Contents

0.1 Fully Simulated Data Analysis

We simulated 100 subjects with between 2-13 observations from the following model:

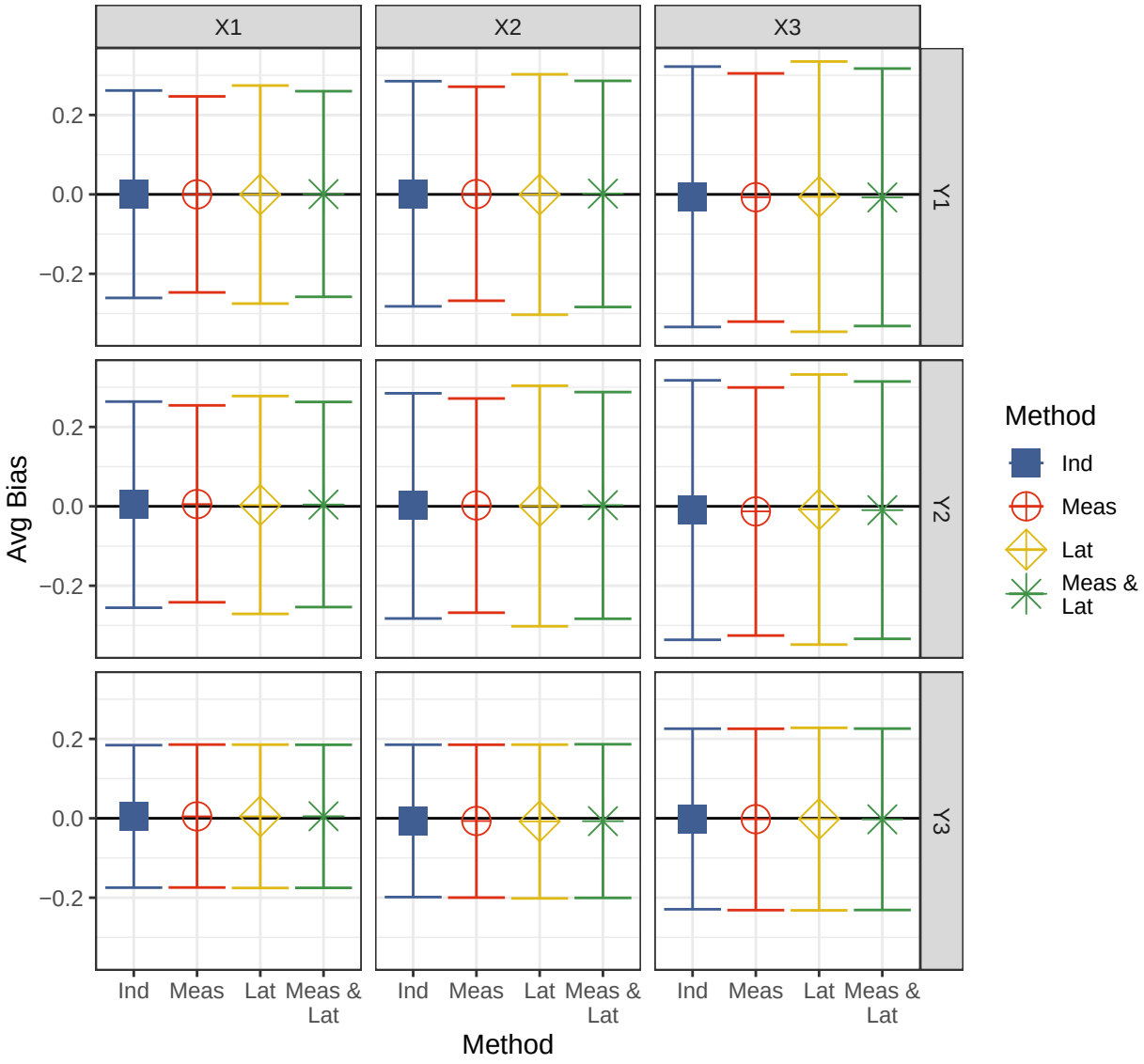
$$\begin{bmatrix} y_{ij1} \\ y_{ij2} \\ y_{ij3} \end{bmatrix} = \begin{bmatrix} \alpha_{ij1} \\ \alpha_{ij2} \\ \alpha_{ij3} \end{bmatrix} + \begin{bmatrix} \boldsymbol{x_{ij}\beta_1} \\ \boldsymbol{x_{ij}\beta_2} \\ \boldsymbol{x_{ij}\beta_3} \end{bmatrix} + \begin{bmatrix} \varepsilon_{ij1} \\ \varepsilon_{ij2} \\ \varepsilon_{ij3} \end{bmatrix}, \quad \begin{bmatrix} \varepsilon_{ij1} \\ \varepsilon_{ij2} \\ \varepsilon_{ij3} \end{bmatrix} \sim N(0, \begin{bmatrix} 15 & 2.4 & 1 \\ 2.4 & 15 & 1 \\ 1 & 1 & 10 \end{bmatrix})$$

