02
ρ_{u_0, u_1}	—	—	-48.75	—	—	-10.85	—	—	-4.14

Simulation 4: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.22	-1.34	-2.79	-1.69	-0.41	-1.12	-1.56	-0.59	-1.26
β_1	-11.67	-13.63	-10.08	-2.88	-3.04	-3.31	0.38	0.03	-0.64
β_2	-14.19	-21.73	-18.41	-7.92	-15.26	-6.60	-10.48	-17.93	-9.35
β_3	-19.61	-25.12	-17.85	-7.99	-12.71	-6.49	-2.88	-8.97	-2.82
$\sigma_{u_0}^2$	-21.90	49.19	3.19	-3.19	43.68	9.03	-1.26	43.48	10.35
$\sigma_{u_1}^2$	-4.77	360.51	78.48	-41.39	125.55	14.63	-35.50	85.39	8.92
σ_{u_0, u_1}	-48.40	-8.01	-72.29	-8.47	36.07	-47.28	1.00	46.28	-35.82
σ_e^2	5.51	-0.95	-1.08	2.80	0.44	0.65	1.72	0.33	0.40
ρ_{u_0, u_1}	—	—	-83.57	—	—	-58.34	—	—	-46.06

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.40	-0.36	-1.07	-0.65	-0.09	-0.53	-0.39	-0.01	-0.32
β_1	-3.81	-5.82	-4.97	-0.86	-1.34	-1.96	1.32	1.02	0.46
β_2	-4.09	-10.73	-5.87	-1.96	-7.10	-1.62	-3.99	-9.17	-3.09
β_3	-7.52	-11.02	-5.00	-1.84	-5.95	-1.72	1.82	-2.90	0.96
$\sigma_{u_0}^2$	-4.14	19.66	3.49	0.65	18.45	5.01	1.33	19.07	6.03
$\sigma_{u_1}^2$	-40.91	153.40	37.96	-40.40	50.73	5.54	-21.46	38.94	8.82
σ_{u_0, u_1}	-21.55	-4.39	-56.27	-2.49	17.95	-30.34	8.47	28.68	-15.24
σ_e^2	4.47	-0.77	-0.25	2.40	0.30	0.55	1.30	0.40	0.42
ρ_{u_0, u_1}	—	—	-67.23	—	—	-37.16	—	—	-22.60

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.25	-0.03	-0.26	0.02	0.16	0.03	0.11	0.21	0.10
β_1	-0.15	-0.79	-1.50	0.95	0.69	0.39	0.96	0.86	0.59
β_2	-0.88	-3.50	-0.75	0.55	-0.97	0.68	1.99	0.86	1.66
β_3	-0.53	-2.22	0.66	1.46	0.05	1.41	2.87	1.74	2.91
$\sigma_{u_0}^2$	3.61	5.48	2.28	1.32	5.21	2.27	0.98	4.91	2.13
$\sigma_{u_1}^2$	-51.23	34.07	8.23	-6.89	16.37	7.58	0.94	13.40	7.53
σ_{u_0, u_1}	2.00	9.97	-19.74	9.46	14.00	-1.35	8.99	13.46	0.87
σ_e^2	3.62	0.04	0.47	0.61	0.12	0.14	0.11	0.01	0.00
ρ_{u_0, u_1}	—	—	-23.55	—	—	-4.76	—	—	-3.17

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.30	-0.66	-1.99	-0.51	0.58	-0.33	-0.07	0.84	0.12
β_1	2.44	3.79	1.98	4.97	9.85	6.88	10.71	14.22	11.50
β_2	-11.61	-33.51	-22.85	1.12	-17.57	-4.82	-5.88	-19.59	-9.56
β_3	-1.99	-18.43	-4.36	19.86	5.70	16.57	23.88	12.72	20.20
$\sigma_{u_0}^2$	-52.79	217.25	17.31	-34.63	77.78	-0.63	-23.13	60.82	4.51
$\sigma_{u_1}^2$	-2.67	941.50	299.61	35.22	407.90	174.09	41.31	298.40	142.91
σ_{u_0,u_1}	-42.43	501.48	-41.00	29.64	220.32	-16.59	57.39	182.04	0.91
σ_e^2	5.75	-5.12	-3.17	6.21	1.95	2.69	6.11	3.59	3.83
ρ_{u_0,u_1}	—	—	-85.55	—	—	-62.43	—	—	-46.40

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.79	0.34	-0.65	0.14	0.80	0.27	0.44	0.89	0.50
β_1	3.08	10.87	6.74	11.64	14.49	12.12	13.15	14.74	13.02
β_2	-2.94	-24.86	-14.81	0.41	-12.41	-3.67	-3.10	-11.12	-4.54
β_3	7.69	-5.83	3.64	32.55	23.89	31.30	31.35	24.57	29.31
$\sigma_{u_0}^2$	-47.86	79.45	-1.27	-23.04	30.45	-0.07	-13.17	24.16	2.48
$\sigma_{u_1}^2$	29.65	476.73	245.80	64.28	242.39	161.26	67.11	187.41	133.39
σ_{u_0,u_1}	0.47	222.15	-22.70	87.65	151.47	18.74	94.33	134.01	36.27
σ_e^2	6.67	-3.40	-1.17	5.13	1.91	2.14	4.77	3.15	3.13
ρ_{u_0,u_1}	—	—	-73.68	—	—	-32.95	—	—	-15.29

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.77	1.22	0.74	1.20	1.33	1.18	1.18	1.26	1.16
β_1	15.95	18.45	15.37	16.76	16.96	16.17	16.47	16.59	15.99
β_2	1.96	-9.35	-3.92	-2.17	-4.94	-2.51	-3.30	-4.91	-3.16
β_3	24.99	19.00	26.57	32.31	30.09	31.95	34.02	32.31	33.08
$\sigma_{u_0}^2$	-32.50	11.10	-7.07	-6.71	6.28	0.51	-3.37	4.74	0.34
$\sigma_{u_1}^2$	115.73	244.79	216.55	112.05	154.56	142.54	103.86	128.23	119.80
σ_{u_0,u_1}	147.80	167.44	50.79	117.01	119.08	79.53	92.77	99.95	74.57
σ_e^2	3.48	-1.44	-1.14	2.58	1.78	1.70	2.97	2.76	2.73
ρ_{u_0,u_1}	—	—	-17.45	—	—	15.39	—	—	17.92

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.88	-0.92	-2.59	-2.45	-1.15	-2.03	-1.51	-0.39	-1.23
β_1	-7.86	-7.59	-5.79	1.03	2.97	1.96	3.90	6.18	4.61
β_2	-13.02	-24.34	-17.94	-13.64	-22.77	-14.64	-12.30	-20.38	-12.10
β_3	-8.99	-22.48	-8.36	11.19	0.66	11.43	15.32	5.84	14.48
$\sigma_{u_0}^2$	-26.16	46.30	-3.69	-7.31	40.56	3.81	-4.53	41.05	6.18
$\sigma_{u_1}^2$	41.55	676.67	198.51	-1.46	313.59	106.83	0.80	225.28	84.70
σ_{u_0,u_1}	-45.98	51.94	-70.15	-2.18	50.97	-42.94	8.85	57.69	-28.77
σ_e^2	7.14	-0.20	-0.03	4.65	1.28	1.80	4.30	2.08	2.38
ρ_{u_0,u_1}	—	—	-86.39	—	—	-63.32	—	—	-50.79

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.53	-0.46	-1.26	-1.38	-0.80	-1.37	-1.20	-0.63	-1.22
β_1	-1.75	-1.11	-1.23	4.17	6.39	4.54	7.19	8.41	7.22
β_2	-7.49	-16.63	-10.45	-8.37	-15.47	-9.40	-8.40	-14.14	-8.63
β_3	1.70	-8.21	2.27	17.91	11.62	17.89	20.16	13.94	18.52
$\sigma_{u_0}^2$	-6.67	15.70	-1.01	-1.79	15.97	1.64	-2.81	15.15	1.11
$\sigma_{u_1}^2$	-5.19	309.47	127.61	0.58	160.64	84.33	24.55	129.28	75.51
σ_{u_0,u_1}	-5.25	23.30	-48.27	14.74	43.10	-17.64	14.54	36.50	-8.45
σ_e^2	5.38	-0.71	-0.19	4.38	1.59	1.92	3.32	2.07	2.19
ρ_{u_0,u_1}	—	—	-68.75	—	—	-40.69	—	—	-30.42

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.62	-0.25	-0.62	-0.49	-0.33	-0.51	-0.72	-0.58	-0.78
β_1	4.49	6.30	4.74	8.52	8.80	8.10	9.46	9.45	8.96
β_2	-0.96	-5.63	-2.70	-6.32	-8.21	-6.71	-7.59	-8.99	-7.74
β_3	15.87	12.33	16.77	22.04	20.05	21.82	23.09	21.45	23.03
$\sigma_{u_0}^2$	-1.44	-0.20	-3.79	-2.63	1.37	-1.77	-2.56	1.63	-1.56
$\sigma_{u_1}^2$	-1.78	122.47	87.48	54.64	90.39	75.84	58.46	80.24	69.45
σ_{u_0,u_1}	27.72	33.18	-1.69	28.16	34.06	15.68	23.06	26.84	13.94
σ_e^2	4.15	0.42	0.67	1.99	1.48	1.53	1.96	1.82	1.84
ρ_{u_0,u_1}	—	—	-25.01	—	—	-10.41	—	—	-10.56

Q Tables of Coverage: Missing Data 15%; Bayesian Estimation with Three Priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.95	0.90	0.97	0.94	0.92	0.97	0.95
β_1	0.93	0.99	0.95	0.92	0.97	0.94	0.91	0.97	0.94
β_2	0.92	0.98	0.95	0.90	0.97	0.94	0.92	0.97	0.94
β_3	0.92	0.99	0.95	0.91	0.98	0.94	0.92	0.97	0.95
$\sigma_{u_0}^2$	0.81	0.89	0.98	0.79	0.93	0.93	0.83	0.91	0.93
$\sigma_{u_1}^2$	0.92	0.87	0.98	0.81	0.91	0.93	0.80	0.92	0.92
σ_{u_0,u_1}	0.92	0.99	0.94	0.89	0.98	0.88	0.87	0.97	0.89
σ_e^2	0.96	0.95	0.95	0.94	0.95	0.94	0.94	0.96	0.96
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.98

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.92	0.96	0.94	0.93	0.95	0.94
β_1	0.93	0.97	0.94	0.92	0.96	0.94	0.93	0.96	0.95
β_2	0.92	0.97	0.95	0.92	0.97	0.95	0.93	0.96	0.94
β_3	0.93	0.97	0.95	0.93	0.97	0.95	0.92	0.95	0.94
$\sigma_{u_0}^2$	0.75	0.94	0.94	0.84	0.94	0.93	0.89	0.93	0.93
$\sigma_{u_1}^2$	0.84	0.92	0.95	0.79	0.94	0.92	0.83	0.93	0.92
σ_{u_0,u_1}	0.88	0.99	0.88	0.88	0.96	0.90	0.90	0.95	0.92
σ_e^2	0.91	0.95	0.95	0.93	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.95	0.94	0.95	0.95	0.95	0.95	0.96	0.95
β_1	0.94	0.95	0.93	0.93	0.95	0.94	0.94	0.95	0.95
β_2	0.94	0.96	0.96	0.94	0.95	0.95	0.95	0.96	0.95
β_3	0.93	0.95	0.94	0.95	0.96	0.95	0.95	0.96	0.96
$\sigma_{u_0}^2$	0.79	0.96	0.91	0.94	0.95	0.95	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.75	0.94	0.89	0.90	0.94	0.93	0.92	0.94	0.93
σ_{u_0,u_1}	0.89	0.95	0.86	0.93	0.95	0.94	0.94	0.95	0.93
σ_e^2	0.87	0.96	0.95	0.93	0.94	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.97	0.94	0.93	0.97	0.95	0.94	0.97	0.95
β_1	0.93	0.98	0.94	0.91	0.97	0.94	0.90	0.97	0.93
β_2	0.91	0.97	0.94	0.93	0.97	0.94	0.94	0.97	0.94
β_3	0.92	0.99	0.95	0.92	0.98	0.95	0.91	0.98	0.94
$\sigma_{u_0}^2$	0.85	0.93	0.93	0.92	0.91	0.95	0.92	0.93	0.95
$\sigma_{u_1}^2$	0.98	0.89	0.98	0.75	0.91	0.93	0.75	0.92	0.92
σ_{u_0,u_1}	0.90	0.99	0.93	0.89	0.96	0.90	0.88	0.96	0.90
σ_e^2	0.93	0.96	0.95	0.95	0.96	0.96	0.94	0.95	0.94
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.98

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.94	0.94	0.96	0.95	0.94	0.96	0.95
β_1	0.92	0.96	0.94	0.92	0.96	0.94	0.93	0.96	0.95
β_2	0.93	0.96	0.94	0.95	0.96	0.95	0.94	0.96	0.95
β_3	0.92	0.97	0.95	0.91	0.96	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.92	0.94	0.94	0.93	0.94	0.94	0.94	0.94	0.96
$\sigma_{u_1}^2$	0.75	0.92	0.94	0.70	0.94	0.92	0.81	0.93	0.91
σ_{u_0,u_1}	0.91	0.97	0.88	0.90	0.95	0.90	0.92	0.95	0.92
σ_e^2	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.94	0.94
ρ_{u_0,u_1}	—	—	0.98	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.94	0.95	0.95	0.95	0.96	0.95
β_1	0.93	0.95	0.93	0.95	0.96	0.96	0.95	0.96	0.95
β_2	0.95	0.95	0.95	0.95	0.96	0.95	0.94	0.95	0.94
β_3	0.93	0.95	0.94	0.94	0.95	0.94	0.95	0.95	0.94
$\sigma_{u_0}^2$	0.94	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95
$\sigma_{u_1}^2$	0.58	0.95	0.89	0.89	0.94	0.92	0.94	0.95	0.94
σ_{u_0,u_1}	0.91	0.95	0.88	0.94	0.96	0.93	0.94	0.94	0.93
σ_e^2	0.92	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 2: ICC = 0.10; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.98	0.94	0.92	0.98	0.94	0.92	0.97	0.94
β_1	0.91	0.98	0.93	0.92	0.98	0.94	0.92	0.97	0.94
β_2	0.91	0.99	0.94	0.91	0.97	0.94	0.92	0.98	0.95
β_3	0.92	0.99	0.95	0.93	0.98	0.95	0.92	0.98	0.94
$\sigma_{u_0}^2$	0.78	0.92	0.97	0.79	0.92	0.92	0.86	0.92	0.94
$\sigma_{u_1}^2$	0.90	0.88	0.98	0.81	0.91	0.93	0.78	0.93	0.92
σ_{u_0,u_1}	0.88	0.99	0.92	0.86	0.97	0.86	0.88	0.97	0.88
σ_e^2	0.93	0.93	0.94	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.94	0.97	0.95	0.92	0.96	0.94
β_1	0.93	0.97	0.93	0.92	0.96	0.94	0.91	0.95	0.93
β_2	0.94	0.97	0.96	0.93	0.96	0.94	0.93	0.96	0.94
β_3	0.93	0.97	0.94	0.93	0.97	0.95	0.93	0.96	0.95
$\sigma_{u_0}^2$	0.73	0.96	0.95	0.84	0.94	0.92	0.90	0.93	0.94
$\sigma_{u_1}^2$	0.83	0.92	0.95	0.78	0.93	0.92	0.84	0.93	0.94
σ_{u_0,u_1}	0.88	0.99	0.87	0.90	0.97	0.90	0.90	0.95	0.92
σ_e^2	0.92	0.95	0.95	0.93	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.98	—	—	0.97

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.95	0.94	0.95	0.96	0.95	0.95	0.95	0.95
β_1	0.94	0.96	0.93	0.94	0.95	0.95	0.95	0.95	0.95
β_2	0.94	0.96	0.95	0.95	0.96	0.95	0.94	0.95	0.95
β_3	0.94	0.96	0.94	0.94	0.95	0.94	0.95	0.95	0.95
$\sigma_{u_0}^2$	0.80	0.95	0.91	0.92	0.95	0.93	0.93	0.95	0.94
$\sigma_{u_1}^2$	0.74	0.95	0.88	0.89	0.94	0.93	0.92	0.95	0.94
σ_{u_0,u_1}	0.91	0.96	0.85	0.92	0.95	0.92	0.93	0.95	0.93
σ_e^2	0.86	0.96	0.94	0.95	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.96	—	—	0.96

Simulation 2: ICC = 0.10; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.98	0.95	0.91	0.98	0.95	0.91	0.97	0.94
β_1	0.92	0.98	0.94	0.92	0.98	0.95	0.90	0.97	0.94
β_2	0.94	0.99	0.96	0.92	0.98	0.95	0.93	0.98	0.95
β_3	0.93	0.99	0.96	0.92	0.98	0.95	0.92	0.98	0.95
$\sigma_{u_0}^2$	0.78	0.92	0.98	0.80	0.92	0.93	0.85	0.91	0.94
$\sigma_{u_1}^2$	0.91	0.87	0.98	0.80	0.92	0.93	0.77	0.93	0.92
σ_{u_0,u_1}	0.88	0.99	0.93	0.86	0.97	0.86	0.88	0.97	0.89
σ_e^2	0.93	0.94	0.93	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.99

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.92	0.96	0.95	0.94	0.96	0.95
β_1	0.92	0.96	0.93	0.92	0.97	0.94	0.92	0.95	0.95
β_2	0.93	0.97	0.95	0.94	0.97	0.96	0.93	0.96	0.94
β_3	0.93	0.97	0.94	0.92	0.97	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.71	0.95	0.95	0.84	0.94	0.93	0.88	0.94	0.94
$\sigma_{u_1}^2$	0.84	0.93	0.95	0.77	0.93	0.92	0.83	0.94	0.93
σ_{u_0,u_1}	0.87	0.99	0.87	0.90	0.97	0.90	0.91	0.95	0.92
σ_e^2	0.92	0.95	0.96	0.93	0.95	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.98	—	—	0.97

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.95	0.94	0.94	0.95	0.95	0.94	0.95	0.95
β_1	0.93	0.95	0.93	0.94	0.95	0.95	0.94	0.95	0.95
β_2	0.93	0.97	0.95	0.94	0.97	0.96	0.93	0.96	0.94
β_3	0.93	0.97	0.94	0.92	0.97	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.81	0.95	0.91	0.92	0.96	0.94	0.94	0.95	0.94
$\sigma_{u_1}^2$	0.74	0.95	0.89	0.88	0.94	0.92	0.92	0.95	0.94
σ_{u_0,u_1}	0.91	0.96	0.87	0.93	0.95	0.93	0.94	0.95	0.93
σ_e^2	0.87	0.95	0.93	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.97	—	—	0.96	—	—	0.96

Simulation 2: ICC = 0.50; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.97	0.94	0.94	0.98	0.95	0.92	0.96	0.93
β_1	0.93	0.98	0.93	0.90	0.98	0.93	0.90	0.97	0.93
β_2	0.92	0.97	0.94	0.93	0.96	0.94	0.93	0.97	0.92
β_3	0.93	0.98	0.94	0.91	0.97	0.94	0.91	0.98	0.94
$\sigma_{u_0}^2$	0.86	0.94	0.94	0.92	0.92	0.94	0.91	0.91	0.94
$\sigma_{u_1}^2$	0.97	0.87	0.97	0.72	0.91	0.91	0.74	0.92	0.91
σ_{u_0, u_1}	0.90	0.98	0.92	0.89	0.97	0.88	0.89	0.96	0.89
σ_e^2	0.94	0.95	0.94	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0, u_1}	—	—	0.99	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.94	0.96	0.95	0.94	0.96	0.94
β_1	0.92	0.96	0.92	0.93	0.97	0.94	0.92	0.96	0.93
β_2	0.94	0.96	0.94	0.95	0.96	0.94	0.93	0.95	0.93
β_3	0.93	0.97	0.94	0.93	0.97	0.95	0.93	0.96	0.95
$\sigma_{u_0}^2$	0.93	0.94	0.94	0.94	0.94	0.95	0.94	0.94	0.94
$\sigma_{u_1}^2$	0.71	0.93	0.94	0.69	0.94	0.91	0.82	0.93	0.93
σ_{u_0, u_1}	0.90	0.96	0.86	0.90	0.95	0.89	0.92	0.95	0.92
σ_e^2	0.93	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.97	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.94	0.95	0.94	0.95	0.95	0.94
β_1	0.93	0.95	0.93	0.95	0.96	0.95	0.94	0.95	0.94
β_2	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94
β_3	0.93	0.96	0.94	0.95	0.96	0.95	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.58	0.94	0.89	0.90	0.95	0.94	0.93	0.95	0.94
σ_{u_0, u_1}	0.92	0.95	0.88	0.93	0.95	0.92	0.94	0.95	0.93
σ_e^2	0.92	0.95	0.95	0.94	0.94	0.94	0.95	0.96	0.96
ρ_{u_0, u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 2: ICC = 0.50; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.96	0.93	0.94	0.97	0.95	0.93	0.97	0.95
β_1	0.92	0.98	0.93	0.91	0.97	0.93	0.90	0.97	0.93
β_2	0.94	0.98	0.95	0.94	0.97	0.95	0.94	0.97	0.93
β_3	0.94	0.99	0.96	0.91	0.98	0.94	0.90	0.97	0.93
$\sigma_{u_0}^2$	0.87	0.94	0.94	0.92	0.91	0.94	0.91	0.91	0.93
$\sigma_{u_1}^2$	0.97	0.87	0.97	0.70	0.92	0.91	0.73	0.93	0.91
σ_{u_0, u_1}	0.91	0.98	0.93	0.89	0.97	0.89	0.88	0.96	0.89
σ_e^2	0.94	0.95	0.95	0.94	0.96	0.95	0.95	0.96	0.96
ρ_{u_0, u_1}	—	—	0.99	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.95	0.96	0.96	0.93	0.95	0.95
β_1	0.93	0.96	0.94	0.93	0.97	0.96	0.92	0.96	0.94
β_2	0.94	0.96	0.96	0.94	0.96	0.95	0.94	0.96	0.93
β_3	0.93	0.97	0.94	0.92	0.96	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.93	0.95	0.94	0.94	0.94	0.95	0.94	0.94	0.95
$\sigma_{u_1}^2$	0.73	0.93	0.94	0.68	0.94	0.91	0.82	0.94	0.93
σ_{u_0, u_1}	0.89	0.96	0.86	0.90	0.95	0.89	0.92	0.95	0.92
σ_e^2	0.93	0.95	0.94	0.93	0.95	0.94	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.97	—	—	0.97	—	—	0.97

