

**Table S1. Simulation results of Proposed Methods with 10% imposed misclassification under equally likely scenario (i.e.  $\varepsilon_{21} = \varepsilon_{23} = \varepsilon = 10\%$ ) under a reversed set of parameters.**

Parameter	True	Hidden (10%)			
		EST	%Bias	CP (%)	Avg. SE
$\alpha_{12}$	2.9	2.91	0.26	88.7	.18
$\alpha_{13}$	2.7	2.69	-0.48	91.0	.16
$\alpha_{21}$	2.5	2.50	0.09	89.0	.18
$\alpha_{23}$	2.2	2.19	-.43	89.0	.16
$\alpha_{31}$	1.1	1.09	-1.16	89.4	.16
$\alpha_{32}$	1.8	1.79	-0.59	90.9	.18
$\beta_1$	1.00	0.99	-0.18	90.0	.08
$\beta_2$	-0.50	-.50	-0.23	92.2	.02
$\varepsilon_2$	.05/.1	.10	-.46	74.5	.004

**Table S2. Simulation results of Proposed Methods with 10% imposed misclassification under equally likely scenario (i.e.  $\varepsilon_{21} = \varepsilon_{23} = \varepsilon = 10\%$ ) with reduced sample size (n=350) and shorter chains (s=6).**

Parameter	True	Hidden (10%)			
		EST	%Bias	CP (%)	Avg. SE
$\alpha_{12}$	2.9	2.96	2.01	88.1	.40
$\alpha_{13}$	2.7	2.74	1.40	90.2	.36
$\alpha_{21}$	2.5	2.56	2.21	88.2	.39
$\alpha_{23}$	2.2	2.24	1.67	89.7	.35
$\alpha_{31}$	1.8	1.84	1.96	89.5	.37
$\alpha_{32}$	1.1	1.0	-9.26	92.0	2.92
$\beta_1$	1.00	1.01	1.29	89.3	0.17
$\beta_2$	-0.50	-.51	1.39	90.0	.04
$\varepsilon_2$	.05/.1	.10	-.46	77.1	.01