

Table S1

Model Convergence Rates (%)

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	94.0	99.1	95.9	96.4	100.0
		500	99.3	100.0	99.1	99.0	100.0
		1,000	99.9	100.0	100.0	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	92.3	98.4	94.5	94.5	100.0
		500	98.9	100.0	99.2	99.0	100.0
		1,000	99.9	100.0	99.9	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	99.9
	Severely Skewed & Kurtotic	200	87.0	94.1	85.1	89.5	100.0
		500	98.5	99.7	98.1	98.0	100.0
		1,000	99.9	100.0	99.9	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	99.7
5 Categories	Symmetric	200	92.5	98.5	94.6	92.8	100.0
		500	99.4	100.0	99.1	99.3	100.0
		1,000	99.9	100.0	99.9	99.7	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	91.0	97.0	89.2	94.0	99.9
		500	97.1	100.0	97.5	97.7	99.9
		1,000	99.7	100.0	99.4	99.2	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Severely Skewed & Kurtotic	200	87.3	92.2	84.7	86.3	99.9
		500	97.5	99.9	97.9	97.8	100.0
		1,000	99.4	100.0	98.8	99.3	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
3 Categories	Symmetric	200	84.7	96.9	90.8	88.8	100.0
		500	97.9	100.0	98.5	98.1	100.0
		1,000	99.4	100.0	99.7	99.2	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	81.3	91.5	82.2	84.5	99.9
		500	94.1	100.0	94.0	95.5	100.0
		1,000	98.2	100.0	98.4	97.9	100.0
		5,000	99.9	100.0	99.8	100.0	100.0
	Severely Skewed & Kurtotic	200	73.3	83.0	71.0	74.7	100.0
		500	94.0	97.4	94.1	93.1	100.0
		1,000	98.2	99.8	97.4	97.1	100.0
		5,000	100.0	100.0	99.9	100.0	100.0

Table S2

Type I Error Rate (%) of Interaction Effect

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	1.5	5.5	2.4	2.1	4.2
		500	2.4	4.9	3.0	3.1	4.0
		1,000	4.5	5.3	4.5	4.9	5.6
		5,000	4.5	4.2	4.7	5.0	5.5
	Moderately Skewed & Kurtotic	200	4.3	5.4	4.7	5.5	15.2
		500	4.9	6.1	6.5	6.6	42.3
		1,000	4.3	6.1	5.3	5.8	73.0
		5,000	6.0	5.4	5.2	5.8	100.0
	Severely Skewed & Kurtotic	200	3.8	4.3	4.5	3.6	13.5
		500	3.4	3.8	4.0	4.2	36.5
		1,000	3.9	5.4	5.1	4.6	66.6
		5,000	4.9	5.4	6.1	5.2	100.0
5 Categories	Symmetric	200	0.8	5.9	1.6	1.4	3.5
		500	1.8	4.3	2.6	2.3	3.7
		1,000	4.4	5.2	3.7	4.4	5.5
		5,000	5.1	4.7	4.5	6.1	6.5
	Moderately Skewed & Kurtotic	200	1.4	6.2	3.7	4.2	24.6
		500	3.2	5.7	4.0	4.1	62.7
		1,000	3.2	6.1	5.8	5.6	89.1
		5,000	4.6	11.0	11.2	10.0	100.0
	Severely Skewed & Kurtotic	200	2.7	4.0	3.0	2.6	18.2
		500	2.6	5.2	3.7	4.3	41.8
		1,000	5.3	5.4	5.0	5.4	68.9
		5,000	15.6	8.8	9.0	9.1	99.7
3 Categories	Symmetric	200	0.0	4.9	1.6	0.9	3.4
		500	1.2	5.0	2.5	2.4	4.4
		1,000	3.6	6.3	4.4	3.8	5.7
		5,000	4.8	5.1	4.5	4.1	5.3
	Moderately Skewed & Kurtotic	200	0.4	3.8	1.9	1.7	19.0
		500	1.5	4.3	3.1	2.9	55.3
		1,000	3.2	4.9	3.7	4.3	82.9
		5,000	7.8	4.7	3.8	4.9	100.0
	Severely Skewed & Kurtotic	200	1.5	4.1	2.3	2.5	13.3
		500	1.9	5.4	4.4	4.2	29.9
		1,000	4.6	6.9	4.4	5.8	54.5
		5,000	22.9	15.7	17.4	17.2	98.7