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.94
β_1	0.92	0.95	0.93	0.95	0.96	0.95	0.94	0.95	0.94
β_2	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.93
β_3	0.93	0.95	0.94	0.94	0.95	0.95	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.94	0.95	0.94	0.95	0.95	0.95	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.57	0.95	0.90	0.90	0.95	0.94	0.93	0.95	0.94
σ_{u_0, u_1}	0.91	0.95	0.88	0.93	0.95	0.91	0.94	0.95	0.93
σ_e^2	0.92	0.95	0.95	0.94	0.94	0.94	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.95	0.91	0.98	0.94	0.92	0.98	0.95
β_1	0.93	0.99	0.94	0.91	0.97	0.94	0.92	0.98	0.95
β_2	0.92	0.98	0.95	0.91	0.98	0.94	0.93	0.98	0.95
β_3	0.92	0.98	0.96	0.91	0.98	0.94	0.89	0.96	0.93
$\sigma_{u_0}^2$	0.87	0.88	0.97	0.78	0.92	0.91	0.83	0.93	0.93
$\sigma_{u_1}^2$	0.91	0.86	0.98	0.81	0.91	0.93	0.79	0.92	0.92
σ_{u_0,u_1}	0.90	0.99	0.93	0.88	0.98	0.86	0.88	0.97	0.88
σ_e^2	0.96	0.95	0.96	0.94	0.95	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.97	0.95	0.93	0.97	0.95	0.93	0.96	0.95
β_1	0.93	0.97	0.94	0.93	0.96	0.94	0.94	0.97	0.96
β_2	0.92	0.97	0.95	0.92	0.96	0.94	0.94	0.97	0.95
β_3	0.93	0.97	0.95	0.92	0.96	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.81	0.93	0.95	0.83	0.94	0.94	0.88	0.92	0.93
$\sigma_{u_1}^2$	0.84	0.90	0.95	0.80	0.93	0.92	0.84	0.93	0.93
σ_{u_0,u_1}	0.90	0.99	0.89	0.90	0.96	0.92	0.90	0.95	0.92
σ_e^2	0.93	0.95	0.95	0.92	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.97

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.95	0.96	0.95	0.94	0.95	0.95
β_1	0.93	0.95	0.94	0.93	0.94	0.94	0.95	0.96	0.96
β_2	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.94	0.94
β_3	0.92	0.95	0.94	0.94	0.95	0.94	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.78	0.95	0.89	0.92	0.94	0.93	0.93	0.94	0.93
$\sigma_{u_1}^2$	0.80	0.93	0.90	0.88	0.93	0.92	0.93	0.95	0.94
σ_{u_0,u_1}	0.91	0.97	0.88	0.93	0.95	0.94	0.94	0.95	0.95
σ_e^2	0.88	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.96	—	—	0.96

Simulation 3: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.96	0.94	0.94	0.97	0.96	0.94	0.97	0.95
β_1	0.94	0.99	0.95	0.91	0.98	0.94	0.90	0.97	0.94
β_2	0.91	0.97	0.94	0.93	0.96	0.94	0.92	0.97	0.93
β_3	0.92	0.99	0.95	0.92	0.98	0.95	0.90	0.97	0.93
$\sigma_{u_0}^2$	0.87	0.92	0.94	0.92	0.91	0.94	0.93	0.91	0.95
$\sigma_{u_1}^2$	0.99	0.86	0.97	0.73	0.92	0.93	0.72	0.91	0.91
σ_{u_0,u_1}	0.90	0.98	0.93	0.89	0.97	0.89	0.90	0.97	0.90
σ_e^2	0.93	0.95	0.95	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.98	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.96	0.95	0.96	0.95	0.94	0.96	0.95
β_1	0.93	0.97	0.94	0.92	0.96	0.94	0.93	0.96	0.95
β_2	0.93	0.96	0.95	0.93	0.95	0.93	0.93	0.95	0.93
β_3	0.92	0.97	0.94	0.91	0.96	0.94	0.92	0.96	0.94
$\sigma_{u_0}^2$	0.92	0.93	0.94	0.94	0.93	0.95	0.94	0.93	0.95
$\sigma_{u_1}^2$	0.78	0.91	0.95	0.68	0.94	0.91	0.79	0.93	0.92
σ_{u_0,u_1}	0.92	0.97	0.90	0.91	0.96	0.90	0.92	0.95	0.92
σ_e^2	0.93	0.95	0.95	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.98	—	—	0.97	—	—	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.95	0.95	0.95	0.96	0.96	0.96
β_1	0.94	0.96	0.94	0.94	0.95	0.95	0.95	0.96	0.95
β_2	0.93	0.94	0.93	0.94	0.94	0.93	0.94	0.95	0.94
β_3	0.92	0.95	0.94	0.93	0.95	0.94	0.95	0.95	0.95
$\sigma_{u_0}^2$	0.95	0.94	0.95	0.94	0.94	0.94	0.94	0.94	0.95
$\sigma_{u_1}^2$	0.57	0.94	0.89	0.89	0.94	0.93	0.93	0.94	0.93
σ_{u_0,u_1}	0.90	0.94	0.90	0.94	0.95	0.93	0.94	0.94	0.93
σ_e^2	0.92	0.96	0.95	0.94	0.94	0.94	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.95	0.91	0.97	0.94	0.92	0.97	0.95
β_1	0.93	0.98	0.95	0.92	0.97	0.94	0.91	0.97	0.94
β_2	0.94	0.99	0.97	0.91	0.98	0.95	0.92	0.97	0.95
β_3	0.93	0.99	0.96	0.92	0.98	0.95	0.92	0.98	0.95
$\sigma_{u_0}^2$	0.83	0.90	0.97	0.80	0.93	0.93	0.85	0.90	0.93
$\sigma_{u_1}^2$	0.92	0.88	0.98	0.81	0.92	0.93	0.81	0.89	0.91
σ_{u_0,u_1}	0.91	0.99	0.95	0.88	0.98	0.88	0.87	0.96	0.91
σ_e^2	0.94	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.99

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.96	0.94	0.93	0.96	0.95	0.94	0.96	0.95
β_1	0.93	0.97	0.94	0.92	0.96	0.94	0.93	0.96	0.95
β_2	0.93	0.98	0.95	0.92	0.96	0.94	0.93	0.96	0.95
β_3	0.92	0.97	0.94	0.92	0.96	0.94	0.92	0.96	0.95
$\sigma_{u_0}^2$	0.77	0.94	0.95	0.86	0.94	0.93	0.90	0.94	0.95
$\sigma_{u_1}^2$	0.85	0.92	0.95	0.80	0.93	0.92	0.85	0.92	0.92
σ_{u_0,u_1}	0.88	0.98	0.89	0.89	0.96	0.91	0.90	0.95	0.94
σ_e^2	0.93	0.95	0.95	0.92	0.94	0.94	0.95	0.96	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.98	—	—	0.97

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.95	0.94	0.95	0.95	0.95	0.94	0.94	0.94
β_1	0.93	0.95	0.93	0.95	0.95	0.95	0.94	0.95	0.95
β_2	0.94	0.96	0.95	0.95	0.96	0.95	0.95	0.96	0.95
β_3	0.94	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.95
$\sigma_{u_0}^2$	0.78	0.95	0.90	0.93	0.95	0.94	0.95	0.95	0.95
$\sigma_{u_1}^2$	0.77	0.94	0.89	0.91	0.92	0.93	0.94	0.93	0.93
σ_{u_0,u_1}	0.91	0.96	0.88	0.92	0.94	0.93	0.93	0.95	0.94
σ_e^2	0.88	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.97	—	—	0.95	—	—	0.96

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.97	0.94	0.94	0.97	0.95	0.94	0.97	0.95
β_1	0.93	0.99	0.95	0.90	0.98	0.93	0.90	0.96	0.93
β_2	0.92	0.97	0.95	0.93	0.97	0.94	0.93	0.97	0.94
β_3	0.91	0.98	0.93	0.90	0.97	0.93	0.90	0.97	0.93
$\sigma_{u_0}^2$	0.86	0.93	0.93	0.92	0.92	0.95	0.93	0.90	0.94
$\sigma_{u_1}^2$	0.98	0.87	0.98	0.75	0.90	0.92	0.77	0.89	0.91
σ_{u_0,u_1}	0.91	0.98	0.93	0.89	0.97	0.91	0.89	0.95	0.91
σ_e^2	0.94	0.96	0.95	0.95	0.96	0.96	0.96	0.96	0.96
ρ_{u_0,u_1}	—	—	0.99	—	—	0.98	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
β_1	0.93	0.97	0.94	0.92	0.97	0.95	0.92	0.95	0.94
β_2	0.95	0.97	0.96	0.95	0.97	0.95	0.94	0.95	0.94
β_3	0.92	0.97	0.94	0.91	0.96	0.94	0.93	0.96	0.94
$\sigma_{u_0}^2$	0.93	0.94	0.94	0.94	0.93	0.94	0.93	0.92	0.94
$\sigma_{u_1}^2$	0.75	0.92	0.94	0.71	0.93	0.90	0.84	0.92	0.92
σ_{u_0,u_1}	0.91	0.96	0.90	0.91	0.95	0.91	0.90	0.94	0.92
σ_e^2	0.93	0.95	0.95	0.94	0.94	0.95	0.95	0.96	0.96
ρ_{u_0,u_1}	—	—	0.99	—	—	0.97	—	—	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.94
β_1	0.94	0.96	0.95	0.93	0.95	0.94	0.94	0.94	0.94
β_2	0.95	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.94
β_3	0.92	0.95	0.94	0.94	0.95	0.94	0.94	0.96	0.94
$\sigma_{u_0}^2$	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94
$\sigma_{u_1}^2$	0.63	0.93	0.90	0.92	0.94	0.93	0.94	0.93	0.93
σ_{u_0,u_1}	0.92	0.95	0.91	0.93	0.94	0.93	0.93	0.93	0.93
σ_e^2	0.92	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.97	—	—	0.95	—	—	0.94

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.94	0.91	0.97	0.94	0.92	0.97	0.95
β_1	0.91	0.98	0.93	0.92	0.98	0.95	0.90	0.97	0.94
β_2	0.92	0.99	0.95	0.91	0.98	0.94	0.92	0.98	0.95
β_3	0.89	0.99	0.95	0.90	0.98	0.94	0.87	0.97	0.92
$\sigma_{u_0}^2$	0.86	0.90	0.98	0.81	0.91	0.92	0.85	0.91	0.93
$\sigma_{u_1}^2$	0.96	0.58	0.91	0.90	0.64	0.84	0.87	0.64	0.81
σ_{u_0,u_1}	0.96	0.97	0.98	0.89	0.94	0.95	0.88	0.94	0.96
σ_e^2	0.92	0.95	0.95	0.87	0.93	0.93	0.82	0.87	0.87
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.99

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.93	0.95	0.94	0.93	0.95	0.94
β_1	0.91	0.96	0.93	0.90	0.94	0.93	0.90	0.93	0.92
β_2	0.93	0.97	0.95	0.93	0.97	0.94	0.93	0.96	0.94
β_3	0.88	0.97	0.93	0.88	0.95	0.92	0.88	0.94	0.91
$\sigma_{u_0}^2$	0.80	0.94	0.96	0.84	0.93	0.92	0.91	0.92	0.94
$\sigma_{u_1}^2$	0.93	0.62	0.82	0.87	0.60	0.72	0.83	0.55	0.69
σ_{u_0,u_1}	0.93	0.96	0.95	0.82	0.90	0.95	0.82	0.89	0.96
σ_e^2	0.89	0.95	0.94	0.81	0.89	0.89	0.79	0.85	0.85
ρ_{u_0,u_1}	—	—	0.99	—	—	0.98	—	—	0.98

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.93	0.93	0.91	0.92	0.91	0.91	0.92	0.92
β_1	0.87	0.88	0.89	0.76	0.76	0.77	0.71	0.72	0.73
β_2	0.94	0.96	0.96	0.94	0.95	0.95	0.94	0.94	0.94
β_3	0.87	0.91	0.89	0.81	0.84	0.82	0.76	0.79	0.77
$\sigma_{u_0}^2$	0.83	0.95	0.90	0.93	0.93	0.93	0.94	0.93	0.94
$\sigma_{u_1}^2$	0.80	0.48	0.50	0.51	0.27	0.30	0.32	0.17	0.21
σ_{u_0,u_1}	0.75	0.83	0.93	0.70	0.74	0.84	0.69	0.69	0.77
σ_e^2	0.85	0.95	0.93	0.76	0.82	0.83	0.61	0.63	0.64
ρ_{u_0,u_1}	—	—	0.97	—	—	0.93	—	—	0.91

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.97	0.95	0.93	0.97	0.95	0.93	0.97	0.95
β_1	0.92	0.99	0.95	0.90	0.98	0.95	0.90	0.97	0.93
β_2	0.91	0.97	0.94	0.93	0.97	0.95	0.93	0.97	0.94
β_3	0.91	0.99	0.95	0.89	0.98	0.94	0.89	0.98	0.93
$\sigma_{u_0}^2$	0.85	0.95	0.93	0.93	0.91	0.95	0.93	0.91	0.95
$\sigma_{u_1}^2$	0.98	0.69	0.93	0.84	0.75	0.89	0.84	0.73	0.85
σ_{u_0,u_1}	0.89	0.98	0.96	0.88	0.95	0.94	0.89	0.95	0.93
σ_e^2	0.93	0.95	0.95	0.90	0.94	0.93	0.89	0.92	0.91
ρ_{u_0,u_1}	—	—	0.99	—	—	0.98	—	—	0.98

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.94	0.95	0.97	0.96	0.95	0.96	0.95
β_1	0.91	0.97	0.93	0.90	0.95	0.93	0.91	0.94	0.93
β_2	0.93	0.96	0.94	0.94	0.96	0.94	0.93	0.95	0.94
β_3	0.91	0.97	0.95	0.89	0.95	0.93	0.90	0.95	0.92
$\sigma_{u_0}^2$	0.93	0.94	0.95	0.94	0.93	0.95	0.93	0.92	0.94
$\sigma_{u_1}^2$	0.88	0.79	0.89	0.80	0.72	0.82	0.84	0.68	0.79
σ_{u_0,u_1}	0.90	0.96	0.94	0.90	0.94	0.94	0.90	0.93	0.94
σ_e^2	0.91	0.96	0.95	0.89	0.93	0.93	0.90	0.93	0.93
ρ_{u_0,u_1}	—	—	0.98	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.94	0.95	0.95	0.94	0.95	0.95
β_1	0.92	0.94	0.93	0.88	0.89	0.89	0.84	0.85	0.85
β_2	0.94	0.95	0.94	0.94	0.94	0.93	0.94	0.94	0.94
β_3	0.90	0.95	0.93	0.88	0.90	0.89	0.84	0.87	0.85
$\sigma_{u_0}^2$	0.94	0.95	0.94	0.94	0.95	0.95	0.94	0.94	0.94
$\sigma_{u_1}^2$	0.77	0.73	0.76	0.74	0.54	0.61	0.61	0.44	0.52
σ_{u_0,u_1}	0.90	0.94	0.93	0.90	0.90	0.93	0.89	0.89	0.92
σ_e^2	0.87	0.95	0.94	0.87	0.90	0.90	0.82	0.83	0.83
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.95

R Tables of Coverage: Missing Data 30%; Bayesian Estimation with Three Priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.99	0.94	0.91	0.97	0.94	0.92	0.97	0.95
β_1	0.93	0.98	0.94	0.93	0.98	0.95	0.91	0.98	0.94
β_2	0.91	0.99	0.94	0.91	0.99	0.95	0.90	0.97	0.94
β_3	0.93	0.99	0.95	0.92	0.98	0.95	0.91	0.97	0.94
$\sigma_{u_0}^2$	0.81	0.92	0.99	0.78	0.93	0.92	0.82	0.92	0.92
$\sigma_{u_1}^2$	0.91	0.88	0.98	0.82	0.91	0.94	0.79	0.90	0.92
σ_{u_0, u_1}	0.92	0.99	0.94	0.89	0.98	0.87	0.88	0.96	0.89
σ_e^2	0.95	0.95	0.95	0.94	0.95	0.95	0.94	0.96	0.95
ρ_{u_0, u_1}	—	—	1.00	—	—	1.00	—	—	0.99

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.91	0.95	0.94	0.93	0.97	0.95
β_1	0.93	0.97	0.94	0.94	0.97	0.96	0.94	0.96	0.95
β_2	0.92	0.98	0.95	0.92	0.97	0.95	0.92	0.96	0.95
β_3	0.93	0.98	0.95	0.92	0.96	0.94	0.92	0.96	0.95
$\sigma_{u_0}^2$	0.74	0.96	0.95	0.84	0.94	0.92	0.88	0.93	0.94
$\sigma_{u_1}^2$	0.86	0.91	0.96	0.78	0.94	0.91	0.81	0.94	0.93
σ_{u_0, u_1}	0.89	0.99	0.86	0.88	0.96	0.88	0.90	0.96	0.92
σ_e^2	0.94	0.95	0.95	0.94	0.96	0.96	0.94	0.95	0.95
ρ_{u_0, u_1}	—	—	1.00	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.95
β_2	0.93	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.95
β_3	0.93	0.96	0.95	0.93	0.95	0.94	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.78	0.96	0.91	0.93	0.96	0.95	0.93	0.94	0.94
$\sigma_{u_1}^2$	0.76	0.95	0.89	0.86	0.94	0.93	0.91	0.95	0.93
σ_{u_0, u_1}	0.90	0.96	0.85	0.93	0.95	0.94	0.93	0.94	0.93
σ_e^2	0.88	0.95	0.94	0.94	0.95	0.95	0.94	0.94	0.94
ρ_{u_0, u_1}	—	—	0.96	—	—	0.97	—	—	0.96

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.90	0.98	0.95	0.93	0.96	0.95	0.93	0.96	0.94
β_1	0.93	0.98	0.94	0.92	0.98	0.94	0.91	0.97	0.93
β_2	0.89	0.97	0.94	0.92	0.97	0.94	0.92	0.97	0.94
β_3	0.93	0.99	0.96	0.90	0.98	0.94	0.91	0.98	0.94
$\sigma_{u_0}^2$	0.82	0.93	0.93	0.91	0.93	0.94	0.91	0.91	0.94
$\sigma_{u_1}^2$	0.99	0.86	0.98	0.76	0.91	0.94	0.73	0.92	0.92
σ_{u_0, u_1}	0.89	0.99	0.93	0.90	0.98	0.90	0.89	0.96	0.90
σ_e^2	0.94	0.95	0.94	0.94	0.95	0.95	0.94	0.96	0.95
ρ_{u_0, u_1}	—	—	0.99	—	—	0.99	—	—	0.98

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.97	0.95	0.94	0.96	0.94	0.94	0.96	0.95
β_1	0.94	0.97	0.94	0.92	0.96	0.93	0.93	0.96	0.95
β_2	0.91	0.95	0.93	0.93	0.95	0.93	0.93	0.96	0.94
β_3	0.92	0.97	0.94	0.90	0.96	0.93	0.93	0.97	0.94
$\sigma_{u_0}^2$	0.91	0.93	0.93	0.94	0.94	0.95	0.93	0.93	0.94
$\sigma_{u_1}^2$	0.84	0.91	0.95	0.67	0.94	0.90	0.78	0.93	0.92
σ_{u_0, u_1}	0.90	0.97	0.89	0.90	0.95	0.89	0.91	0.95	0.91
σ_e^2	0.93	0.95	0.95	0.92	0.95	0.94	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.98	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.93	0.95	0.92	0.94	0.95	0.95	0.94	0.95	0.95
β_2	0.93	0.95	0.94	0.94	0.95	0.94	0.95	0.96	0.95
β_3	0.92	0.95	0.95	0.94	0.95	0.95	0.95	0.95	0.95
$\sigma_{u_0}^2$	0.94	0.94	0.94	0.94	0.93	0.94	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.53	0.95	0.88	0.88	0.95	0.94	0.93	0.95	0.95
σ_{u_0, u_1}	0.91	0.95	0.87	0.95	0.96	0.94	0.93	0.95	0.93
σ_e^2	0.93	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.97	—	—	0.96	—	—	0.94