$$\begin{bmatrix} \alpha_{ij1} \\ \alpha_{ij2} \\ \alpha_{ij3} \end{bmatrix} = \begin{bmatrix} \alpha_{i(j-1)1} \\ \alpha_{i(j-1)2} \\ \alpha_{i(j-1)3} \end{bmatrix} + \begin{bmatrix} \eta_{ij1} \\ \eta_{ij2} \\ \eta_{ij3} \end{bmatrix}, \quad \begin{bmatrix} \eta_{ij1} \\ \eta_{ij2} \\ \eta_{ij3} \end{bmatrix} \sim N(0, \delta_{ij} \begin{bmatrix} 5 & 3.7 & 0 \\ 3.7 & 5 & 0 \\ 0 & 0 & 2 \end{bmatrix})$$

0.2 Fully Simulated Effect Coverage

Test	Variable	Beta	Ind	Meas	Lat	Meas & Lat
Y1	X1	4	0.955	0.940	0.956	0.945
Y1	X2	2	0.949	0.930	0.963	0.952
Y1	X3	1	0.965	0.949	0.972	0.963
Y2	X1	-3	0.946	0.935	0.961	0.950
Y2	X2	0	0.949	0.934	0.965	0.949
Y2	X3	1	0.950	0.938	0.963	0.962
Y3	X1	0	0.945	0.942	0.945	0.944
Y3	X2	0	0.944	0.953	0.953	0.952
Y3	X3	0	0.942	0.947	0.946	0.944

0.3 Fully Simulated Linear Effect Bias



0.4 Fully Simulated Correlated Measurement Error

param	true	ind	meas	lat	meas & lat
1,1	15.0	14.914	15.677	14.053	14.977
1,2	2.4	0.000	5.024	0.000	2.280
2,2	15.0	14.949	15.715	14.096	15.009
1,3	1.0	0.000	0.994	0.000	0.990
2,3	1.0	0.000	1.018	0.000	1.010
3,3	10.0	10.029	10.046	9.995	10.061

0.5 Fully Simulated Correlated Measurement Error Coverage

param	ind	meas	lat	meas & lat
1,1	0.945	0.885	0.804	0.936
1,2	0.000	0.007	0.000	0.940
2,2	0.946	0.890	0.819	0.949
1,3	0.000	0.924	0.000	0.941
2,3	0.000	0.956	0.000	0.960
3,3	0.956	0.955	0.958	0.955

0.6 Fully Simulated Correlated Latent Variables

param	true	ind	meas	lat	meas & lat
1,1	5.000	4.908	4.234	5.910	4.971
1,2	3.714	0.000	0.000	4.981	3.821
2,2	5.000	4.909	4.232	5.902	4.975
1,3	0.000	0.000	0.000	0.431	-0.030
2,3	0.000	0.000	0.000	0.436	-0.024
3,3	2.000	1.912	1.919	1.963	1.924

0.7 Fully Simulated State Variance Coverage

param	ind	meas	lat	meas & lat
1,1	0.944	0.775	0.759	0.946
1,2	0.000	0.000	0.367	0.940
2,2	0.947	0.732	0.756	0.949
1,3	1.000	1.000	0.722	0.925
2,3	1.000	1.000	0.711	0.924
3,3	0.944	0.949	0.956	0.946

0.8 Full Simulated Standardized Effect Coverage

test	variable	meas	lat	meas & lat
Y1	X1	0.431	0.810	0.949
Y1	X2	0.226	0.487	0.944
Y1	X3	0.940	0.894	0.939
Y2	X1	0.951	0.949	0.955
Y2	X2	0.438	0.525	0.952
Y2	X3	0.949	0.799	0.955
Y3	X1	0.916	0.847	0.958
Y3	X2	0.886	0.849	0.956
Y3	X3	0.941	0.846	0.951