Table S3

Statistical Power (%) of Interaction Effect

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	34.5	62.9	50.1	48.5	86.3
		500	90.4	97.4	95.6	95.0	99.9
		1,000	99.8	99.9	99.9	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	60.5	72.1	70.5	70.2	97.5
		500	94.9	97.9	97.5	97.4	100.0
		1,000	99.7	100.0	100.0	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Severely Skewed & Kurtotic	200	39.6	46.1	45.8	42.7	90.3
		500	75.3	84.2	81.5	80.2	100.0
		1,000	93.3	98.5	96.6	96.6	100.0
		5,000	99.9	99.9	100.0	99.9	100.0
5 Categories	Symmetric	200	25.0	55.8	43.4	41.1	83.8
		500	86.9	94.4	94.0	92.8	99.8
		1,000	99.8	99.9	99.9	100.0	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	38.4	54.6	52.7	53.0	96.2
		500	87.9	91.7	91.1	90.9	100.0
		1,000	99.9	99.0	98.9	98.9	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Severely Skewed & Kurtotic	200	26.1	34.0	31.3	31.6	88.3
		500	65.7	72.1	68.2	66.4	100.0
		1,000	95.6	95.5	96.1	94.4	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
3 Categories	Symmetric	200	11.6	42.2	23.3	23.5	76.0
		500	62.4	88.4	82.3	77.6	99.6
		1,000	97.9	99.8	99.8	99.7	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	20.2	41.3	38.8	40.2	91.8
		500	65.0	80.4	77.0	76.3	100.0
		1,000	97.0	98.0	97.6	97.3	100.0
		5,000	100.0	100.0	100.0	100.0	100.0
	Severely Skewed & Kurtotic	200	13.4	25.1	22.9	25.1	79.7
		500	34.8	49.4	42.0	42.7	99.5
		1,000	76.2	84.2	80.0	77.6	100.0
		5,000	100.0	100.0	100.0	100.0	100.0

Results of Lower-order Effects

Table S4

Relative Bias (%) of γ_0 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	-3.2	1.4	-1.4	-3.8	1.8
		500	-0.5	0.3	-0.3	-0.2	0.9
		1,000	-1.6	-1.6	-1.5	-2.0	-1.4
		5,000	0.2	0.3	0.2	0.2	0.4
	Moderately Skewed & Kurtotic	200	-1.6	-2.9	0.7	-0.6	-27.3
		500	-0.5	-4.6	-0.4	-0.5	-29.0
		1,000	-1.0	-4.6	-0.7	-0.7	-30.1
		5,000	-0.1	-4.3	-0.1	-0.1	-29.2
	Severely Skewed & Kurtotic	200	0.0	-0.1	8.8	2.7	-17.8
		500	-0.6	-2.7	1.3	-1.0	-20.4
		1,000	0.0	-2.6	0.3	0.0	-20.2
		5,000	0.2	-3.0	0.3	0.2	-21.1
5 Categories	Symmetric	200	-3.8	0.5	-2.8	-4.0	1.0
		500	-1.7	0.1	-1.1	-1.3	0.4
		1,000	-2.3	-1.9	-2.4	-2.7	-2.1
		5,000	-0.3	0.1	-0.3	-0.3	-0.4
	Moderately Skewed & Kurtotic	200	-2.2	-7.2	0.4	-3.9	-40.9
		500	-1.2	-9.8	-4.4	-5.2	-45.0
		1,000	-1.6	-9.8	-5.3	-5.4	-47.0
		5,000	0.3	-8.6	-3.9	-4.3	-46.7
	Severely Skewed & Kurtotic	200	14.4	10.4	15.7	12.8	-19.1
		500	13.5	9.8	11.3	10.8	-21.8
		1,000	13.5	9.7	11.7	11.7	-22.5
		5,000	13.4	9.8	11.5	11.7	-23.6
3 Categories	Symmetric	200	-6.0	0.2	-4.8	-6.0	0.6
		500	-3.2	-0.2	-2.0	-1.8	0.4
		1,000	-2.6	-1.6	-2.7	-3.5	-2.0
		5,000	-0.5	1.0	-0.5	-0.4	-0.4
	Moderately Skewed & Kurtotic	200	5.1	-0.2	5.6	5.2	-38.0
		500	5.9	-2.7	3.0	1.9	-42.7
		1,000	5.8	-2.0	2.1	2.2	-44.5
		5,000	7.5	-1.2	3.2	3.0	-44.5
	Severely Skewed & Kurtotic	200	27.4	21.8	29.1	27.4	-8.6
		500	24.2	21.1	23.2	22.1	-11.1
		1,000	23.9	20.5	22.1	21.8	-12.0
		5,000	23.8	20.3	22.0	21.9	-13.1