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.99	0.94	0.92	0.98	0.95	0.89	0.97	0.93
β_1	0.93	0.98	0.94	0.91	0.97	0.93	0.91	0.96	0.93
β_2	0.92	0.99	0.95	0.89	0.98	0.93	0.90	0.97	0.93
β_3	0.93	0.99	0.95	0.91	0.98	0.95	0.91	0.98	0.94
$\sigma_{u_0}^2$	0.77	0.92	0.98	0.77	0.93	0.92	0.84	0.93	0.94
$\sigma_{u_1}^2$	0.93	0.86	0.97	0.81	0.91	0.93	0.81	0.91	0.92
σ_{u_0, u_1}	0.89	0.99	0.93	0.85	0.98	0.84	0.88	0.97	0.88
σ_e^2	0.94	0.94	0.94	0.94	0.95	0.94	0.94	0.96	0.95
ρ_{u_0, u_1}	—	—	1.00	—	—	0.99	—	—	0.99

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.92	0.96	0.94	0.93	0.96	0.95
β_1	0.94	0.97	0.94	0.93	0.96	0.94	0.93	0.96	0.94
β_2	0.92	0.97	0.94	0.92	0.96	0.93	0.93	0.96	0.93
β_3	0.94	0.98	0.96	0.92	0.96	0.94	0.92	0.97	0.94
$\sigma_{u_0}^2$	0.72	0.96	0.95	0.83	0.94	0.93	0.90	0.94	0.94
$\sigma_{u_1}^2$	0.84	0.91	0.96	0.77	0.95	0.92	0.80	0.93	0.92
σ_{u_0, u_1}	0.86	0.98	0.86	0.89	0.96	0.87	0.90	0.95	0.90
σ_e^2	0.93	0.96	0.96	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0, u_1}	—	—	0.99	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.95	0.94	0.94	0.95	0.95	0.95	0.96	0.95
β_1	0.94	0.95	0.93	0.94	0.95	0.94	0.95	0.95	0.95
β_2	0.93	0.95	0.93	0.95	0.96	0.95	0.95	0.95	0.94
β_3	0.93	0.96	0.94	0.94	0.96	0.95	0.95	0.96	0.95
$\sigma_{u_0}^2$	0.77	0.96	0.91	0.92	0.95	0.93	0.94	0.95	0.94
$\sigma_{u_1}^2$	0.76	0.95	0.89	0.86	0.94	0.93	0.93	0.95	0.94
σ_{u_0, u_1}	0.90	0.95	0.83	0.92	0.95	0.93	0.94	0.95	0.93
σ_e^2	0.89	0.96	0.94	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.96	—	—	0.95	—	—	0.95

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.99	0.95	0.92	0.98	0.95	0.90	0.97	0.94
β_1	0.92	0.99	0.94	0.91	0.97	0.93	0.91	0.97	0.94
β_2	0.94	0.99	0.96	0.91	0.98	0.94	0.91	0.98	0.94
β_3	0.95	1.00	0.97	0.92	0.99	0.95	0.90	0.98	0.94
$\sigma_{u_0}^2$	0.75	0.92	0.98	0.77	0.93	0.92	0.83	0.93	0.94
$\sigma_{u_1}^2$	0.93	0.85	0.98	0.79	0.92	0.93	0.79	0.93	0.92
σ_{u_0, u_1}	0.89	0.99	0.93	0.87	0.98	0.85	0.88	0.97	0.88
σ_e^2	0.94	0.94	0.94	0.93	0.95	0.95	0.94	0.95	0.95
ρ_{u_0, u_1}	—	—	1.00	—	—	0.99	—	—	0.99

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.98	0.95	0.92	0.96	0.94	0.92	0.97	0.95
β_1	0.94	0.97	0.94	0.92	0.96	0.94	0.92	0.96	0.94
β_2	0.94	0.98	0.96	0.92	0.96	0.94	0.92	0.96	0.94
β_3	0.94	0.98	0.96	0.93	0.98	0.95	0.92	0.97	0.95
$\sigma_{u_0}^2$	0.71	0.96	0.95	0.82	0.94	0.93	0.89	0.95	0.94
$\sigma_{u_1}^2$	0.85	0.92	0.95	0.76	0.95	0.91	0.80	0.94	0.92
σ_{u_0, u_1}	0.86	0.99	0.87	0.90	0.96	0.89	0.90	0.96	0.91
σ_e^2	0.93	0.96	0.96	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0, u_1}	—	—	0.99	—	—	0.98	—	—	0.97

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.94	0.95	0.96	0.96	0.96	0.96	0.96
β_1	0.94	0.96	0.94	0.93	0.95	0.94	0.95	0.95	0.95
β_2	0.93	0.96	0.95	0.96	0.97	0.96	0.95	0.96	0.95
β_3	0.92	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.77	0.95	0.91	0.92	0.94	0.94	0.93	0.95	0.93
$\sigma_{u_1}^2$	0.74	0.96	0.89	0.86	0.94	0.94	0.92	0.95	0.95
σ_{u_0, u_1}	0.90	0.96	0.83	0.93	0.96	0.94	0.94	0.95	0.93
σ_e^2	0.89	0.96	0.94	0.93	0.94	0.95	0.95	0.95	0.95
ρ_{u_0, u_1}	—	—	0.95	—	—	0.96	—	—	0.95

Simulation 2: ICC = 0.50; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.98	0.95	0.93	0.97	0.94	0.93	0.98	0.94
β_1	0.93	0.98	0.93	0.91	0.97	0.93	0.91	0.96	0.92
β_2	0.91	0.98	0.94	0.93	0.97	0.94	0.93	0.97	0.92
β_3	0.93	0.99	0.95	0.91	0.98	0.94	0.91	0.98	0.93
$\sigma_{u_0}^2$	0.84	0.95	0.94	0.92	0.93	0.94	0.93	0.93	0.95
$\sigma_{u_1}^2$	0.98	0.88	0.97	0.75	0.92	0.93	0.73	0.91	0.90
σ_{u_0,u_1}	0.89	0.98	0.92	0.88	0.97	0.87	0.86	0.95	0.86
σ_e^2	0.94	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.97

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.97	0.95	0.94	0.96	0.94	0.93	0.95	0.93
β_1	0.92	0.96	0.93	0.91	0.96	0.93	0.91	0.95	0.93
β_2	0.93	0.96	0.94	0.95	0.97	0.94	0.93	0.95	0.91
β_3	0.92	0.98	0.94	0.91	0.97	0.94	0.93	0.96	0.95
$\sigma_{u_0}^2$	0.91	0.95	0.94	0.93	0.94	0.95	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.80	0.93	0.95	0.68	0.93	0.92	0.80	0.92	0.91
σ_{u_0,u_1}	0.90	0.96	0.87	0.90	0.96	0.88	0.90	0.95	0.89
σ_e^2	0.94	0.96	0.95	0.93	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.97	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.93
β_1	0.94	0.96	0.93	0.93	0.95	0.94	0.94	0.94	0.94
β_2	0.94	0.95	0.94	0.94	0.95	0.93	0.94	0.95	0.93
β_3	0.92	0.96	0.94	0.93	0.94	0.93	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.94	0.95	0.94	0.94	0.93	0.94	0.94	0.95	0.94
$\sigma_{u_1}^2$	0.52	0.96	0.90	0.87	0.94	0.92	0.92	0.94	0.93
σ_{u_0,u_1}	0.92	0.95	0.86	0.93	0.95	0.93	0.94	0.95	0.92
σ_e^2	0.91	0.96	0.94	0.94	0.95	0.95	0.94	0.95	0.94
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.94

Simulation 2: ICC = 0.50; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.91	0.97	0.95	0.92	0.97	0.94	0.92	0.96	0.93
β_1	0.92	0.98	0.94	0.91	0.96	0.93	0.91	0.97	0.94
β_2	0.93	0.98	0.95	0.92	0.97	0.93	0.92	0.97	0.92
β_3	0.95	0.99	0.96	0.91	0.98	0.94	0.90	0.97	0.93
$\sigma_{u_0}^2$	0.84	0.94	0.94	0.92	0.93	0.95	0.91	0.93	0.95
$\sigma_{u_1}^2$	0.99	0.88	0.98	0.72	0.92	0.92	0.70	0.92	0.91
σ_{u_0,u_1}	0.90	0.98	0.92	0.89	0.97	0.87	0.88	0.97	0.87
σ_e^2	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.96	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.97

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.95	0.94	0.96	0.94	0.94	0.96	0.94
β_1	0.92	0.96	0.92	0.91	0.95	0.93	0.93	0.96	0.94
β_2	0.93	0.97	0.95	0.95	0.97	0.95	0.93	0.95	0.92
β_3	0.93	0.97	0.95	0.92	0.97	0.95	0.91	0.95	0.93
$\sigma_{u_0}^2$	0.92	0.95	0.94	0.94	0.94	0.95	0.93	0.93	0.94
$\sigma_{u_1}^2$	0.80	0.93	0.95	0.68	0.94	0.92	0.79	0.93	0.91
σ_{u_0,u_1}	0.90	0.96	0.88	0.90	0.96	0.89	0.91	0.95	0.90
σ_e^2	0.94	0.95	0.95	0.93	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.98	—	—	0.97	—	—	0.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.93
β_1	0.94	0.96	0.93	0.94	0.95	0.95	0.94	0.94	0.94
β_2	0.95	0.95	0.94	0.94	0.95	0.94	0.94	0.94	0.92
β_3	0.92	0.96	0.94	0.93	0.95	0.94	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94
$\sigma_{u_1}^2$	0.50	0.96	0.88	0.86	0.95	0.93	0.92	0.95	0.94
σ_{u_0,u_1}	0.92	0.95	0.85	0.94	0.96	0.92	0.94	0.95	0.92
σ_e^2	0.90	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.95	—	—	0.95	—	—	0.94

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.98	0.93	0.91	0.98	0.94	0.91	0.98	0.94
β_1	0.93	0.98	0.95	0.91	0.98	0.93	0.93	0.98	0.95
β_2	0.93	0.99	0.96	0.90	0.98	0.94	0.90	0.98	0.94
β_3	0.91	0.99	0.95	0.90	0.98	0.94	0.90	0.98	0.93
$\sigma_{u_0}^2$	0.85	0.92	0.99	0.79	0.92	0.92	0.83	0.93	0.94
$\sigma_{u_1}^2$	0.93	0.85	0.98	0.81	0.91	0.94	0.80	0.91	0.92
σ_{u_0,u_1}	0.92	0.99	0.95	0.88	0.98	0.86	0.89	0.97	0.89
σ_e^2	0.95	0.94	0.94	0.93	0.95	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	1.00	—	—	0.99

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.97	0.94	0.94	0.97	0.96	0.94	0.96	0.95
β_1	0.93	0.98	0.94	0.92	0.96	0.93	0.93	0.96	0.94
β_2	0.92	0.98	0.95	0.91	0.96	0.94	0.91	0.96	0.94
β_3	0.92	0.97	0.95	0.91	0.96	0.94	0.92	0.96	0.95
$\sigma_{u_0}^2$	0.79	0.95	0.97	0.82	0.94	0.93	0.87	0.94	0.94
$\sigma_{u_1}^2$	0.87	0.91	0.96	0.78	0.94	0.91	0.82	0.94	0.93
σ_{u_0,u_1}	0.89	0.99	0.89	0.90	0.96	0.89	0.90	0.95	0.93
σ_e^2	0.94	0.95	0.96	0.92	0.95	0.94	0.94	0.96	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.98	—	—	0.98

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.94	0.95	0.94	0.95	0.95	0.95
β_1	0.94	0.96	0.94	0.94	0.95	0.95	0.94	0.95	0.94
β_2	0.92	0.95	0.94	0.94	0.96	0.95	0.94	0.95	0.94
β_3	0.92	0.95	0.94	0.92	0.94	0.94	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.78	0.95	0.90	0.92	0.93	0.93	0.93	0.95	0.94
$\sigma_{u_1}^2$	0.79	0.93	0.89	0.87	0.94	0.94	0.93	0.94	0.94
σ_{u_0,u_1}	0.91	0.96	0.88	0.91	0.94	0.95	0.93	0.95	0.93
σ_e^2	0.89	0.95	0.94	0.94	0.95	0.95	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.97	—	—	0.96	—	—	0.95

Simulation 3: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.90	0.97	0.94	0.93	0.97	0.95	0.93	0.97	0.95
β_1	0.93	0.98	0.94	0.92	0.96	0.93	0.91	0.97	0.94
β_2	0.89	0.97	0.93	0.92	0.97	0.94	0.91	0.97	0.94
β_3	0.93	0.99	0.95	0.91	0.99	0.94	0.90	0.98	0.94
$\sigma_{u_0}^2$	0.83	0.94	0.93	0.92	0.92	0.95	0.92	0.93	0.95
$\sigma_{u_1}^2$	0.99	0.87	0.98	0.75	0.93	0.93	0.71	0.93	0.91
σ_{u_0,u_1}	0.90	0.98	0.94	0.90	0.97	0.89	0.90	0.97	0.88
σ_e^2	0.94	0.95	0.94	0.94	0.95	0.95	0.94	0.95	0.94
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
β_1	0.92	0.96	0.93	0.93	0.96	0.95	0.93	0.96	0.94
β_2	0.93	0.96	0.94	0.93	0.96	0.95	0.94	0.96	0.93
β_3	0.92	0.97	0.94	0.90	0.96	0.94	0.90	0.96	0.93
$\sigma_{u_0}^2$	0.92	0.93	0.94	0.94	0.94	0.95	0.94	0.93	0.95
$\sigma_{u_1}^2$	0.86	0.91	0.95	0.66	0.94	0.90	0.73	0.94	0.92
σ_{u_0,u_1}	0.92	0.98	0.90	0.90	0.95	0.89	0.92	0.96	0.90
σ_e^2	0.95	0.95	0.95	0.94	0.95	0.95	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.97	—	—	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.94	0.94	0.94	0.96	0.96	0.96
β_1	0.94	0.96	0.94	0.95	0.96	0.96	0.95	0.96	0.95
β_2	0.94	0.95	0.94	0.93	0.94	0.93	0.94	0.94	0.94
β_3	0.91	0.95	0.94	0.94	0.96	0.95	0.94	0.95	0.95
$\sigma_{u_0}^2$	0.93	0.94	0.93	0.94	0.93	0.94	0.95	0.94	0.95
$\sigma_{u_1}^2$	0.60	0.93	0.89	0.87	0.93	0.92	0.93	0.94	0.94
σ_{u_0,u_1}	0.90	0.94	0.90	0.94	0.95	0.93	0.93	0.94	0.93
σ_e^2	0.93	0.95	0.94	0.93	0.94	0.93	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.96	—	—	0.95

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.95	0.91	0.97	0.94	0.91	0.98	0.95
β_1	0.93	0.98	0.95	0.92	0.97	0.94	0.92	0.97	0.93
β_2	0.92	0.99	0.96	0.90	0.98	0.94	0.91	0.98	0.96
β_3	0.92	0.99	0.95	0.91	0.98	0.94	0.91	0.98	0.94
$\sigma_{u_0}^2$	0.80	0.91	0.98	0.78	0.93	0.93	0.83	0.92	0.93
$\sigma_{u_1}^2$	0.93	0.84	0.98	0.82	0.89	0.93	0.80	0.89	0.91
σ_{u_0,u_1}	0.91	1.00	0.94	0.87	0.98	0.87	0.88	0.97	0.90
σ_e^2	0.96	0.96	0.95	0.94	0.96	0.96	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	1.00	—	—	0.99

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.98	0.95	0.93	0.97	0.95	0.92	0.96	0.94
β_1	0.94	0.98	0.95	0.94	0.96	0.95	0.92	0.96	0.94
β_2	0.92	0.97	0.95	0.91	0.96	0.94	0.92	0.96	0.95
β_3	0.91	0.97	0.94	0.90	0.96	0.93	0.92	0.96	0.95
$\sigma_{u_0}^2$	0.77	0.95	0.96	0.84	0.94	0.93	0.88	0.94	0.93
$\sigma_{u_1}^2$	0.87	0.92	0.96	0.79	0.93	0.91	0.82	0.90	0.91
σ_{u_0,u_1}	0.88	0.98	0.89	0.89	0.96	0.91	0.88	0.94	0.93
σ_e^2	0.93	0.95	0.96	0.93	0.95	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	1.00	—	—	0.99	—	—	0.98

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.95
β_1	0.94	0.96	0.94	0.94	0.95	0.95	0.94	0.95	0.95
β_2	0.93	0.96	0.95	0.94	0.95	0.95	0.95	0.96	0.96
β_3	0.93	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.95
$\sigma_{u_0}^2$	0.79	0.96	0.92	0.93	0.94	0.93	0.94	0.95	0.95
$\sigma_{u_1}^2$	0.79	0.93	0.87	0.90	0.92	0.92	0.94	0.92	0.93
σ_{u_0,u_1}	0.89	0.96	0.86	0.91	0.94	0.93	0.93	0.94	0.94
σ_e^2	0.89	0.95	0.94	0.94	0.95	0.95	0.95	0.96	0.96
ρ_{u_0,u_1}	—	—	0.96	—	—	0.96	—	—	0.95

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.98	0.96	0.94	0.97	0.95	0.93	0.96	0.95
β_1	0.92	0.98	0.94	0.90	0.97	0.94	0.91	0.96	0.93
β_2	0.89	0.97	0.94	0.92	0.97	0.94	0.92	0.97	0.94
β_3	0.92	0.99	0.95	0.90	0.97	0.93	0.90	0.97	0.93
$\sigma_{u_0}^2$	0.82	0.94	0.93	0.92	0.92	0.95	0.92	0.91	0.95
$\sigma_{u_1}^2$	0.99	0.84	0.97	0.78	0.90	0.92	0.75	0.90	0.91
σ_{u_0,u_1}	0.90	0.99	0.94	0.90	0.97	0.89	0.88	0.95	0.89
σ_e^2	0.94	0.95	0.95	0.93	0.95	0.94	0.94	0.95	0.95
ρ_{u_0,u_1}	—	—	0.99	—	—	0.99	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
β_1	0.92	0.97	0.93	0.92	0.96	0.94	0.93	0.96	0.95
β_2	0.94	0.96	0.95	0.94	0.97	0.95	0.93	0.95	0.94
β_3	0.92	0.97	0.95	0.89	0.95	0.93	0.91	0.96	0.93
$\sigma_{u_0}^2$	0.92	0.95	0.94	0.93	0.93	0.94	0.94	0.92	0.95
$\sigma_{u_1}^2$	0.83	0.90	0.96	0.69	0.91	0.90	0.81	0.91	0.92
σ_{u_0,u_1}	0.91	0.96	0.91	0.89	0.95	0.90	0.90	0.94	0.92
σ_e^2	0.94	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.94
ρ_{u_0,u_1}	—	—	0.98	—	—	0.98	—	—	0.97

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.94	0.94	0.95	0.96	0.95
β_1	0.93	0.95	0.93	0.94	0.95	0.94	0.94	0.94	0.94
β_2	0.95	0.96	0.95	0.95	0.95	0.94	0.95	0.96	0.95
β_3	0.92	0.95	0.94	0.94	0.96	0.95	0.94	0.95	0.94
$\sigma_{u_0}^2$	0.95	0.95	0.95	0.94	0.93	0.94	0.95	0.93	0.94
$\sigma_{u_1}^2$	0.59	0.94	0.88	0.90	0.91	0.92	0.94	0.91	0.93
σ_{u_0,u_1}	0.90	0.94	0.89	0.93	0.94	0.93	0.93	0.93	0.92
σ_e^2	0.91	0.95	0.94	0.94	0.95	0.94	0.95	0.95	0.95
ρ_{u_0,u_1}	—	—	0.96	—	—	0.95	—	—	0.94

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.92	0.99	0.94	0.92	0.97	0.94	0.92	0.97	0.94
β_1	0.91	0.98	0.94	0.92	0.97	0.94	0.89	0.95	0.92
β_2	0.92	0.99	0.96	0.90	0.98	0.94	0.91	0.97	0.93
β_3	0.88	1.00	0.95	0.87	0.99	0.93	0.86	0.98	0.92
$\sigma_{u_0}^2$	0.84	0.91	0.99	0.79	0.93	0.92	0.84	0.92	0.93
$\sigma_{u_1}^2$	0.99	0.50	0.90	0.93	0.55	0.82	0.89	0.53	0.77
σ_{u_0, u_1}	0.97	0.97	0.99	0.90	0.96	0.95	0.87	0.93	0.95
σ_e^2	0.93	0.93	0.93	0.89	0.94	0.93	0.84	0.90	0.89
ρ_{u_0, u_1}	—	—	1.00	—	—	0.99	—	—	0.99

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.97	0.95	0.93	0.95	0.95	0.93	0.95	0.94
β_1	0.93	0.96	0.94	0.89	0.94	0.93	0.86	0.91	0.90
β_2	0.94	0.99	0.96	0.91	0.97	0.94	0.93	0.97	0.95
β_3	0.89	0.97	0.94	0.84	0.95	0.90	0.85	0.94	0.90
$\sigma_{u_0}^2$	0.80	0.95	0.96	0.83	0.94	0.91	0.88	0.93	0.93
$\sigma_{u_1}^2$	0.95	0.55	0.80	0.86	0.47	0.64	0.80	0.42	0.58
σ_{u_0, u_1}	0.94	0.96	0.96	0.84	0.90	0.97	0.81	0.88	0.95
σ_e^2	0.89	0.93	0.93	0.86	0.92	0.92	0.83	0.89	0.89
ρ_{u_0, u_1}	—	—	1.00	—	—	0.99	—	—	0.98

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.93	0.93	0.91	0.92	0.92	0.89	0.90	0.90
β_1	0.80	0.80	0.83	0.61	0.63	0.66	0.51	0.53	0.54
β_2	0.93	0.95	0.94	0.95	0.96	0.96	0.94	0.95	0.95
β_3	0.88	0.94	0.90	0.77	0.82	0.79	0.69	0.75	0.72
$\sigma_{u_0}^2$	0.80	0.96	0.91	0.91	0.95	0.93	0.93	0.95	0.94
$\sigma_{u_1}^2$	0.72	0.29	0.34	0.36	0.13	0.16	0.18	0.06	0.08
σ_{u_0, u_1}	0.75	0.84	0.93	0.66	0.70	0.83	0.67	0.67	0.75
σ_e^2	0.90	0.94	0.92	0.86	0.90	0.91	0.75	0.77	0.77
ρ_{u_0, u_1}	—	—	0.98	—	—	0.94	—	—	0.91

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.90	0.97	0.94	0.93	0.97	0.95	0.92	0.97	0.95
β_1	0.90	0.99	0.94	0.88	0.97	0.93	0.90	0.97	0.94
β_2	0.89	0.97	0.93	0.92	0.98	0.94	0.93	0.98	0.94
β_3	0.89	0.99	0.95	0.88	0.98	0.93	0.86	0.98	0.93
$\sigma_{u_0}^2$	0.80	0.96	0.93	0.91	0.94	0.95	0.91	0.92	0.94
$\sigma_{u_1}^2$	0.99	0.67	0.94	0.91	0.69	0.88	0.84	0.67	0.85
σ_{u_0, u_1}	0.89	0.98	0.97	0.87	0.96	0.94	0.87	0.95	0.94
σ_e^2	0.93	0.96	0.95	0.91	0.95	0.94	0.90	0.93	0.93
ρ_{u_0, u_1}	—	—	0.99	—	—	0.98	—	—	0.98

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.94	0.94	0.96	0.95	0.93	0.95	0.94
β_1	0.91	0.96	0.93	0.91	0.96	0.94	0.90	0.94	0.93
β_2	0.93	0.97	0.95	0.93	0.95	0.94	0.93	0.95	0.94
β_3	0.90	0.98	0.94	0.87	0.96	0.92	0.88	0.95	0.92
$\sigma_{u_0}^2$	0.89	0.96	0.94	0.93	0.94	0.95	0.93	0.93	0.94
$\sigma_{u_1}^2$	0.94	0.74	0.88	0.82	0.66	0.80	0.82	0.61	0.76
σ_{u_0, u_1}	0.89	0.97	0.93	0.88	0.94	0.94	0.90	0.93	0.95
σ_e^2	0.92	0.96	0.95	0.89	0.95	0.93	0.89	0.94	0.93
ρ_{u_0, u_1}	—	—	0.98	—	—	0.96	—	—	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.95	0.95	0.94	0.95	0.95
β_1	0.91	0.94	0.92	0.86	0.87	0.88	0.80	0.82	0.82
β_2	0.95	0.96	0.95	0.94	0.94	0.95	0.93	0.94	0.93
β_3	0.88	0.94	0.92	0.83	0.88	0.85	0.80	0.84	0.79
$\sigma_{u_0}^2$	0.93	0.95	0.92	0.93	0.95	0.94	0.94	0.95	0.94
$\sigma_{u_1}^2$	0.78	0.67	0.72	0.68	0.41	0.50	0.49	0.30	0.38
σ_{u_0, u_1}	0.90	0.93	0.94	0.90	0.91	0.93	0.90	0.89	0.92
σ_e^2	0.88	0.95	0.93	0.89	0.91	0.91	0.86	0.87	0.87
ρ_{u_0, u_1}	—	—	0.95	—	—	0.94	—	—	0.93

S Tables of Percent Bias: Missing Data 15%; Multiple Imputation with three priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.00	-0.19	-0.84	-0.46	0.03	-0.31	-0.55	-0.19	-0.43
β_1	-2.78	-4.32	-2.73	-1.37	-1.33	-1.45	-0.43	-0.46	-0.56
β_2	1.51	-8.93	-4.24	-2.51	-9.77	-4.72	-2.13	-8.13	-2.20
β_3	-6.11	-12.69	-7.30	-4.60	-8.22	-5.29	-0.84	-3.95	-1.53
$\sigma_{u_0}^2$	11.78	32.76	19.70	-6.39	1.99	-2.28	-3.35	2.02	-0.79
$\sigma_{u_1}^2$	11.83	73.55	38.58	-8.02	16.36	4.07	-10.51	6.63	-1.34
σ_{u_0, u_1}	-38.21	-42.71	-40.63	-6.01	-1.23	-11.47	-1.19	2.54	-7.19
σ_e^2	-3.21	-5.35	-4.60	0.25	-0.60	-0.36	0.35	-0.12	-0.04
ρ_{u_0, u_1}	-41.07	-56.48	-48.13	2.08	-6.80	-8.19	6.05	-0.83	-5.14
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.86	-0.37	-0.73	-0.35	-0.12	-0.27	-0.28	-0.11	-0.23
β_1	-2.09	-2.64	-1.96	-0.44	-0.48	-0.61	0.35	0.18	0.05
β_2	1.61	-7.65	-2.76	2.91	-2.10	2.11	-4.31	-6.27	-3.25
β_3	-2.06	-6.87	-3.80	-1.41	-3.97	-2.12	-1.15	-2.99	-1.63
$\sigma_{u_0}^2$	-0.89	11.18	4.43	-3.18	1.12	-0.88	-1.58	0.76	-0.47
$\sigma_{u_1}^2$	-3.77	35.10	16.34	-8.91	7.43	1.27	-6.27	3.30	-0.13
σ_{u_0, u_1}	-22.33	-24.55	-25.79	0.96	0.97	-5.74	1.21	0.46	-5.21
σ_e^2	0.45	-1.35	-0.73	0.41	-0.24	-0.09	0.33	0.05	0.07
ρ_{u_0, u_1}	-15.36	-33.19	-26.87	9.25	-0.47	-3.43	8.06	0.56	-3.49
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.26	-0.09	-0.21	-0.15	-0.11	-0.15	-0.04	-0.01	-0.04
β_1	-0.89	-0.83	-1.04	0.20	0.01	-0.04	0.19	0.07	0.08
β_2	4.29	-0.21	2.03	-1.78	-2.25	-1.15	-0.87	-1.38	-0.65
β_3	-0.25	-1.88	-0.70	-0.73	-1.29	-0.73	-0.21	-0.63	-0.36
$\sigma_{u_0}^2$	-4.57	-0.04	-1.85	0.06	0.84	0.45	-0.32	0.16	-0.10
$\sigma_{u_1}^2$	-12.16	5.09	-0.63	-2.28	2.17	1.04	-1.54	0.48	-0.28
σ_{u_0, u_1}	-7.61	-9.66	-15.19	2.19	0.59	-1.60	1.11	0.99	-0.47
σ_e^2	0.96	-0.12	0.18	0.11	-0.05	-0.03	-0.08	-0.11	-0.12
ρ_{u_0, u_1}	7.60	-4.27	-6.80	4.89	0.12	-1.53	2.43	0.90	-0.05

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.02	0.08	-0.65	-0.84	-0.31	-0.76	-0.82	-0.35	-0.74
β_1	-4.24	-4.71	-4.04	-1.18	-0.82	-1.45	-0.38	-0.14	-0.79
β_2	-2.73	-8.94	-4.78	-5.84	-10.49	-4.86	-5.65	-10.34	-5.42
β_3	-5.97	-11.18	-6.16	-2.72	-6.44	-2.96	-3.06	-6.47	-3.73
$\sigma_{u_0}^2$	-5.01	0.44	-2.72	-1.28	1.13	-0.96	-1.50	0.54	-1.19
$\sigma_{u_1}^2$	15.17	65.43	32.50	-10.40	15.24	1.77	-10.69	6.30	-1.71
σ_{u_0, u_1}	-29.20	-24.90	-30.17	-2.33	2.36	-7.25	-3.59	2.09	-7.38
σ_e^2	-0.20	-1.89	-1.22	0.63	-0.34	0.06	0.37	-0.14	0.06
ρ_{u_0, u_1}	-33.41	-38.41	-35.29	2.36	-2.92	-5.19	2.38	-0.58	-5.92
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.76	-0.31	-0.68	-0.31	-0.02	-0.27	-0.49	-0.26	-0.47
β_1	-2.27	-2.51	-2.78	-0.36	-0.20	-0.64	-0.21	-0.18	-0.52
β_2	-1.40	-5.23	-1.80	-0.88	-3.29	-0.45	-0.24	-2.26	0.61
β_3	-5.16	-8.43	-4.85	-0.38	-2.84	-0.89	0.17	-1.80	-0.36
$\sigma_{u_0}^2$	-0.80	0.31	-0.80	-1.52	-0.75	-1.71	-0.06	0.87	-0.10
$\sigma_{u_1}^2$	-5.43	31.52	13.24	-11.00	5.87	-0.66	-7.67	1.55	-2.19
σ_{u_0, u_1}	-16.14	-13.29	-20.98	-5.03	-1.19	-7.59	-4.05	-1.28	-6.40
σ_e^2	0.55	-1.07	-0.40	0.74	0.06	0.27	0.22	-0.05	0.02
ρ_{u_0, u_1}	-7.53	-16.11	-16.27	3.24	-1.75	-5.18	0.67	-2.07	-5.07
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.07	-0.00	-0.11	0.06	0.13	0.07	-0.29	-0.24	-0.28
β_1	-0.46	-0.40	-0.81	-0.05	-0.07	-0.23	-0.17	-0.11	-0.27
β_2	-1.15	-2.46	-1.21	0.20	-0.30	0.42	-0.58	-1.08	-0.48
β_3	-0.39	-1.42	-0.38	-0.27	-0.96	-0.39	-0.16	-0.59	-0.24
$\sigma_{u_0}^2$	0.28	-0.17	-0.37	0.03	0.23	-0.00	-0.45	-0.24	-0.43
$\sigma_{u_1}^2$	-12.76	6.51	0.91	-2.33	1.60	0.15	-1.06	0.88	-0.10
σ_{u_0, u_1}	-1.59	0.74	-4.03	0.80	1.53	-0.67	0.05	0.96	-0.73
σ_e^2	1.07	-0.02	0.29	0.04	-0.11	-0.06	0.12	0.05	0.09
ρ_{u_0, u_1}	12.58	3.68	1.30	3.00	1.36	-0.02	0.83	0.62	-0.49

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.21	-0.95	-1.19	-0.20	0.05	0.09	-0.12	0.09	0.25
β_1	-2.92	-6.48	-3.87	-0.23	-2.03	-1.02	-0.21	-1.62	-0.94
β_2	-2.14	-1.58	-2.90	-6.07	-7.10	-10.34	-7.80	-9.65	-13.83
β_3	-3.20	4.58	-0.50	-1.15	3.20	0.27	-1.88	1.65	-1.01
$\sigma_{u_0}^2$	8.29	23.02	13.50	-3.15	2.02	-0.30	-1.79	1.32	0.27
$\sigma_{u_1}^2$	9.29	68.23	35.05	-9.79	15.77	2.41	-12.15	5.02	-3.31
σ_{u_0,u_1}	-49.61	-65.60	-56.69	-14.41	-23.98	-26.07	-4.85	-12.52	-17.05
σ_e^2	-2.26	-4.56	-3.66	0.19	-0.65	-0.33	0.47	-0.04	0.11
ρ_{u_0,u_1}	-53.89	-78.25	-65.65	-6.26	-27.21	-23.82	5.23	-12.38	-13.89

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.32	-0.22	-0.21	0.02	0.18	0.35	-0.06	0.10	0.22
β_1	-1.51	-3.57	-2.08	-0.20	-1.39	-0.88	-0.18	-1.10	-0.68
β_2	-4.89	-2.76	-6.48	-4.15	-4.67	-9.09	-2.87	-4.25	-7.31
β_3	-2.07	2.69	-0.38	-1.20	1.47	-0.32	-0.88	1.15	-0.34
$\sigma_{u_0}^2$	-4.16	3.71	-0.79	-3.15	-0.29	-1.09	-2.29	-0.58	-0.97
$\sigma_{u_1}^2$	-3.36	34.71	14.98	-9.50	7.20	0.36	-7.06	3.11	-1.09
σ_{u_0,u_1}	-29.83	-38.43	-35.04	0.26	-8.44	-13.23	-3.17	-10.04	-12.42
σ_e^2	-0.01	-1.86	-1.12	0.55	-0.08	0.04	0.39	0.09	0.09
ρ_{u_0,u_1}	-21.52	-43.24	-31.58	11.68	-7.39	-9.31	4.74	-9.12	-10.18

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.13	-0.12	0.01	0.04	0.10	0.17	0.01	0.05	0.11
β_1	-0.14	-0.97	-0.63	0.09	-0.30	-0.19	-0.03	-0.29	-0.20
β_2	-0.74	0.70	-2.62	-2.08	-2.35	-4.13	-0.91	-1.12	-2.56
β_3	-1.19	1.01	-0.64	-0.33	0.52	-0.05	-0.28	0.29	-0.09
$\sigma_{u_0}^2$	-3.83	-0.43	-1.29	-1.55	-0.81	-0.94	-0.70	-0.34	-0.36
$\sigma_{u_1}^2$	-12.25	5.10	-0.65	-3.97	0.79	-0.72	-1.90	0.25	-0.67
σ_{u_0,u_1}	-3.38	-10.06	-16.25	0.07	-2.98	-5.18	-0.87	-2.41	-3.88
σ_e^2	1.06	0.00	0.26	0.07	-0.11	-0.09	0.09	0.06	0.04
ρ_{u_0,u_1}	14.72	-2.64	-6.99	4.77	-1.70	-3.44	1.10	-1.78	-2.94

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.34	-0.29	-0.89	-0.47	0.23	-0.08	-0.45	0.15	-0.04
β_1	-4.10	-6.69	-4.47	-0.29	-1.65	-0.88	-0.61	-1.59	-1.26
β_2	-0.74	0.70	-2.62	-2.08	-2.35	-4.13	-0.91	-1.12	-2.56
β_3	-1.19	1.01	-0.64	-0.33	0.52	-0.05	-0.28	0.29	-0.09
$\sigma_{u_0}^2$	-3.83	-0.43	-1.29	-1.55	-0.81	-0.94	-0.70	-0.34	-0.36
$\sigma_{u_1}^2$	11.73	67.01	37.75	-9.67	11.92	0.97	-12.94	1.04	-5.01
σ_{u_0,u_1}	-46.61	-65.59	-53.81	-10.47	-19.89	-20.04	-1.30	-9.36	-11.41
σ_e^2	-2.67	-4.81	-4.09	0.15	-0.63	-0.39	0.40	-0.06	0.08
ρ_{u_0,u_1}	-49.13	-76.30	-57.77	0.58	-20.94	-15.15	11.80	-7.59	-6.45

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.71	-0.07	-0.49	-0.17	0.18	0.09	-0.24	0.07	0.00
β_1	-2.05	-3.48	-2.43	-0.14	-1.21	-0.90	0.14	-0.74	-0.39
β_2	-1.95	-12.53	-8.54	-8.26	-14.07	-14.48	-6.12	-12.06	-13.10
β_3	-17.33	-12.64	-17.08	-8.09	-2.34	-4.57	-11.60	-6.89	-10.22
$\sigma_{u_0}^2$	-5.36	3.20	-1.57	-3.73	-0.43	-1.35	-3.44	-1.16	-1.80
$\sigma_{u_1}^2$	-3.15	32.27	16.08	-10.27	4.79	-0.46	-7.74	1.03	-1.82
σ_{u_0,u_1}	-20.38	-33.32	-27.92	3.47	-6.88	-8.97	-1.00	-7.89	-8.57
σ_e^2	-0.12	-1.85	-1.28	0.47	-0.17	-0.01	0.40	0.12	0.14
ρ_{u_0,u_1}	-13.19	-40.28	-27.46	17.12	-4.03	-3.77	8.48	-5.64	-5.32

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.25	-0.06	-0.12	-0.05	0.03	0.03	0.01	0.07	0.07
β_1	-0.20	-0.82	-0.72	0.15	-0.28	-0.13	0.15	-0.13	-0.01
β_2	1.71	-2.18	-2.55	-2.59	-4.27	-4.79	-3.46	-4.52	-4.92
β_3	-7.08	-2.40	-4.16	-0.71	2.51	0.83	-3.46	-1.67	-3.21
$\sigma_{u_0}^2$	-4.01	-1.21	-1.73	-1.72	-1.06	-1.12	-0.99	-0.57	-0.58
$\sigma_{u_1}^2$	-12.51	4.04	-1.10	-4.03	-0.03	-0.78	-2.06	-0.23	-0.97
σ_{u_0,u_1}	-0.43	-10.48	-12.91	0.94	-2.83	-3.57	0.04	-1.53	-2.12
σ_e^2	1.04	-0.05	0.26	0.03	-0.12	-0.13	0.06	0.03	0.03
ρ_{u_0,u_1}	18.95	-1.88	-2.63	6.02	-0.85	-1.39	2.21	-0.62	-0.91

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.59	0.13	-0.03	-0.15	-0.02	0.27	0.59	0.80	1.00
β_1	-1.29	-4.27	-2.22	-1.32	-2.96	-2.16	-0.02	-1.53	-0.88
β_2	-5.50	-8.85	-8.09	-5.64	-6.83	-8.64	-7.59	-9.75	-11.01
β_3	-3.06	2.28	-1.82	-0.20	3.48	0.96	-2.42	1.01	-0.99
$\sigma_{u_0}^2$	-5.24	-2.83	-3.81	-0.16	0.20	0.10	-0.37	0.04	-0.15
$\sigma_{u_1}^2$	21.43	69.82	39.53	-12.52	13.43	0.13	-11.59	5.19	-2.88
σ_{u_0, u_1}	-22.73	-34.54	-32.00	-13.38	-18.77	-22.10	-10.19	-15.93	-17.55
σ_e^2	-1.11	-2.80	-2.00	0.68	-0.27	0.14	0.25	-0.25	-0.05
ρ_{u_0, u_1}	-21.92	-43.69	-34.66	-3.74	-19.21	-17.26	-2.27	-16.81	-15.16
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.32	-0.23	-0.13	-0.25	-0.25	0.05	0.63	0.60	0.81
β_1	-0.55	-2.37	-1.35	0.03	-0.98	-0.69	0.01	-0.76	-0.57
β_2	-3.43	-4.31	-4.97	-2.62	-3.23	-4.86	-6.41	-6.50	-7.86
β_3	-3.22	0.47	-1.83	-1.44	1.16	-0.14	-1.46	0.39	-0.53
$\sigma_{u_0}^2$	-0.45	-0.52	-0.51	0.29	0.17	0.34	-0.53	-0.43	-0.37
$\sigma_{u_1}^2$	-8.67	25.97	8.58	-11.43	5.13	-0.90	-6.29	2.99	-0.42
σ_{u_0, u_1}	-18.85	-24.75	-26.04	-7.39	-10.52	-13.79	-4.55	-7.38	-9.28
σ_e^2	0.29	-1.27	-0.64	0.58	-0.13	0.12	0.34	0.04	0.17
ρ_{u_0, u_1}	-10.43	-27.46	-22.50	2.24	-9.88	-11.00	0.86	-7.28	-8.14
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.26	0.06	0.23	0.22	0.23	0.33	-0.08	-0.04	0.04
β_1	-0.18	-0.85	-0.71	0.21	-0.06	-0.01	-0.17	-0.34	-0.29
β_2	-2.69	-2.00	-2.88	-2.48	-2.61	-3.18	0.15	-0.10	-0.58
β_3	-1.19	0.75	-0.12	-1.06	-0.54	-0.84	0.01	0.35	0.14
$\sigma_{u_0}^2$	0.84	-0.05	0.26	0.04	0.03	0.11	-0.61	-0.54	-0.50
$\sigma_{u_1}^2$	-14.21	4.72	-0.49	-2.89	0.79	-0.58	-1.10	0.76	-0.08
σ_{u_0, u_1}	-5.90	-5.91	-9.06	-1.88	-3.29	-4.07	-1.14	-2.12	-2.62
σ_e^2	0.61	-0.48	-0.18	0.15	-0.00	0.07	0.12	0.06	0.09
ρ_{u_0, u_1}	8.60	-1.97	-3.52	0.66	-2.86	-3.15	-0.07	-2.00	-2.15

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.76	0.50	-0.14	-0.83	-0.10	-0.43	-0.22	0.41	0.06
β_1	-2.66	-4.75	-3.20	-1.18	-2.26	-1.98	-0.47	-1.42	-1.16
β_2	-11.15	-21.17	-15.86	-6.90	-13.91	-11.22	-11.76	-18.09	-14.79
β_3	-9.42	-3.38	-8.34	-6.29	-3.00	-4.25	-6.39	-2.62	-4.16
$\sigma_{u_0}^2$	-5.39	-1.96	-3.67	-0.71	0.66	-0.11	-1.14	0.26	-0.60
$\sigma_{u_1}^2$	18.21	64.47	35.53	-13.37	9.18	-2.12	-11.87	2.46	-3.60
σ_{u_0, u_1}	-25.38	-35.85	-30.99	-10.22	-16.68	-18.37	-8.65	-13.82	-15.24
σ_e^2	-1.15	-2.89	-2.07	0.70	-0.23	0.24	0.18	-0.36	-0.16
ρ_{u_0, u_1}	-23.34	-43.17	-31.48	1.35	-14.91	-12.22	-1.10	-14.37	-12.75
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.77	-0.33	-0.61	-0.58	-0.23	-0.30	-0.31	0.03	-0.04
β_1	-1.83	-3.10	-2.57	-0.03	-0.69	-0.73	-0.43	-1.02	-1.02
β_2	-5.11	-9.90	-7.37	-4.83	-9.19	-8.31	-4.29	-7.71	-7.27
β_3	-9.79	-5.34	-7.06	-3.53	-0.53	-1.06	-1.22	1.33	0.73
$\sigma_{u_0}^2$	-0.88	-0.74	-0.81	-0.34	0.01	-0.04	-1.21	-0.56	-0.82
$\sigma_{u_1}^2$	-8.31	25.70	9.24	-12.17	2.64	-2.73	-6.33	1.24	-1.62
σ_{u_0, u_1}	-17.38	-24.10	-23.95	-6.23	-10.22	-12.03	-2.72	-6.66	-7.92
σ_e^2	0.28	-1.37	-0.71	0.50	-0.23	0.08	0.32	0.01	0.17
ρ_{u_0, u_1}	-7.64	-25.63	-19.78	4.25	-8.27	-8.03	3.50	-5.30	-5.57
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.02	-0.01	-0.06	0.11	0.15	0.18	-0.13	-0.05	-0.08
β_1	-0.23	-0.69	-0.84	-0.02	-0.29	-0.29	-0.21	-0.42	-0.39
β_2	-2.42	-3.68	-2.77	-4.48	-5.07	-5.22	-0.14	-0.85	-0.71
β_3	-6.08	-1.72	-2.27	-1.90	-0.73	-0.99	0.34	0.94	0.82
$\sigma_{u_0}^2$	0.45	-0.35	-0.10	-0.10	-0.10	-0.04	-0.84	-0.70	-0.75
$\sigma_{u_1}^2$	-14.27	3.81	-0.93	-2.81	0.52	-0.38	-1.12	0.36	-0.15
σ_{u_0, u_1}	-4.76	-6.07	-8.15	-1.48	-2.63	-3.19	-0.62	-1.87	-2.06
σ_e^2	0.62	-0.49	-0.15	0.14	0.00	0.05	0.10	0.07	0.10
ρ_{u_0, u_1}	10.61	-0.95	-1.19	1.01	-2.10	-2.37	0.71	-1.41	-1.35

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.33	-0.66	-1.22	-0.73	-0.33	-0.62	-0.48	-0.20	-0.37
β_1	-3.37	-5.41	-3.54	-0.58	-0.98	-0.65	-0.54	-0.83	-0.75
β_2	5.09	-3.28	0.83	-4.81	-11.18	-8.33	-3.27	-7.51	-3.44
β_3	-9.80	-19.70	-13.41	-2.87	-8.09	-3.69	-1.08	-4.00	-1.20
$\sigma_{u_0}^2$	19.44	40.87	27.28	-6.27	1.89	-2.67	-5.47	-0.01	-2.99
$\sigma_{u_1}^2$	12.35	73.71	39.34	-8.93	16.45	3.76	-10.63	5.28	-1.73
σ_{u_0, u_1}	-42.19	-46.32	-42.21	-7.08	-4.76	-11.41	-2.22	-2.80	-8.64
σ_e^2	-3.28	-5.34	-4.56	0.35	-0.50	-0.22	0.46	-0.10	0.09
ρ_{u_0, u_1}	-52.80	-70.26	-58.89	4.76	-7.74	-4.79	8.78	-1.46	-3.54

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.46	-0.06	-0.41	-0.05	0.16	-0.00	-0.12	0.01	-0.08
β_1	-1.31	-1.88	-1.26	0.36	-0.10	-0.07	0.74	0.33	0.46
β_2	1.77	-5.19	-2.09	2.00	-2.64	0.34	-2.40	-4.34	-2.33
β_3	-3.28	-9.09	-4.78	-2.81	-6.29	-4.04	-2.39	-4.72	-2.75
$\sigma_{u_0}^2$	6.99	19.16	11.41	-2.91	1.40	-0.67	-1.18	1.32	0.14
$\sigma_{u_1}^2$	3.37	43.21	25.11	-8.86	6.36	1.64	-5.12	3.99	1.33
σ_{u_0, u_1}	-12.00	-14.38	-17.18	8.17	5.65	-0.63	5.32	2.06	-1.64
σ_e^2	-0.28	-2.16	-1.55	0.53	-0.05	0.06	0.32	0.02	0.03
ρ_{u_0, u_1}	-11.58	-29.70	-22.01	20.97	7.74	4.54	11.80	1.97	-0.63

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.01	0.14	0.02	0.04	0.08	0.04	-0.03	0.00	-0.03
β_1	0.70	0.36	0.33	0.58	0.28	0.33	0.45	0.30	0.36
β_2	3.32	0.03	1.18	4.47	4.50	4.36	5.61	5.41	5.27
β_3	0.48	-1.84	-0.52	1.04	0.56	1.01	1.91	1.50	1.85
$\sigma_{u_0}^2$	-1.09	3.51	1.58	0.34	1.21	0.73	-0.14	0.46	0.16
$\sigma_{u_1}^2$	-5.12	11.69	7.96	-2.27	1.98	1.43	-0.71	1.12	0.57
σ_{u_0, u_1}	11.56	5.69	0.04	7.84	4.81	2.68	4.88	3.91	3.06
σ_e^2	0.76	-0.21	-0.04	0.21	0.04	0.03	0.11	0.06	0.06
ρ_{u_0, u_1}	24.31	7.80	5.13	11.34	4.90	3.16	5.92	3.56	3.15

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.68	-1.10	-1.42	-1.01	-0.63	-0.87	-1.11	-0.77	-0.92
β_1	-3.99	-6.08	-4.52	-1.31	-2.13	-1.88	-0.55	-1.01	-1.06
β_2	-5.85	-10.06	-7.92	-4.51	-7.32	-6.47	-4.56	-7.13	-5.49
β_3	-34.56	-35.37	-32.76	-15.34	-13.53	-11.46	-24.26	-21.54	-20.66
$\sigma_{u_0}^2$	-1.96	2.25	0.14	-0.91	1.25	0.08	-1.21	0.59	-0.35
$\sigma_{u_1}^2$	18.07	70.83	38.94	-13.05	10.52	-0.95	-11.11	3.47	-2.42
σ_{u_0, u_1}	-17.59	-20.83	-21.66	-8.52	-13.34	-15.47	-6.85	-9.95	-12.22
σ_e^2	-0.77	-2.73	-1.80	0.53	-0.41	0.01	0.55	-0.03	0.23
ρ_{u_0, u_1}	-25.72	-39.72	-32.79	3.28	-12.16	-9.01	2.88	-8.77	-8.20

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.25	-0.12	-0.20	-0.08	-0.01	-0.07	-0.05	0.06	-0.05
β_1	-1.24	-2.34	-1.95	-0.67	-1.14	-1.21	-0.17	-0.54	-0.61
β_2	-1.36	-3.44	-2.27	-2.82	-4.70	-3.61	-1.00	-3.11	-2.15
β_3	-46.77	-39.27	-40.48	-20.59	-17.07	-16.59	-19.16	-17.72	-15.66
$\sigma_{u_0}^2$	1.28	1.90	1.45	0.18	0.51	0.15	0.32	1.03	0.53
$\sigma_{u_1}^2$	-0.29	38.98	20.45	-11.12	4.16	-0.66	-6.87	0.78	-1.55
σ_{u_0, u_1}	-4.26	-10.74	-13.58	-1.05	-4.24	-7.13	-0.66	-3.34	-4.92
σ_e^2	0.04	-1.76	-1.01	0.65	-0.07	0.17	0.39	0.07	0.20
ρ_{u_0, u_1}	1.82	-17.72	-13.97	9.80	-2.55	-3.43	5.38	-2.40	-2.96

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.45	0.40	0.39	0.21	0.24	0.23	0.28	0.31	0.30
β_1	-0.02	-0.38	-0.63	0.23	0.05	0.04	-0.26	-0.37	-0.41
β_2	3.35	3.07	3.51	1.80	0.86	1.34	3.27	2.59	2.98
β_3	-25.87	-19.44	-18.17	-8.71	-7.94	-7.67	-8.78	-8.86	-8.28
$\sigma_{u_0}^2$	2.43	1.69	1.72	0.35	0.50	0.43	0.55	0.76	0.65
$\sigma_{u_1}^2$	-11.10	9.05	4.99	-2.07	1.45	0.49	-0.98	0.38	-0.08
σ_{u_0, u_1}	10.19	5.67	2.58	3.14	2.11	1.22	1.94	1.34	0.70
σ_e^2	0.82	-0.30	-0.03	0.27	0.13	0.17	0.13	0.09	0.12
ρ_{u_0, u_1}	24.93	8.54	6.83	5.08	1.82	1.43	2.41	0.93	0.59

Simulation 4: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.92	-0.16	-0.74	-0.61	-0.12	-0.46	-0.83	-0.49	-0.74
β_1	-3.96	-5.34	-3.89	-0.38	-0.55	-0.51	0.04	-0.04	-0.18
β_2	-3.53	-13.11	-6.69	-6.04	-12.45	-7.71	-5.11	-10.63	-5.38
β_3	-8.93	-15.00	-10.04	-3.02	-6.36	-3.67	1.08	-2.51	-0.05
$\sigma_{u_0}^2$	15.14	35.56	23.05	-5.86	2.44	-1.98	-0.69	4.57	1.55
$\sigma_{u_1}^2$	9.99	70.41	37.76	-9.79	15.75	2.74	-5.47	12.05	4.26
σ_{u_0, u_1}	-33.97	-40.37	-37.48	-5.62	-1.24	-11.66	11.71	15.43	4.89
σ_e^2	-2.01	-4.20	-3.44	0.39	-0.47	-0.20	0.47	-0.01	0.06
ρ_{u_0, u_1}	-42.15	-61.55	-49.88	5.35	-4.49	-5.63	14.19	6.16	1.85

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.63	-0.14	-0.51	-0.23	-0.01	-0.18	-0.25	-0.10	-0.22
β_1	-1.89	-2.33	-1.60	0.40	0.14	0.12	0.72	0.39	0.35
β_2	3.58	-5.17	-0.81	-2.79	-6.93	-3.26	-0.74	-2.69	0.19
β_3	-4.57	-8.60	-5.74	0.41	-2.11	-0.01	-1.16	-2.67	-1.79
$\sigma_{u_0}^2$	-1.79	10.41	3.57	-2.17	1.57	-0.34	-1.17	1.07	-0.12
$\sigma_{u_1}^2$	-3.68	37.35	16.94	-7.81	8.43	2.46	-1.59	8.00	4.73
σ_{u_0, u_1}	-25.15	-24.57	-27.32	7.10	6.73	-0.21	9.97	9.48	3.79
σ_e^2	-0.08	-1.98	-1.32	0.57	-0.05	0.07	0.12	-0.16	-0.13
ρ_{u_0, u_1}	-18.68	-34.81	-26.64	15.87	5.50	2.65	13.22	5.78	1.95

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.15	0.02	-0.10	-0.10	-0.05	-0.10	0.05	0.09	0.06
β_1	-0.26	-0.39	-0.59	0.72	0.50	0.47	0.60	0.47	0.46
β_2	0.79	-4.18	-1.49	-0.81	-1.61	-0.53	0.79	0.14	0.91
β_3	-1.62	-3.55	-2.12	0.17	-0.75	-0.02	0.76	0.10	0.62
$\sigma_{u_0}^2$	-3.61	0.95	-0.85	0.17	0.92	0.61	0.87	1.36	1.10
$\sigma_{u_1}^2$	-8.36	9.30	4.38	1.65	6.17	4.93	3.23	5.23	4.36
σ_{u_0, u_1}	3.12	0.93	-6.10	8.78	7.41	4.87	7.98	8.09	6.21
σ_e^2	1.04	-0.01	0.24	0.03	-0.10	-0.09	-0.01	-0.03	-0.02
ρ_{u_0, u_1}	18.22	5.21	1.19	9.31	4.85	2.87	6.05	4.84	3.51

Simulation 4: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.41	-0.45	-1.13	-0.33	0.12	-0.23	-0.11	0.26	-0.11
β_1	-3.40	-4.05	-3.08	-0.60	-0.46	-1.00	0.49	0.57	0.07
β_2	-6.34	-11.49	-7.22	0.33	-5.17	0.11	-6.63	-10.94	-6.22
β_3	-4.83	-9.06	-4.18	1.77	-1.50	1.68	0.40	-3.22	0.17
$\sigma_{u_0}^2$	-3.45	1.70	-1.79	-0.48	1.95	0.12	0.75	2.90	0.81
$\sigma_{u_1}^2$	19.80	71.55	37.71	-6.61	19.70	7.10	-5.59	12.48	3.77
σ_{u_0, u_1}	-17.21	-15.36	-17.39	-0.04	4.79	-5.01	8.98	13.20	4.08
σ_e^2	-0.57	-2.60	-1.70	0.49	-0.50	-0.09	0.36	-0.23	0.02
ρ_{u_0, u_1}	-20.61	-30.36	-22.70	6.30	-0.81	-3.96	12.68	6.52	3.04

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.62	-0.23	-0.58	-0.20	0.02	-0.19	-0.16	0.02	-0.15
β_1	-0.94	-1.30	-1.37	0.44	0.61	0.12	0.39	0.36	0.03
β_2	-1.49	-5.69	-1.97	-0.52	-4.32	-0.76	-1.00	-3.20	-0.17
β_3	-1.98	-4.88	-0.98	1.40	-1.47	0.94	0.79	-1.23	0.47
$\sigma_{u_0}^2$	-0.04	0.99	-0.24	0.26	1.13	0.15	0.93	1.75	0.75
$\sigma_{u_1}^2$	-4.52	35.42	16.64	-8.75	8.50	2.33	-1.55	7.50	3.65
σ_{u_0, u_1}	-7.49	-3.98	-11.96	1.88	5.87	-1.24	3.60	5.75	0.63
σ_e^2	0.48	-1.26	-0.60	0.59	-0.17	0.09	0.20	-0.09	0.03
ρ_{u_0, u_1}	-4.14	-13.10	-12.82	9.97	3.90	0.23	5.07	1.69	-1.17

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.31	0.37	0.28	0.19	0.27	0.18	0.39	0.46	0.40
β_1	0.45	0.46	-0.07	0.77	0.72	0.51	0.54	0.53	0.36
β_2	0.47	-1.02	0.53	0.84	0.07	0.85	2.58	1.85	2.41
β_3	0.38	-0.44	0.55	2.18	1.46	2.20	2.84	2.30	2.92
$\sigma_{u_0}^2$	1.79	1.37	1.09	1.73	1.97	1.65	1.25	1.52	1.28
$\sigma_{u_1}^2$	-8.18	11.62	6.62	1.12	4.85	3.95	2.64	4.41	3.91
σ_{u_0, u_1}	6.75	9.53	3.72	8.66	9.33	6.53	8.48	9.30	6.88
σ_e^2	0.85	-0.24	0.07	0.09	-0.03	0.01	-0.06	-0.09	-0.07
ρ_{u_0, u_1}	17.92	9.38	5.48	7.69	6.10	4.07	6.33	6.05	4.20

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.50	0.29	-0.46	0.51	1.01	0.59	0.61	1.03	0.67
β_1	0.51	1.48	1.28	6.52	7.88	6.49	6.74	8.24	6.80
β_2	3.65	-11.68	-5.47	4.09	-5.77	1.41	5.98	-0.97	4.92
β_3	7.30	-4.80	2.94	21.86	13.86	19.36	20.49	15.03	18.26
$\sigma_{u_0}^2$	9.04	33.61	14.70	-3.88	4.51	-1.27	-2.09	4.04	0.13
σ_{u_0, u_1}	104.32	284.45	196.18	64.34	131.47	100.96	54.47	95.14	79.17
σ_e^2	45.24	131.57	58.45	68.80	94.19	60.70	65.99	79.76	57.17
ρ_{u_0, u_1}	0.20	-3.43	-2.30	3.98	2.54	3.04	5.01	4.04	4.35
	-11.86	-12.86	-18.21	29.44	23.91	15.70	35.11	27.33	19.12

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.61	1.15	0.63	0.87	1.11	0.87	1.09	1.28	1.09
β_1	5.52	7.87	6.38	8.41	9.41	8.36	9.19	9.58	8.81
β_2	5.70	-8.56	-1.32	1.86	-3.33	0.08	3.33	-0.15	3.69
β_3	17.59	6.66	14.71	22.57	18.46	21.73	21.79	19.00	21.48
$\sigma_{u_0}^2$	-4.63	7.59	-2.11	-1.75	2.03	-0.48	1.15	3.56	1.69
$\sigma_{u_1}^2$	95.96	201.05	159.66	63.57	100.40	89.49	62.34	84.07	78.20
σ_{u_0, u_1}	70.05	112.50	67.96	81.28	87.70	68.36	79.37	82.24	68.58
σ_e^2	2.23	-0.71	0.10	4.28	3.22	3.42	4.25	3.74	3.81
ρ_{u_0, u_1}	28.51	20.47	15.49	43.64	33.18	24.13	41.47	32.73	25.60

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.98	1.15	0.90	1.30	1.35	1.28	1.32	1.36	1.31
β_1	10.22	11.03	9.28	10.81	10.79	10.31	10.54	10.58	10.20
β_2	6.55	0.87	4.29	2.80	1.89	2.74	3.97	3.10	3.89
β_3	21.16	18.18	22.16	23.93	22.88	24.20	24.36	23.51	24.42
$\sigma_{u_0}^2$	-5.76	-1.65	-4.92	1.70	2.35	1.79	2.96	3.43	3.06
$\sigma_{u_1}^2$	100.01	134.32	133.28	81.59	90.52	89.71	73.86	77.94	77.58
σ_{u_0, u_1}	126.30	125.75	99.38	87.14	86.51	78.42	75.90	76.65	71.70
σ_e^2	2.41	1.06	1.18	3.19	2.95	3.00	3.74	3.66	3.69
ρ_{u_0, u_1}	72.92	56.62	42.02	38.96	34.26	28.85	31.75	30.40	27.25

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.21	-1.05	-1.93	-0.34	0.21	-0.35	-0.55	-0.06	-0.56
β_1	-2.30	-3.03	-2.50	3.32	4.60	3.58	4.45	5.51	4.92
β_2	-3.43	-9.33	-4.71	-4.47	-10.34	-5.82	-6.54	-12.03	-7.53
β_3	2.43	-6.37	2.82	9.59	4.52	9.40	12.35	7.09	12.39
$\sigma_{u_0}^2$	-6.73	-1.70	-5.80	-1.57	1.07	-1.74	-1.45	1.16	-1.63
$\sigma_{u_1}^2$	89.62	191.05	132.31	28.96	83.22	55.86	28.38	66.36	47.82
σ_{u_0, u_1}	-0.50	10.15	-3.88	8.33	15.00	2.43	14.27	17.70	10.27
σ_e^2	0.52	-1.77	-0.86	3.27	1.74	2.38	3.09	2.12	2.43
ρ_{u_0, u_1}	-28.08	-34.88	-30.97	-1.08	-9.30	-12.54	3.88	-3.26	-6.72

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.22	0.15	-0.29	-0.28	-0.04	-0.34	-0.37	-0.09	-0.41
β_1	1.38	2.00	0.78	5.16	5.85	4.86	6.73	7.01	6.51
β_2	-2.95	-7.51	-3.66	-4.89	-8.30	-5.21	-4.29	-6.88	-3.84
β_3	3.65	-0.48	4.73	13.69	10.13	13.55	16.65	13.69	16.11
$\sigma_{u_0}^2$	-1.65	-1.46	-2.66	-0.69	-0.04	-1.21	0.08	1.43	-0.29
$\sigma_{u_1}^2$	40.76	105.89	77.67	33.68	66.39	55.12	38.43	57.40	48.85
σ_{u_0, u_1}	14.39	18.98	4.82	23.58	26.63	16.21	22.14	23.80	20.54
σ_e^2	2.30	0.14	0.89	2.76	1.71	2.01	2.51	2.04	2.19
ρ_{u_0, u_1}	1.49	-9.02	-11.91	11.21	2.58	-1.60	6.42	1.15	-0.28

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.06	0.01	-0.17	-0.08	-0.01	-0.11	-0.35	-0.27	-0.37
β_1	4.64	5.29	4.38	6.43	6.61	6.26	7.05	7.15	6.88
β_2	-2.44	-4.36	-2.63	-3.57	-4.44	-3.42	-3.26	-4.20	-3.34
β_3	10.48	9.14	11.17	15.82	14.96	15.90	17.51	16.83	17.48
$\sigma_{u_0}^2$	-1.08	-1.86	-2.26	-1.58	-1.41	-1.74	-1.08	-0.72	-1.21
$\sigma_{u_1}^2$	36.87	66.46	59.46	46.53	52.99	50.73	44.33	47.88	46.28
σ_{u_0, u_1}	27.36	29.35	22.46	25.28	26.60	23.61	24.93	25.74	23.91
σ_e^2	2.24	0.98	1.27	1.97	1.77	1.85	2.18	2.12	2.15
ρ_{u_0, u_1}	16.45	6.47	3.08	5.42	3.94	2.34	5.07	4.30	3.41

T Tables of Percent Bias: Missing Data 30%; Multiple Imputation with three priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.24	-1.47	-2.77	-1.98	-0.78	-1.51	-1.21	-0.31	-0.87
β_1	-5.44	-9.66	-5.72	-1.12	-1.72	-1.15	-0.60	-0.77	-0.98
β_2	-7.76	-18.84	-13.87	-6.20	-20.50	-10.67	-6.00	-16.38	-5.79
β_3	-14.16	-24.33	-16.70	-5.47	-12.45	-6.65	-2.87	-8.89	-3.78
$\sigma_{u_0}^2$	-0.63	35.72	12.77	-11.70	5.67	-3.68	-8.79	2.92	-3.70
$\sigma_{u_1}^2$	-2.37	102.84	39.68	-18.05	28.59	2.32	-17.02	15.17	-1.44
σ_{u_0, u_1}	-38.86	-42.02	-40.97	-14.85	-5.53	-21.74	-1.26	7.72	-10.84
σ_e^2	-2.75	-5.70	-4.72	0.32	-0.80	-0.48	0.56	-0.11	0.01
ρ_{u_0, u_1}	-45.21	-70.35	-54.74	-2.36	-15.48	-16.59	11.62	0.70	-7.30

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.70	-0.55	-1.28	-1.20	-0.56	-0.97	-0.92	-0.46	-0.73
β_1	-5.54	-7.40	-5.65	-0.45	-0.99	-0.95	0.05	-0.47	-0.69
β_2	6.40	-9.09	-2.11	-5.73	-13.76	-7.43	-5.47	-9.79	-3.74
β_3	-7.68	-14.87	-9.73	-1.71	-7.04	-2.84	-1.52	-5.30	-3.02
$\sigma_{u_0}^2$	-11.61	10.82	-1.36	-6.74	2.08	-2.25	-4.78	0.68	-2.13
$\sigma_{u_1}^2$	-10.15	60.55	22.74	-17.84	12.43	-0.25	-12.56	7.07	0.06
σ_{u_0, u_1}	-39.27	-40.85	-40.13	-1.81	-1.48	-13.89	4.52	4.46	-6.21
σ_e^2	0.21	-2.57	-1.42	0.82	-0.15	0.03	0.46	-0.04	0.03
ρ_{u_0, u_1}	-31.26	-53.65	-42.23	11.56	-5.40	-11.60	16.91	2.89	-4.37

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.73	-0.25	-0.54	-0.10	0.04	-0.07	-0.06	0.02	-0.04
β_1	-1.12	-1.46	-1.48	0.26	-0.24	-0.25	0.31	0.10	0.04
β_2	4.84	-3.65	0.44	-2.60	-4.15	-1.80	-1.54	-2.64	-0.78
β_3	0.39	-2.95	-0.41	-0.11	-1.44	-0.53	-0.40	-1.14	-0.46
$\sigma_{u_0}^2$	-10.36	-0.44	-4.15	-1.38	0.46	-0.46	-0.37	0.71	0.06
$\sigma_{u_1}^2$	-18.47	11.09	1.19	-7.80	1.92	-0.71	-3.77	0.50	-1.21
σ_{u_0, u_1}	-9.61	-12.75	-21.74	4.80	1.62	-2.56	2.02	1.48	-1.47
σ_e^2	1.23	-0.38	0.01	0.28	-0.02	-0.01	0.25	0.16	0.17
ρ_{u_0, u_1}	11.85	-8.60	-13.05	12.31	1.52	-1.45	4.68	1.06	-0.85

Simulation 1: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.03	-1.03	-2.56	-1.86	-0.46	-1.37	-1.60	-0.36	-1.16
β_1	-7.43	-9.96	-6.42	-2.57	-2.97	-3.27	-0.20	-0.22	-1.25
β_2	-8.95	-19.54	-12.79	-4.26	-12.98	-4.42	-6.34	-13.26	-3.82
β_3	-15.57	-25.17	-15.20	-8.00	-14.53	-6.86	-2.75	-9.58	-3.71
$\sigma_{u_0}^2$	-10.12	3.40	-3.59	-4.18	1.56	-2.20	-2.98	1.71	-1.85
$\sigma_{u_1}^2$	15.59	106.91	44.80	-20.57	27.59	-0.69	-20.77	14.34	-3.70
σ_{u_0, u_1}	-47.78	-48.80	-46.15	-14.90	-9.04	-22.35	-8.59	-0.26	-16.20
σ_e^2	-1.36	-4.14	-3.04	1.01	-0.48	0.23	0.84	-0.06	0.36
ρ_{u_0, u_1}	-50.50	-62.80	-51.82	-6.70	-17.24	-19.78	4.07	-5.27	-12.37

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.27	-0.08	-0.88	-0.96	-0.30	-0.83	-0.91	-0.41	-0.86
β_1	-4.70	-6.36	-5.63	-0.82	-1.25	-2.04	-0.17	-0.39	-1.11
β_2	-7.68	-15.14	-9.10	-5.58	-10.74	-4.75	-5.55	-9.43	-3.74
β_3	-8.05	-15.01	-8.26	-2.83	-8.02	-4.10	-2.64	-7.40	-3.74
$\sigma_{u_0}^2$	-3.41	0.36	-2.18	-1.45	0.60	-1.31	-0.49	1.26	-0.59
$\sigma_{u_1}^2$	-11.42	55.94	20.07	-21.30	12.39	-1.97	-12.71	7.17	-0.92
σ_{u_0, u_1}	-24.18	-21.11	-30.06	-4.71	-0.04	-12.00	-4.89	-0.57	-10.08
σ_e^2	0.84	-1.70	-0.73	0.91	-0.26	0.21	0.35	-0.21	-0.01
ρ_{u_0, u_1}	-20.59	-34.16	-32.99	9.82	-2.63	-8.39	4.29	-2.96	-9.11

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.25	0.03	-0.26	-0.07	0.12	-0.04	0.03	0.18	0.06
β_1	-0.68	-1.22	-1.72	0.11	-0.07	-0.39	0.12	0.06	-0.19
β_2	-0.73	-2.61	-0.33	-0.62	-1.77	0.01	-1.22	-2.51	-1.22
β_3	-0.33	-2.05	0.27	1.01	-0.65	0.55	0.64	-0.51	0.46
$\sigma_{u_0}^2$	0.28	-0.08	-0.67	-0.16	0.29	-0.26	-0.09	0.43	-0.00
$\sigma_{u_1}^2$	-25.39	8.84	-2.16	-6.22	2.85	-0.28	-2.39	1.68	0.07
σ_{u_0, u_1}	-5.32	-3.03	-11.25	-1.24	0.38	-3.99	0.46	1.54	-1.76
σ_e^2	1.21	-0.48	0.01	0.30	0.00	0.10	-0.01	-0.08	-0.04
ρ_{u_0, u_1}	15.95	-1.64	-6.07	3.91	-0.16	-3.00	1.92	0.64	-1.70

Simulation 2: ICC = 0.10; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.93	-0.74	-1.67	0.03	0.84	0.55	0.30	1.01	1.09
β_1	-4.04	-11.55	5.64	-1.51	5.39	-2.85	-0.03	-3.59	-1.87
β_2	-24.18	-26.52	-25.82	-27.71	-31.64	-34.46	-20.76	-26.20	-32.37
β_3	-3.63	11.47	1.10	-2.45	7.15	0.26	-3.54	5.01	-0.91
$\sigma_{u_0}^2$	-3.54	27.46	7.66	-9.61	1.71	-3.69	-7.71	-0.76	-3.60
$\sigma_{u_1}^2$	4.90	116.23	50.62	-17.03	29.20	2.57	-16.33	18.32	-0.39
σ_{u_0, u_1}	-65.50	-88.54	-68.55	-28.26	-41.65	-41.23	-12.11	-28.17	-33.03
σ_e^2	-2.77	-6.36	-5.21	0.34	-0.91	-0.48	0.54	-0.18	-0.01
ρ_{u_0, u_1}	-75.57	-103.00	-81.50	-19.25	-48.64	-39.54	2.96	-30.89	-29.44

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.15	-0.64	-1.02	-0.44	-0.00	0.20	-0.10	0.34	0.59
β_1	-1.70	-6.36	-3.23	-0.40	-3.29	-1.93	0.44	-1.77	-0.98
β_2	-12.51	-10.08	-12.89	-10.49	-12.33	-19.34	-8.50	-12.28	-18.82
β_3	-4.18	6.49	0.25	-3.51	3.36	-1.17	-2.71	2.00	-1.29
$\sigma_{u_0}^2$	-11.57	5.49	-3.96	-6.86	-1.13	-2.97	-4.08	-0.53	-1.49
$\sigma_{u_1}^2$	-11.48	57.13	21.46	-19.44	12.66	-2.22	-12.99	8.38	-0.67
σ_{u_0, u_1}	-46.42	-64.36	-54.42	-8.58	-22.86	-29.30	-2.52	-15.52	-21.74
σ_e^2	0.44	-2.39	-1.44	0.64	-0.34	-0.08	0.34	-0.18	-0.12
ρ_{u_0, u_1}	-38.48	-71.53	-54.82	10.16	-22.07	-23.72	12.37	-15.36	-18.84

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.05	0.18	0.35	-0.10	0.11	0.28	-0.01	0.10	0.24
β_1	-0.13	-2.36	-1.38	0.29	-0.85	-0.50	0.13	-0.48	-0.28
β_2	-8.39	-5.77	-11.67	-2.48	-3.93	-7.98	-1.77	-2.45	-5.38
β_3	-3.61	1.91	-1.52	-1.51	0.79	-0.70	-1.03	0.36	-0.60
$\sigma_{u_0}^2$	-8.35	-1.85	-3.79	-2.12	-0.50	-0.63	-1.14	-0.32	-0.40
$\sigma_{u_1}^2$	-19.13	12.29	-0.33	-8.34	2.45	-1.00	-3.06	2.02	0.01
σ_{u_0, u_1}	-9.26	-21.39	-28.00	1.90	-5.76	-10.21	-1.50	-4.62	-7.30
σ_e^2	1.27	-0.33	0.16	0.23	-0.07	-0.06	0.10	0.01	-0.01
ρ_{u_0, u_1}	12.55	-17.69	-20.14	12.04	-4.09	-7.67	2.06	-4.42	-6.25

Simulation 2: ICC = 0.10; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.42	-0.22	-1.61	-1.23	0.38	-0.35	-0.64	0.75	0.20
β_1	-3.81	-10.63	-4.89	-1.08	-3.86	-2.02	0.35	-2.08	-0.89
β_2	-41.68	-75.79	-59.55	-30.20	-52.79	-46.66	-28.57	-51.11	-45.79
β_3	-54.52	-24.09	-43.88	-26.56	-15.91	-22.89	-27.46	-15.32	-22.21
$\sigma_{u_0}^2$	-1.68	29.22	11.56	-9.39	3.79	-2.03	-9.17	0.61	-3.24
$\sigma_{u_1}^2$	7.03	113.09	51.46	-18.17	24.04	0.30	-18.02	10.35	-3.28
σ_{u_0, u_1}	-44.88	-74.80	-55.17	-11.04	-27.71	-27.59	-1.54	-15.63	-18.51
σ_e^2	-3.01	-6.32	-5.24	0.23	-0.94	-0.56	0.52	-0.25	-0.09
ρ_{u_0, u_1}	-55.68	-95.30	-72.65	3.69	-34.77	-24.41	18.30	-16.37	-12.27

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.00	-0.50	-1.29	-0.91	0.05	-0.21	-0.61	0.17	-0.02
β_1	-2.06	-5.30	-2.55	-0.21	-2.48	-1.56	0.64	-1.24	-0.56
β_2	-6.53	-30.61	-23.20	-19.17	-34.79	-34.49	-17.02	-29.20	-29.41
β_3	-41.90	-26.72	-39.49	-21.32	-9.54	-15.10	-19.29	-8.34	-15.83
$\sigma_{u_0}^2$	-11.85	6.42	-3.12	-8.33	-1.25	-3.12	-5.93	-0.69	-2.02
$\sigma_{u_1}^2$	-10.01	53.69	19.64	-19.89	6.75	-3.91	-14.14	2.93	-2.75
σ_{u_0, u_1}	-39.96	-62.89	-49.13	1.36	-15.35	-17.83	1.55	-11.88	-14.19
σ_e^2	0.07	-2.77	-1.66	0.56	-0.36	-0.15	0.34	-0.16	-0.09
ρ_{u_0, u_1}	-28.79	-69.00	-48.32	25.83	-11.33	-8.77	19.28	-9.54	-10.06

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.39	0.12	-0.02	-0.20	0.05	0.05	-0.07	0.11	0.09
β_1	-0.33	-1.99	-1.42	0.56	-0.49	-0.24	0.21	-0.40	-0.26
β_2	-3.45	-11.46	-11.98	-4.91	-9.15	-11.15	-5.17	-8.32	-8.75
β_3	-22.81	-12.45	-16.81	-12.85	-5.38	-8.50	-6.94	-2.98	-4.08
$\sigma_{u_0}^2$	-8.18	-1.83	-3.50	-2.33	-0.67	-0.73	-1.48	-0.47	-0.64
$\sigma_{u_1}^2$	-19.56	8.84	-1.39	-8.38	0.90	-1.13	-3.45	0.27	-0.72
σ_{u_0, u_1}	-2.89	-20.64	-21.91	3.93	-4.05	-6.04	-0.04	-3.87	-4.66
σ_e^2	1.27	-0.34	0.16	0.18	-0.12	-0.10	0.08	0.03	0.02
ρ_{u_0, u_1}	21.56	-14.48	-12.10	14.52	-1.64	-3.06	3.93	-2.75	-3.14

Simulation 2: ICC = 0.50; Split = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.49	0.39	-0.40	0.50	1.36	1.34	-0.20	0.61	0.57
β_1	-4.91	-11.28	-6.25	-1.44	5.46	-3.35	-1.12	-4.35	-2.73
β_2	-14.04	-21.60	-18.18	-16.28	-21.60	-21.54	-12.28	-17.99	-17.90
β_3	-2.65	9.41	0.72	-3.32	5.55	0.27	-1.00	5.75	1.42
$\sigma_{u_0}^2$	-10.81	-4.16	-7.07	-3.82	-1.91	-2.72	-3.09	-1.60	-2.43
$\sigma_{u_1}^2$	16.30	102.31	43.12	-22.96	25.45	-0.84	-17.14	16.88	-0.13
σ_{u_0, u_1}	-53.21	-71.98	-60.04	-25.95	-41.08	-39.59	-18.96	-31.89	-31.99
σ_e^2	-0.87	-3.44	-2.46	0.61	-0.88	-0.23	0.87	-0.07	0.29
ρ_{u_0, u_1}	-52.03	-80.64	-64.33	-14.46	-44.15	-36.41	-8.76	-35.59	-31.17
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.66	-0.15	-0.16	0.70	0.95	1.44	0.47	0.60	0.94
β_1	-2.82	-6.94	-4.47	0.01	-2.60	-1.78	-0.21	-2.12	-1.62
β_2	-10.05	-12.74	-12.61	-9.18	-11.19	-14.12	-7.08	-8.54	-10.53
β_3	-3.37	4.54	-0.32	-3.99	1.93	-1.25	-1.78	2.18	0.34
$\sigma_{u_0}^2$	-3.73	-3.19	-3.17	-0.68	-0.54	-0.26	-0.59	-0.20	-0.22
$\sigma_{u_1}^2$	-13.07	48.76	15.08	-20.62	13.46	-0.29	-11.31	8.78	1.42
σ_{u_0, u_1}	-37.40	-50.12	-46.70	-10.64	-18.74	-23.53	-6.74	-14.10	-16.88
σ_e^2	0.52	-1.83	-0.85	0.98	-0.29	0.22	0.55	-0.02	0.19
ρ_{u_0, u_1}	-27.63	-53.19	-44.74	4.87	-20.07	-20.80	3.66	-14.78	-15.89
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.22	-0.07	0.18	-0.14	-0.06	0.08	0.17	0.28	0.36
β_1	-0.34	-2.08	-1.65	0.34	-0.50	-0.28	-0.15	-0.65	-0.45
β_2	-5.43	-4.26	-5.57	-1.64	-2.21	-2.87	-2.46	-3.07	-3.64
β_3	-3.56	0.92	-0.98	-1.33	0.38	-0.45	-0.34	0.57	-0.09
$\sigma_{u_0}^2$	1.00	-0.41	0.18	0.22	0.24	0.37	-0.46	-0.32	-0.33
$\sigma_{u_1}^2$	-26.75	7.69	-3.43	-6.73	2.54	-0.37	-1.99	2.24	0.25
σ_{u_0, u_1}	-12.49	-14.57	-19.48	-3.06	-5.96	-7.52	-4.08	-6.08	-6.76
σ_e^2	1.74	0.01	0.54	0.09	-0.20	-0.12	0.04	-0.06	-0.02
ρ_{u_0, u_1}	9.70	-10.82	-13.09	2.85	-5.62	-6.31	-2.17	-6.37	-6.26

Simulation 2: ICC = 0.50; Split = 0.80

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.57	0.58	-0.99	-0.33	1.51	0.66	-0.92	0.69	0.00
β_1	-5.22	-10.95	-6.27	-1.92	-4.70	-3.41	-0.85	-3.25	-2.65
β_2	-26.33	-44.36	-35.40	-30.23	-44.36	-38.77	-22.00	-36.61	-31.35
β_3	-17.38	-7.44	-14.29	-9.89	-2.84	-6.27	-10.74	-2.81	-3.58
$\sigma_{u_0}^2$	-11.30	-2.48	-6.36	-4.63	-1.12	-2.98	-3.89	-0.92	-2.65
$\sigma_{u_1}^2$	14.06	95.94	41.06	-22.77	20.27	-2.86	-20.46	8.75	-4.97
σ_{u_0, u_1}	-45.06	-67.08	-49.67	-22.50	-36.49	-34.59	-13.44	-25.94	-27.10
σ_e^2	-1.27	-3.59	-2.64	0.64	-0.82	-0.16	0.90	-0.03	0.40
ρ_{u_0, u_1}	-44.56	-76.53	-54.80	-8.14	-38.34	-29.56	-0.47	-27.37	-23.83
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.71	-0.28	-0.97	0.16	0.95	0.70	-0.04	0.77	0.36
β_1	-4.18	-7.52	-5.33	0.02	-2.14	-1.78	0.19	-1.36	-1.24
β_2	-13.69	-25.49	-20.03	-16.54	-23.86	-21.94	-13.20	-21.74	-18.87
β_3	-20.02	-10.00	-17.07	-14.38	-6.47	-7.70	-8.91	-3.04	-3.74
$\sigma_{u_0}^2$	-5.16	-3.08	-3.99	-1.17	-0.15	-0.61	-1.47	-0.25	-1.07
$\sigma_{u_1}^2$	-13.87	46.25	13.60	-21.00	8.89	-2.07	-12.21	4.17	-1.61
σ_{u_0, u_1}	-33.34	-46.69	-41.83	-5.00	-15.54	-17.53	-3.95	-11.20	-13.51
σ_e^2	0.44	-1.93	-0.97	0.94	-0.21	0.19	0.51	-0.04	0.21
ρ_{u_0, u_1}	-20.30	-48.52	-37.45	12.44	-14.48	-13.18	7.99	-9.90	-10.32
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.23	-0.05	-0.16	-0.25	-0.02	-0.05	-0.03	0.22	0.11
β_1	-1.02	-2.47	-2.52	0.36	-0.39	-0.35	-0.11	-0.59	-0.53
β_2	-7.79	-10.30	-9.11	-4.43	-6.68	-6.26	-4.14	-6.67	-5.88
β_3	-8.54	-1.52	-2.72	-4.11	-0.56	-1.45	-1.03	0.65	0.46
$\sigma_{u_0}^2$	0.49	-0.58	-0.20	-0.27	-0.03	-0.03	-0.93	-0.60	-0.75
$\sigma_{u_1}^2$	-26.89	5.62	-4.51	-6.77	1.10	-1.04	-2.96	0.51	-0.67
σ_{u_0, u_1}	-9.38	-13.94	-17.77	-2.10	-5.00	-6.40	-2.85	-5.12	-5.45
σ_e^2	1.76	0.05	0.64	0.11	-0.19	-0.07	0.05	-0.04	0.01
ρ_{u_0, u_1}	14.15	-9.17	-10.49	4.41	-3.80	-4.43	-0.05	-4.36	-4.14

Simulation 3: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.98	-1.30	-2.65	-1.87	-0.72	-1.48	-1.54	-0.63	-1.17
β_1	-6.05	-11.17	-6.19	-2.57	-3.84	-2.82	-0.56	-1.46	-1.07
β_2	-4.69	-17.23	-12.58	-5.68	-16.63	-10.49	-7.32	-17.97	-7.83
β_3	-20.23	-30.26	-21.73	-7.22	-15.68	-9.38	-4.29	-12.61	-5.84
$\sigma_{u_0}^2$	-1.53	39.18	12.15	-10.62	9.22	-2.94	-10.36	3.18	-4.56
$\sigma_{u_1}^2$	3.00	113.27	49.69	-18.29	26.11	1.88	-17.41	13.29	-1.36
σ_{u_0, u_1}	-61.70	-77.92	-61.78	-11.73	-13.78	-17.94	-1.51	-3.57	-12.97
σ_e^2	-3.53	-6.82	-5.66	0.30	-0.91	-0.49	0.18	-0.57	-0.39
ρ_{u_0, u_1}	-61.35	-90.08	-70.04	2.62	-21.66	-14.41	14.51	-5.97	-7.50
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.80	-0.76	-1.46	-0.84	-0.26	-0.65	-0.80	-0.38	-0.66
β_1	-3.16	-5.46	-3.45	-0.46	-1.58	-1.06	1.08	0.08	0.29
β_2	-3.69	-14.19	-9.91	3.24	-5.89	0.12	-2.96	-7.59	-3.40
β_3	-8.33	-18.39	-11.62	-3.47	-10.58	-5.22	-1.79	-7.88	-3.61
$\sigma_{u_0}^2$	-7.12	16.67	3.11	-6.82	4.33	-1.49	-5.02	1.68	-1.82
$\sigma_{u_1}^2$	-10.25	58.03	22.17	-17.31	12.26	0.04	-13.65	5.54	-0.59
σ_{u_0, u_1}	-27.93	-37.91	-33.69	2.28	-4.69	-11.78	8.72	2.20	-4.36
σ_e^2	-0.23	-2.99	-1.81	1.02	0.04	0.23	0.54	0.00	0.04
ρ_{u_0, u_1}	-20.73	-52.49	-37.39	19.97	-6.27	-6.89	21.67	1.08	-2.37
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.35	0.06	-0.21	-0.05	0.09	-0.01	-0.03	0.05	-0.01
β_1	0.91	0.04	0.01	1.14	0.42	0.53	0.91	0.52	0.60
β_2	6.99	-0.54	2.53	7.66	7.31	7.57	8.71	8.23	9.24
β_3	4.62	-1.16	2.56	2.92	1.08	2.49	4.86	3.32	4.62
$\sigma_{u_0}^2$	-6.22	4.20	-0.20	-0.05	2.42	1.47	-0.59	0.76	0.05
$\sigma_{u_1}^2$	-11.29	18.02	8.78	-6.19	3.44	1.75	-1.81	2.33	1.08
σ_{u_0, u_1}	11.73	2.98	-5.36	13.17	6.39	2.46	5.67	3.87	1.59
σ_e^2	0.89	-0.63	-0.20	0.31	-0.00	-0.02	0.10	0.01	0.02
ρ_{u_0, u_1}	30.98	2.56	0.49	20.62	5.63	2.29	7.88	2.88	1.45

Simulation 3: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.64	-2.33	-3.38	-1.85	-0.75	-1.28	-2.11	-1.17	-1.61
β_1	-9.41	-13.49	-9.50	-3.59	-5.70	-4.71	-1.41	-2.88	-2.57
β_2	-13.50	-18.37	-15.81	-9.07	-14.23	-11.29	-9.04	-13.77	-12.12
β_3	-59.57	-43.98	-47.74	-39.01	-36.99	-34.66	-41.93	-32.94	-31.48
$\sigma_{u_0}^2$	-11.04	0.52	-4.79	-2.04	3.19	0.48	-5.06	-0.28	-2.69
$\sigma_{u_1}^2$	-11.29	18.02	8.78	-6.19	3.44	1.75	-1.81	2.33	1.08
σ_{u_0, u_1}	11.73	2.98	-5.36	13.17	6.39	2.46	5.67	3.87	1.59
σ_e^2	0.89	-0.63	-0.20	0.31	-0.00	-0.02	0.10	0.01	0.02
ρ_{u_0, u_1}	-47.42	-67.92	-54.10	-1.13	-28.33	-21.52	6.86	-17.67	-16.59
L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.55	-0.89	-1.23	-0.77	-0.40	-0.61	-0.58	-0.24	-0.38
β_1	-4.32	-7.09	-5.88	-1.10	-2.51	-2.42	-0.63	-1.61	-1.53
β_2	-1.34	-5.90	-3.70	-2.25	-5.00	-4.05	-4.79	-8.36	-7.19
β_3	-62.92	-46.55	-52.24	-28.39	-17.54	-15.97	-33.63	-24.13	-24.72
$\sigma_{u_0}^2$	-0.48	2.49	1.05	0.80	2.42	1.51	-0.58	1.04	0.40
$\sigma_{u_1}^2$	5.98	60.16	26.57	-20.90	10.53	-0.90	-16.36	1.43	-4.40
σ_{u_0, u_1}	-15.51	-27.93	-28.20	1.30	-7.12	-11.85	-1.42	-7.44	-9.98
σ_e^2	0.04	-2.73	-1.47	0.80	-0.51	-0.00	0.53	-0.09	0.13
ρ_{u_0, u_1}	-12.94	-42.30	-34.52	18.68	-7.93	-9.63	12.38	-6.43	-6.92
L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.47	0.44	0.39	0.17	0.26	0.22	0.10	0.18	0.14
β_1	0.22	-0.79	-1.02	0.49	0.00	-0.03	0.05	-0.19	-0.17
β_2	3.60	3.18	4.05	5.33	4.04	4.67	4.66	3.12	3.94
β_3	-47.49	-30.60	-28.69	-11.90	-9.30	-7.33	-11.35	-9.26	-8.43
$\sigma_{u_0}^2$	3.58	2.59	2.63	1.55	1.91	1.78	0.98	1.49	1.25
$\sigma_{u_1}^2$	-15.62	20.93	13.18	-4.24	3.87	1.97	-1.75	1.40	0.45
σ_{u_0, u_1}	14.71	6.19	1.08	6.43	3.83	2.38	4.06	2.69	1.69
σ_e^2	0.73	-1.19	-0.73	0.17	-0.15	-0.04	0.17	0.07	0.11
ρ_{u_0, u_1}	31.42	1.81	-1.11	10.98	2.67	1.91	5.02	1.61	1.22

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.31	-1.48	-2.87	-1.89	-0.64	-1.50	-1.43	-0.53	-1.09
β_1	-7.80	-11.62	-7.86	-1.88	2.48	-2.00	-0.19	-0.27	-0.47
β_2	-11.42	-24.35	-18.32	-10.48	-22.84	-14.00	-7.88	-18.66	-8.41
β_3	-21.10	-27.44	-21.50	-5.23	-12.09	-6.61	-5.14	-9.41	-5.03
$\sigma_{u_0}^2$	-2.81	35.74	11.01	-11.94	5.21	-4.32	-8.48	3.21	-2.93
$\sigma_{u_1}^2$	2.47	117.47	52.46	-14.29	33.20	7.77	-10.14	21.89	5.83
σ_{u_0, u_1}	-44.65	-45.91	-45.24	-7.69	0.46	-16.93	7.75	14.40	-3.60
σ_e^2	-1.94	-5.53	-4.31	0.31	-0.91	-0.58	0.39	-0.38	-0.18
ρ_{u_0, u_1}	-52.45	-76.38	-61.26	0.09	-17.22	-17.75	15.81	1.67	-4.71

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.65	-0.54	-1.26	-0.87	-0.26	-0.65	-0.56	-0.15	-0.42
β_1	-4.90	-6.43	-4.77	-0.04	-0.57	-0.58	0.96	0.11	0.22
β_2	-5.57	-21.96	-14.01	-6.60	-15.64	-9.07	-6.29	-11.04	-5.40
β_3	-10.02	-15.50	-12.85	-1.99	-6.76	-3.19	-2.42	-6.23	-2.99
$\sigma_{u_0}^2$	-7.79	15.87	2.94	-6.51	2.53	-1.62	-3.81	1.32	-1.27
$\sigma_{u_1}^2$	-7.79	65.00	28.78	-14.86	15.76	3.29	-6.22	13.59	6.52
σ_{u_0, u_1}	-37.08	-40.74	-40.13	8.03	8.76	-5.47	14.51	13.24	2.89
σ_e^2	0.16	-2.95	-1.76	0.73	-0.29	-0.03	0.50	0.02	0.02
ρ_{u_0, u_1}	-33.95	-54.11	-43.94	21.00	2.53	-4.31	22.05	7.06	0.24

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.53	-0.07	-0.33	-0.10	0.04	-0.07	0.01	0.09	0.01
β_1	-0.36	-0.80	-1.04	1.00	0.42	0.39	0.71	0.39	0.48
β_2	2.48	-7.47	-2.04	-0.01	-1.74	0.94	0.76	-0.03	1.25
β_3	-1.66	-5.58	-2.69	-0.92	-2.76	-1.41	0.92	-0.26	0.60
$\sigma_{u_0}^2$	-7.20	2.62	-1.21	-0.60	1.20	0.31	-0.32	0.70	0.11
$\sigma_{u_1}^2$	-11.79	18.33	8.35	-1.12	8.68	6.31	3.65	8.16	6.67
σ_{u_0, u_1}	4.39	0.46	-10.15	12.24	9.20	4.28	10.25	9.78	7.11
σ_e^2	1.15	-0.47	0.02	0.34	0.06	0.07	0.06	-0.01	-0.04
ρ_{u_0, u_1}	19.23	-2.55	-7.28	15.58	5.22	1.62	9.10	5.71	4.05

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-4.21	-1.12	-2.77	-1.58	-0.36	-1.19	-1.56	-0.53	-1.30
β_1	-11.74	-13.48	-10.32	-2.94	-3.18	-3.35	0.25	-0.02	-0.52
β_2	-14.00	-21.89	-16.98	-6.83	-16.26	-6.62	-9.74	-17.97	-8.74
β_3	-20.11	-25.96	-17.43	-8.38	-14.18	-6.24	-2.66	-9.22	-2.93
$\sigma_{u_0}^2$	-12.62	0.28	-6.23	-2.24	2.88	-0.94	-0.89	3.87	0.21
$\sigma_{u_1}^2$	23.27	120.14	54.31	-17.19	33.23	6.51	-16.86	18.41	1.08
σ_{u_0, u_1}	-39.36	-36.90	-39.15	-4.95	1.04	-14.12	2.29	7.83	-6.25
σ_e^2	-0.89	-4.05	-2.56	1.06	-0.50	0.15	0.76	-0.28	0.09
ρ_{u_0, u_1}	-44.88	-57.50	-47.01	1.31	-12.10	-15.46	10.57	-1.82	-7.04

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.31	-0.30	-1.02	-0.58	-0.06	-0.55	-0.41	0.02	-0.33
β_1	-3.90	-5.81	-4.92	-0.88	-1.16	-1.96	1.34	0.91	0.42
β_2	-3.10	-10.82	-5.52	-1.79	-7.15	-1.37	-3.78	-8.76	-2.88
β_3	-7.16	-11.03	-4.49	-2.09	-5.83	-1.73	1.74	-3.03	1.32
$\sigma_{u_0}^2$	-2.26	1.20	-1.28	0.35	2.10	0.17	1.30	3.18	1.44
$\sigma_{u_1}^2$	-5.95	62.91	28.86	-17.19	16.10	2.73	-7.38	12.92	5.06
σ_{u_0, u_1}	-16.36	-18.14	-25.15	-0.23	3.75	-7.51	8.71	12.58	3.23
σ_e^2	0.69	-2.04	-0.99	1.09	-0.22	0.25	0.67	0.10	0.28
ρ_{u_0, u_1}	-13.61	-32.59	-30.38	10.65	-2.43	-8.39	12.73	4.45	-1.15

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.21	-0.02	-0.26	0.01	0.17	0.03	0.10	0.20	0.10
β_1	-0.27	-0.74	-1.51	0.90	0.68	0.45	0.93	0.83	0.54
β_2	-0.80	-3.70	-0.85	0.60	-0.93	0.46	2.21	0.83	1.89
β_3	-0.65	-2.10	0.60	1.49	0.03	1.24	3.00	1.76	2.90
$\sigma_{u_0}^2$	2.17	1.55	1.03	1.23	1.63	1.15	1.00	1.46	1.08
$\sigma_{u_1}^2$	-18.84	16.16	7.13	0.65	9.21	6.90	3.94	7.94	6.79
σ_{u_0, u_1}	4.52	6.25	-2.66	9.61	10.67	6.58	8.82	9.91	6.19
σ_e^2	1.52	-0.27	0.20	0.28	-0.01	0.07	0.02	-0.07	-0.03
ρ_{u_0, u_1}	21.70	3.71	-1.19	9.78	5.50	2.93	6.25	5.00	2.32

Simulation 5: ICC = 0.10

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-2.33	-0.48	-2.04	-0.52	0.59	-0.31	-0.04	0.84	0.12
β_1	0.39	1.88	1.92	6.37	8.97	7.08	11.75	13.80	11.79
β_2	-12.93	-33.70	-20.89	0.77	-18.38	-5.39	-6.65	-19.56	-10.11
β_3	-1.42	-20.66	-4.93	20.78	5.20	15.93	24.61	13.07	19.74
$\sigma_{u_0}^2$	-6.53	39.79	5.56	-13.66	4.38	-8.08	-8.66	3.46	-4.17
$\sigma_{u_1}^2$	111.25	416.96	258.68	79.51	211.52	150.32	71.03	158.27	121.26
σ_{u_0, u_1}	36.94	194.03	60.62	61.29	114.00	58.82	71.69	98.50	61.96
σ_e^2	-1.27	-6.42	-4.82	3.68	1.22	2.00	4.58	3.04	3.48
ρ_{u_0, u_1}	-15.53	-6.98	-23.11	19.48	15.31	3.42	28.91	18.91	7.04

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.79	0.39	-0.65	0.19	0.82	0.28	0.45	0.92	0.53
β_1	5.62	9.67	6.89	12.70	14.21	12.21	13.85	14.45	13.09
β_2	-4.49	-24.01	-14.32	-0.46	-12.34	-3.83	-3.52	-10.42	-3.88
β_3	7.82	-6.31	3.33	33.45	23.12	31.36	32.42	24.62	29.34
$\sigma_{u_0}^2$	-14.71	8.88	-7.39	-7.16	1.74	-3.98	-4.06	1.23	-2.33
$\sigma_{u_1}^2$	111.26	296.55	223.33	95.58	171.06	148.17	87.42	135.45	121.42
σ_{u_0, u_1}	62.77	135.72	68.50	97.98	112.26	75.41	95.02	99.43	76.54
σ_e^2	1.31	-3.27	-1.88	3.23	1.50	1.85	3.77	2.89	3.04
ρ_{u_0, u_1}	13.72	6.67	-1.97	46.69	30.24	15.78	46.20	30.13	19.30

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.82	1.21	0.73	1.20	1.33	1.20	1.18	1.26	1.17
β_1	17.16	18.08	15.31	17.01	16.92	16.20	16.56	16.52	16.00
β_2	1.23	-8.62	-3.67	-2.08	-5.01	-2.30	-3.24	-4.79	-3.04
β_3	25.23	19.04	26.29	32.51	29.98	31.69	34.01	32.46	33.11
$\sigma_{u_0}^2$	-13.18	-4.83	-10.55	-1.75	0.24	-0.92	-1.26	-0.24	-0.91
$\sigma_{u_1}^2$	150.58	210.85	207.47	122.48	140.81	138.54	108.94	117.83	117.33
σ_{u_0, u_1}	149.82	151.83	108.25	113.68	111.10	99.54	92.43	93.17	87.72
σ_e^2	0.68	-1.27	-1.09	2.05	1.65	1.68	2.83	2.69	2.71
ρ_{u_0, u_1}	74.86	52.49	31.43	46.55	36.73	30.05	34.30	31.18	27.82

Simulation 5: ICC = 0.50

Parameter	L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-3.82	-0.74	-2.66	-2.39	-1.05	-2.01	-1.44	-0.35	-1.22
β_1	-7.00	-7.96	-5.71	2.14	2.47	2.16	5.09	5.82	4.85
β_2	-13.43	-24.16	-17.75	-14.20	-22.43	-14.79	-12.85	-19.75	-11.64
β_3	-9.69	-21.51	-7.87	11.64	-0.19	11.10	15.63	5.48	14.54
$\sigma_{u_0}^2$	-17.20	-4.12	-12.21	-6.39	-0.81	-5.46	-3.93	1.15	-3.20
$\sigma_{u_1}^2$	92.11	273.12	160.59	35.02	148.76	90.37	30.36	109.36	69.88
σ_{u_0, u_1}	-36.48	-18.10	-36.68	2.02	7.20	-6.76	11.87	14.91	2.49
σ_e^2	0.46	-3.13	-1.65	2.82	0.28	1.34	3.18	1.44	2.11
ρ_{u_0, u_1}	-55.13	-57.48	-56.75	-8.11	-23.54	-25.48	1.73	-12.64	-16.61

Parameter	L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-1.48	-0.42	-1.27	-1.34	-0.77	-1.34	-1.21	-0.60	-1.23
β_1	-0.92	-1.63	-1.13	5.13	6.16	4.78	7.79	8.23	7.34
β_2	-7.69	-16.68	-10.40	-9.01	-15.44	-9.53	-9.34	-14.28	-8.96
β_3	1.99	-8.38	2.08	18.44	11.41	17.52	20.14	13.79	18.80
$\sigma_{u_0}^2$	-5.19	-3.03	-5.46	-2.13	-0.60	-2.73	-2.60	-0.65	-3.20
$\sigma_{u_1}^2$	45.91	168.86	110.63	34.14	102.63	77.82	45.16	86.61	69.30
σ_{u_0, u_1}	-5.80	-2.06	-16.68	16.68	23.35	6.58	15.48	18.82	12.14
σ_e^2	1.34	-2.03	-0.93	3.03	1.10	1.67	2.67	1.75	2.05
ρ_{u_0, u_1}	-19.49	-35.28	-36.43	5.38	-8.13	-16.00	4.07	-6.74	-9.91

Parameter	L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200		
	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	-0.52	-0.27	-0.61	-0.48	-0.32	-0.51	-0.72	-0.56	-0.77
β_1	5.55	6.09	4.92	8.69	8.72	8.17	9.51	9.41	8.99
β_2	-1.72	-5.49	-3.09	-6.38	-8.34	-6.77	-7.68	-8.81	-7.64
β_3	15.50	12.37	16.56	21.88	19.92	21.93	23.15	21.47	22.98
$\sigma_{u_0}^2$	-3.15	-4.12	-4.79	-2.60	-2.19	-2.77	-2.37	-1.78	-2.54
$\sigma_{u_1}^2$	41.44	96.40	83.76	63.63	78.89	74.43	62.62	71.25	68.20
σ_{u_0, u_1}	26.55	27.11	14.94	28.00	29.46	24.10	22.93	22.94	20.06
σ_e^2	2.15	0.06	0.45	1.73	1.36	1.46	1.89	1.75	1.80
ρ_{u_0, u_1}	15.97	-2.58	-9.38	3.16	-0.93	-3.72	-1.35	-3.78	-5.37

U Tables of Coverage: Missing Data 15%; Multiple Imputation with three priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.96	0.96	0.94	0.96	0.95	0.95	0.96	0.95
β_1	0.96	0.98	0.97	0.95	0.96	0.96	0.95	0.96	0.95
β_2	0.94	0.97	0.96	0.94	0.96	0.95	0.94	0.96	0.96
β_3	0.96	0.98	0.96	0.95	0.96	0.94	0.95	0.97	0.96

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.96	0.94	0.95	0.95	0.95	0.96	0.96
β_2	0.93	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
β_3	0.95	0.96	0.95	0.96	0.96	0.96	0.95	0.96	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.95	0.94	0.95	0.94	0.95	0.95	0.94
β_2	0.95	0.96	0.96	0.95	0.95	0.94	0.95	0.95	0.95
β_3	0.94	0.95	0.94	0.95	0.95	0.95	0.96	0.96	0.96

Simulation 1: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.95	0.95	0.95	0.96	0.95
β_1	0.95	0.96	0.95	0.95	0.96	0.96	0.94	0.95	0.94
β_2	0.93	0.96	0.94	0.94	0.96	0.95	0.95	0.96	0.96
β_3	0.95	0.97	0.95	0.95	0.97	0.96	0.95	0.97	0.96

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.94	0.95	0.95	0.95	0.96	0.95
β_2	0.94	0.95	0.95	0.96	0.96	0.96	0.95	0.96	0.95
β_3	0.95	0.96	0.95	0.93	0.95	0.95	0.94	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.96	0.95	0.96
β_1	0.94	0.94	0.94	0.96	0.96	0.96	0.96	0.96	0.96
β_2	0.95	0.95	0.95	0.95	0.96	0.95	0.95	0.95	0.95
β_3	0.94	0.95	0.95	0.94	0.94	0.94	0.95	0.95	0.95

Simulation 2: ICC = 0.10; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.97	0.95	0.95	0.96	0.96	0.95	0.96	0.95
β_1	0.94	0.95	0.94	0.95	0.97	0.96	0.95	0.96	0.95
β_2	0.94	0.97	0.95	0.94	0.96	0.95	0.95	0.96	0.96
β_3	0.95	0.97	0.95	0.95	0.97	0.96	0.95	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.96	0.96	0.96	0.94	0.95	0.95
β_1	0.94	0.96	0.95	0.95	0.95	0.95	0.94	0.95	0.94
β_2	0.95	0.96	0.96	0.95	0.96	0.95	0.95	0.95	0.95
β_3	0.94	0.96	0.95	0.95	0.96	0.95	0.95	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_2	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_3	0.95	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.95

Simulation 2: ICC = 0.10; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.97	0.96	0.95	0.96	0.96	0.94	0.94	0.94
β_1	0.94	0.96	0.95	0.96	0.97	0.96	0.94	0.95	0.95
β_2	0.95	0.98	0.97	0.94	0.96	0.95	0.94	0.96	0.96
β_3	0.95	0.97	0.95	0.95	0.97	0.96	0.95	0.97	0.96

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.95	0.95	0.95	0.95	0.95
β_1	0.93	0.95	0.95	0.95	0.96	0.95	0.94	0.95	0.94
β_2	0.93	0.96	0.95	0.94	0.96	0.95	0.93	0.95	0.94
β_3	0.93	0.96	0.95	0.93	0.96	0.94	0.93	0.96	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95
β_2	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.95
β_3	0.95	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.95

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.96	0.96	0.94	0.95	0.94
β_1	0.95	0.97	0.96	0.94	0.96	0.95	0.95	0.95	0.95
β_2	0.94	0.96	0.95	0.94	0.95	0.94	0.95	0.96	0.94
β_3	0.94	0.97	0.96	0.94	0.96	0.95	0.95	0.96	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.96	0.96	0.95	0.95	0.95
β_1	0.94	0.96	0.95	0.95	0.96	0.96	0.94	0.95	0.94
β_2	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.94
β_3	0.95	0.96	0.95	0.95	0.97	0.96	0.95	0.96	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.95	0.96	0.96	0.94	0.94	0.95
β_2	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.95
β_3	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.94	0.94	0.95	0.96	0.96	0.95	0.96	0.95
β_1	0.95	0.96	0.95	0.96	0.96	0.95	0.95	0.96	0.94
β_2	0.95	0.97	0.95	0.94	0.96	0.95	0.95	0.96	0.94
β_3	0.95	0.98	0.96	0.94	0.97	0.95	0.94	0.96	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.96	0.96	0.94	0.95	0.95
β_1	0.94	0.95	0.95	0.96	0.97	0.96	0.94	0.95	0.94
β_2	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.94
β_3	0.94	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.94	0.95
β_2	0.94	0.94	0.94	0.95	0.96	0.96	0.94	0.95	0.94
β_3	0.94	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.95

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.97	0.96	0.96	0.96	0.96	0.95	0.96	0.95
β_1	0.96	0.97	0.96	0.95	0.96	0.96	0.95	0.97	0.96
β_2	0.93	0.97	0.95	0.94	0.96	0.95	0.95	0.96	0.96
β_3	0.95	0.98	0.96	0.94	0.97	0.95	0.93	0.95	0.94

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.96	0.96	0.95	0.96	0.96	0.95	0.96	0.95
β_1	0.95	0.96	0.95	0.95	0.95	0.95	0.95	0.96	0.96
β_2	0.93	0.96	0.95	0.94	0.95	0.95	0.95	0.96	0.95
β_3	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.96	0.96	0.96	0.95	0.94	0.95
β_1	0.94	0.94	0.95	0.93	0.94	0.94	0.96	0.96	0.96
β_2	0.95	0.95	0.95	0.94	0.95	0.94	0.94	0.94	0.93
β_3	0.93	0.94	0.94	0.94	0.95	0.94	0.95	0.94	0.95

Simulation 3: ICC = 0.50

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.97	0.96	0.95	0.96	0.96	0.95	0.96	0.96
β_1	0.96	0.97	0.96	0.95	0.96	0.95	0.94	0.96	0.95
β_2	0.95	0.98	0.96	0.94	0.96	0.95	0.94	0.96	0.96
β_3	0.95	0.97	0.96	0.95	0.96	0.96	0.95	0.96	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.95	0.94	0.95	0.95	0.95	0.96	0.96
β_2	0.94	0.97	0.95	0.93	0.95	0.94	0.95	0.95	0.95
β_3	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.95	0.95	0.94	0.94	0.94
β_1	0.94	0.95	0.95	0.95	0.96	0.95	0.95	0.95	0.95
β_2	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_3	0.95	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.96	0.96	0.96	0.95	0.96	0.95
β_1	0.96	0.97	0.97	0.95	0.96	0.95	0.94	0.95	0.95
β_2	0.93	0.96	0.94	0.95	0.96	0.95	0.95	0.96	0.96
β_3	0.94	0.97	0.95	0.94	0.96	0.95	0.94	0.96	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.96	0.95	0.95	0.96	0.94	0.95	0.94
β_2	0.95	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.94
β_3	0.94	0.96	0.95	0.94	0.96	0.95	0.95	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.95
β_1	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.95	0.94
β_2	0.95	0.96	0.96	0.95	0.95	0.95	0.95	0.96	0.95
β_3	0.94	0.95	0.95	0.94	0.94	0.94	0.95	0.95	0.94

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.94	0.95	0.95	0.95	0.96	0.95
β_1	0.94	0.96	0.96	0.95	0.96	0.96	0.94	0.96	0.96
β_2	0.94	0.97	0.95	0.94	0.96	0.95	0.94	0.97	0.95
β_3	0.92	0.97	0.95	0.93	0.97	0.95	0.90	0.95	0.93

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.94	0.94	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.93	0.93	0.93	0.92	0.92	0.93
β_2	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.95
β_3	0.90	0.95	0.93	0.90	0.94	0.92	0.90	0.93	0.91

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.93	0.93	0.92	0.91	0.92	0.92	0.92	0.92
β_1	0.86	0.87	0.89	0.76	0.77	0.78	0.72	0.72	0.74
β_2	0.95	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.94
β_3	0.88	0.91	0.88	0.82	0.84	0.82	0.77	0.78	0.77

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.95	0.96	0.95	0.95	0.95	0.95
β_1	0.95	0.97	0.97	0.95	0.96	0.96	0.94	0.96	0.95
β_2	0.93	0.95	0.94	0.94	0.96	0.95	0.95	0.96	0.96
β_3	0.94	0.97	0.95	0.94	0.97	0.95	0.93	0.96	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.96	0.96	0.96	0.95	0.95	0.96
β_1	0.94	0.95	0.95	0.93	0.95	0.94	0.93	0.94	0.94
β_2	0.94	0.95	0.94	0.95	0.95	0.95	0.94	0.95	0.95
β_3	0.94	0.96	0.95	0.92	0.95	0.94	0.91	0.94	0.93

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.95	0.94	0.95	0.95	0.94
β_1	0.93	0.93	0.94	0.89	0.90	0.89	0.85	0.86	0.85
β_2	0.94	0.94	0.94	0.94	0.94	0.94	0.95	0.95	0.94
β_3	0.92	0.94	0.93	0.89	0.90	0.89	0.84	0.86	0.85

V Tables of Coverage: Missing Data 30%; Multiple Imputation with three priors

Tables begin on the next page.

Simulation 1: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.96	0.94	0.96	0.95	0.95	0.96	0.95
β_1	0.96	0.98	0.96	0.96	0.97	0.96	0.95	0.97	0.96
β_2	0.94	0.97	0.95	0.93	0.98	0.95	0.92	0.96	0.94
β_3	0.95	0.98	0.97	0.95	0.98	0.95	0.94	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.93	0.95	0.94	0.95	0.96	0.96
β_1	0.95	0.97	0.96	0.96	0.97	0.96	0.95	0.96	0.96
β_2	0.92	0.96	0.95	0.93	0.96	0.96	0.93	0.96	0.95
β_3	0.94	0.97	0.95	0.94	0.95	0.95	0.94	0.96	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.95	0.95	0.95	0.95	0.96	0.95
β_1	0.95	0.96	0.95	0.95	0.96	0.96	0.94	0.95	0.95
β_2	0.93	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.95
β_3	0.94	0.96	0.94	0.94	0.95	0.94	0.94	0.95	0.94

Simulation 1: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.96	0.95	0.96	0.95	0.95	0.96	0.95
β_1	0.96	0.98	0.96	0.95	0.97	0.95	0.94	0.96	0.95
β_2	0.91	0.96	0.94	0.94	0.97	0.96	0.94	0.97	0.95
β_3	0.95	0.99	0.97	0.94	0.97	0.96	0.94	0.98	0.96

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.95	0.95	0.94	0.95	0.96	0.95
β_1	0.96	0.97	0.96	0.94	0.96	0.95	0.95	0.96	0.96
β_2	0.93	0.94	0.94	0.93	0.95	0.94	0.94	0.96	0.95
β_3	0.94	0.97	0.96	0.92	0.96	0.94	0.94	0.97	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.94	0.95	0.95	0.95	0.95	0.95	0.94
β_2	0.94	0.95	0.95	0.94	0.95	0.94	0.96	0.96	0.95
β_3	0.94	0.95	0.94	0.94	0.95	0.95	0.95	0.96	0.96

Simulation 2: ICC = 0.10; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.97	0.94	0.97	0.96	0.93	0.95	0.94
β_1	0.97	0.98	0.97	0.95	0.97	0.95	0.94	0.96	0.95
β_2	0.93	0.97	0.95	0.92	0.96	0.94	0.92	0.96	0.93
β_3	0.95	0.99	0.97	0.95	0.97	0.96	0.94	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.97	0.95	0.93	0.95	0.94	0.94	0.95	0.95
β_1	0.96	0.97	0.96	0.95	0.95	0.95	0.94	0.95	0.95
β_2	0.93	0.96	0.95	0.93	0.95	0.94	0.93	0.95	0.94
β_3	0.95	0.97	0.96	0.93	0.96	0.95	0.94	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.95	0.95	0.96	0.95	0.95	0.95	0.95
β_2	0.93	0.95	0.94	0.94	0.96	0.96	0.95	0.95	0.94
β_3	0.94	0.96	0.94	0.94	0.96	0.95	0.95	0.95	0.95

Simulation 2: ICC = 0.10; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.97	0.97	0.95	0.97	0.96	0.94	0.95	0.96
β_1	0.96	0.98	0.97	0.95	0.97	0.96	0.95	0.96	0.96
β_2	0.96	0.98	0.97	0.93	0.97	0.95	0.93	0.96	0.95
β_3	0.95	0.99	0.97	0.94	0.98	0.95	0.93	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.94	0.96	0.95	0.94	0.96	0.95
β_1	0.96	0.96	0.96	0.95	0.95	0.95	0.93	0.95	0.95
β_2	0.94	0.97	0.95	0.92	0.95	0.94	0.92	0.96	0.94
β_3	0.95	0.97	0.95	0.94	0.96	0.95	0.93	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.96	0.95	0.96	0.97	0.96
β_1	0.95	0.96	0.96	0.94	0.95	0.95	0.95	0.95	0.95
β_2	0.93	0.95	0.95	0.95	0.97	0.96	0.95	0.95	0.95
β_3	0.93	0.95	0.93	0.94	0.95	0.95	0.94	0.94	0.94

Simulation 2: ICC = 0.50; Split = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.95	0.96	0.95	0.95	0.97	0.95
β_1	0.96	0.98	0.97	0.95	0.97	0.96	0.94	0.96	0.95
β_2	0.93	0.96	0.95	0.94	0.97	0.95	0.94	0.96	0.94
β_3	0.95	0.98	0.96	0.94	0.97	0.95	0.95	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.94
β_1	0.95	0.96	0.95	0.93	0.95	0.95	0.93	0.95	0.94
β_2	0.94	0.95	0.95	0.95	0.96	0.95	0.94	0.95	0.93
β_3	0.93	0.96	0.95	0.93	0.96	0.95	0.94	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.95	0.96	0.95	0.93	0.95	0.94	0.94	0.95	0.94
β_2	0.94	0.95	0.95	0.95	0.95	0.94	0.95	0.96	0.94
β_3	0.93	0.95	0.94	0.93	0.95	0.94	0.95	0.96	0.95

Simulation 2: ICC = 0.50; Split = 0.80

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.95	0.94	0.95	0.95	0.94	0.96	0.94
β_1	0.96	0.98	0.96	0.95	0.97	0.95	0.95	0.97	0.96
β_2	0.93	0.97	0.95	0.93	0.96	0.94	0.94	0.96	0.94
β_3	0.95	0.99	0.97	0.94	0.97	0.94	0.93	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.94	0.95	0.96	0.95	0.95	0.95	0.94
β_1	0.94	0.96	0.94	0.94	0.95	0.95	0.95	0.96	0.95
β_2	0.93	0.96	0.95	0.96	0.97	0.95	0.94	0.95	0.93
β_3	0.92	0.96	0.95	0.93	0.97	0.95	0.92	0.95	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.94
β_1	0.95	0.96	0.95	0.95	0.95	0.95	0.94	0.94	0.94
β_2	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.94
β_3	0.93	0.95	0.95	0.94	0.95	0.94	0.95	0.95	0.94

Simulation 3: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.95	0.97	0.95	0.95	0.97	0.95
β_1	0.96	0.97	0.96	0.96	0.97	0.96	0.96	0.97	0.96
β_2	0.94	0.98	0.96	0.92	0.97	0.94	0.92	0.97	0.95
β_3	0.94	0.98	0.95	0.94	0.98	0.96	0.93	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.95	0.96	0.96	0.95	0.96	0.96
β_1	0.95	0.97	0.96	0.94	0.96	0.94	0.94	0.95	0.95
β_2	0.92	0.96	0.95	0.92	0.96	0.94	0.91	0.95	0.94
β_3	0.92	0.97	0.95	0.93	0.95	0.94	0.93	0.96	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.94	0.95	0.94	0.95	0.95	0.95
β_1	0.94	0.95	0.95	0.94	0.95	0.95	0.95	0.95	0.95
β_2	0.92	0.95	0.94	0.94	0.95	0.94	0.93	0.94	0.93
β_3	0.93	0.95	0.93	0.93	0.94	0.95	0.94	0.95	0.94

Simulation 3: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.96	0.95	0.95	0.96	0.96	0.95	0.96	0.95
β_1	0.95	0.97	0.96	0.96	0.97	0.96	0.94	0.96	0.95
β_2	0.91	0.96	0.94	0.93	0.97	0.94	0.93	0.96	0.94
β_3	0.94	0.98	0.96	0.95	0.98	0.96	0.93	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.94
β_1	0.94	0.96	0.95	0.95	0.96	0.96	0.95	0.96	0.96
β_2	0.93	0.96	0.94	0.94	0.96	0.95	0.94	0.96	0.94
β_3	0.94	0.97	0.94	0.92	0.96	0.94	0.92	0.95	0.94

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.95	0.94	0.95	0.96	0.96	0.96
β_1	0.95	0.95	0.95	0.96	0.96	0.96	0.96	0.95	0.96
β_2	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.95
β_3	0.92	0.95	0.94	0.94	0.96	0.96	0.94	0.96	0.95

Simulation 4: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.96	0.94	0.96	0.95	0.95	0.96	0.96
β_1	0.96	0.98	0.97	0.95	0.97	0.96	0.95	0.96	0.96
β_2	0.94	0.99	0.96	0.93	0.97	0.95	0.93	0.97	0.95
β_3	0.95	0.98	0.96	0.95	0.98	0.96	0.94	0.97	0.96

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.96	0.96	0.96	0.95	0.96	0.95	0.94	0.95	0.95
β_1	0.95	0.97	0.96	0.95	0.96	0.95	0.94	0.95	0.95
β_2	0.93	0.96	0.95	0.92	0.96	0.95	0.93	0.95	0.95
β_3	0.94	0.96	0.96	0.93	0.96	0.95	0.94	0.96	0.96

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.95
β_1	0.94	0.96	0.95	0.94	0.95	0.95	0.94	0.95	0.95
β_2	0.93	0.95	0.95	0.94	0.95	0.95	0.95	0.96	0.96
β_3	0.94	0.96	0.95	0.94	0.95	0.94	0.95	0.95	0.95

Simulation 4: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.96	0.96	0.96	0.96	0.95	0.96	0.95
β_1	0.96	0.97	0.97	0.94	0.96	0.95	0.95	0.96	0.95
β_2	0.91	0.97	0.94	0.94	0.97	0.95	0.94	0.97	0.95
β_3	0.95	0.98	0.96	0.93	0.97	0.95	0.94	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.95	0.95	0.96	0.95	0.95	0.95	0.95
β_1	0.94	0.96	0.95	0.94	0.96	0.95	0.95	0.96	0.96
β_2	0.94	0.96	0.95	0.94	0.96	0.95	0.94	0.95	0.95
β_3	0.94	0.97	0.95	0.93	0.96	0.95	0.94	0.96	0.95

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.95	0.95	0.94	0.95	0.94	0.95	0.96	0.96
β_1	0.95	0.95	0.95	0.94	0.95	0.95	0.94	0.94	0.95
β_2	0.95	0.96	0.95	0.95	0.95	0.94	0.96	0.96	0.96
β_3	0.94	0.96	0.95	0.95	0.96	0.95	0.95	0.95	0.94

Simulation 5: ICC = 0.10

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.97	0.96	0.95	0.96	0.95	0.94	0.96	0.95
β_1	0.94	0.98	0.95	0.95	0.97	0.96	0.93	0.94	0.94
β_2	0.93	0.99	0.96	0.92	0.97	0.94	0.93	0.96	0.94
β_3	0.91	0.99	0.96	0.92	0.98	0.95	0.90	0.97	0.94

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.95	0.96	0.96	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.94	0.95	0.95	0.90	0.93	0.94	0.88	0.90	0.91
β_2	0.94	0.97	0.96	0.92	0.97	0.95	0.93	0.96	0.95
β_3	0.89	0.96	0.93	0.86	0.94	0.91	0.85	0.94	0.90

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.93	0.93	0.92	0.92	0.92	0.91	0.90	0.90
β_1	0.79	0.80	0.83	0.63	0.64	0.67	0.53	0.56	0.56
β_2	0.93	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.94
β_3	0.88	0.92	0.89	0.78	0.81	0.80	0.70	0.75	0.73

Simulation 5: ICC = 0.50

L1 = 5; L2 = 25			L1 = 15; L2 = 25			L1 = 25; L2 = 25			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.93	0.96	0.94	0.95	0.96	0.96	0.95	0.96	0.95
β_1	0.94	0.98	0.95	0.93	0.97	0.96	0.94	0.96	0.96
β_2	0.90	0.96	0.94	0.94	0.96	0.96	0.94	0.97	0.96
β_3	0.93	0.98	0.95	0.92	0.98	0.94	0.92	0.97	0.95

L1 = 5; L2 = 50			L1 = 15; L2 = 50			L1 = 25; L2 = 50			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.95	0.94	0.95	0.96	0.95	0.94	0.95	0.94
β_1	0.93	0.95	0.95	0.93	0.95	0.95	0.92	0.94	0.93
β_2	0.94	0.96	0.95	0.94	0.95	0.94	0.94	0.95	0.95
β_3	0.92	0.97	0.95	0.90	0.96	0.93	0.90	0.95	0.92

L1 = 5; L2 = 200			L1 = 15; L2 = 200			L1 = 25; L2 = 200			
Parameter	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation	Wishart1	Wishart2	Separation
β_0	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.95	0.95
β_1	0.92	0.93	0.93	0.87	0.88	0.89	0.82	0.82	0.84
β_2	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.95	0.94
β_3	0.90	0.94	0.92	0.84	0.87	0.86	0.80	0.84	0.81