Table S5

Relative Bias (%) of Estimated Standard Error of γ_0 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	3.2	-5.7	-5.2	-8.3	2.0
		500	-10.1	-11.6	-12.0	-12.4	-1.7
		1,000	-10.1	-13.2	-11.0	-11.9	-1.9
		5,000	-11.7	-10.2	-11.2	-10.4	-0.4
	Moderately Skewed & Kurtotic	200	9.4	4.8	7.2	6.5	6.6
		500	5.9	5.6	6.9	6.2	12.7
		1,000	4.1	2.8	3.0	2.2	10.0
		5,000	6.8	8.2	8.4	8.4	13.5
	Severely Skewed & Kurtotic	200	80.6	12.0	42.2	31.9	-4.7
		500	1.9	14.9	-3.1	-2.5	-4.5
		1,000	-4.9	-6.1	-5.1	-3.7	-1.7
		5,000	-11.9	-10.2	-12.0	-11.4	-8.6
5 Categories	Symmetric	200	7.4	-3.0	-3.3	-4.1	1.5
		500	-8.9	-9.4	-10.2	-10.0	-1.3
		1,000	-8.0	-11.8	-8.8	-10.4	-1.4
		5,000	-10.7	-9.9	-10.3	-10.2	-0.7
	Moderately Skewed & Kurtotic	200	16.5	4.2	20.3	11.7	-5.5
		500	7.0	3.1	6.4	1.0	-2.7
		1,000	4.9	-0.5	3.3	2.8	-6.4
		5,000	5.3	2.7	4.0	3.2	-8.9
	Severely Skewed & Kurtotic	200	16.9	7.5	5.0	31.9	-10.3
		500	-8.5	-9.3	-8.2	-10.8	-10.6
		1,000	-7.7	-6.7	-6.4	-6.3	-10.7
		5,000	-11.6	-11.0	-11.2	-11.7	-16.7
3 Categories	Symmetric	200	19.5	1.2	10.4	16.5	1.9
		500	-0.8	-7.8	-7.9	-6.3	-2.2
		1,000	-7.0	-11.3	-7.5	-7.7	-0.6
		5,000	-10.3	-22.5	-10.9	-9.3	-1.3
	Moderately Skewed & Kurtotic	200	46.1	11.8	27.4	23.3	-7.5
		500	5.8	0.9	7.9	2.6	-5.4
		1,000	6.4	2.8	3.6	4.2	-7.4
		5,000	6.3	2.8	5.3	5.5	-8.9
	Severely Skewed & Kurtotic	200	30.2	37.9	23.0	68.2	-11.0
		500	-1.3	-0.6	5.7	4.8	-10.6
		1,000	-5.2	-4.1	-5.0	-4.5	-9.4
		5,000	-11.2	-10.4	-10.3	-11.3	-16.1

Table S6

Coverage Rate (%) of γ_0

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	93.9	93.6	93.5	93.3	95.7
		500	91.4	91.5	90.9	91.6	94.4
		1,000	91.4	90.5	91.5	90.7	93.6
		5,000	91.9	92.1	91.8	91.6	94.6
	Moderately Skewed & Kurtotic	200	95.7	95.3	96.2	96.0	92.5
		500	95.9	96.3	96.3	96.8	85.5
		1,000	96.0	94.9	95.8	95.9	69.5
		5,000	95.5	93.5	96.4	96.6	7.9
	Severely Skewed & Kurtotic	200	92.2	91.8	92.0	91.2	91.9
		500	93.2	94.2	93.8	94.2	87.0
		1,000	93.1	93.4	93.5	92.9	82.3
		5,000	91.6	92.0	91.6	92.2	38.0
5 Categories	Symmetric	200	95.5	93.5	95.0	94.2	95.5
		500	92.1	92.5	91.7	93.0	94.7
		1,000	92.4	90.9	92.8	91.8	93.5
		5,000	91.2	91.7	91.7	91.4	94.3
	Moderately Skewed & Kurtotic	200	96.6	96.0	97.1	95.9	85.6
		500	97.7	96.5	97.3	96.7	66.6
		1,000	95.7	94.8	95.6	96.0	39.5
		5,000	95.3	89.5	94.4	94.5	0.2
	Severely Skewed & Kurtotic	200	90.4	90.5	89.8	88.7	89.7
		500	89.6	91.0	90.3	90.7	86.1
		1,000	87.2	89.5	87.4	88.8	77.8
		5,000	63.8	75.9	71.3	70.8	32.2
3 Categories	Symmetric	200	93.7	93.9	95.5	94.9	95.5
		500	94.1	92.5	92.7	94.0	93.9
		1,000	93.9	91.2	93.3	93.5	94.4
		5,000	91.5	90.0	91.9	91.9	94.1
	Moderately Skewed & Kurtotic	200	95.3	96.6	96.7	96.3	86.7
		500	95.8	96.8	96.7	96.2	70.3
		1,000	94.5	95.8	95.6	96.1	46.2
		5,000	88.6	95.9	94.5	94.3	0.5
	Severely Skewed & Kurtotic	200	87.2	88.2	86.2	86.0	90.8
		500	82.6	83.6	83.3	82.8	90.2
		1,000	75.9	79.6	77.5	76.8	88.5
		5,000	27.0	42.7	33.0	34.5	68.3

Table S7

Relative Bias (%) of γ_1 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	-0.1	0.3	0.2	0.2	-0.4
		500	0.7	0.8	0.7	0.9	0.2
		1,000	0.3	0.3	0.3	0.4	0.2
		5,000	0.1	0.1	0.1	0.1	0.1
	Moderately Skewed & Kurtotic	200	-0.9	-0.9	-0.3	-0.3	-9.6
		500	-0.8	-1.4	-0.7	-0.6	-10.3
		1,000	-0.3	-0.6	-0.1	0.0	-9.8
		5,000	-0.5	-0.8	-0.5	-0.5	-10.2
	Severely Skewed & Kurtotic	200	-1.6	-0.5	1.6	-0.6	-10.9
		500	-0.8	-1.4	0.1	-0.5	-11.9
		1,000	-0.9	-1.1	-0.5	-0.5	-11.6
		5,000	0.0	-0.2	0.1	0.0	-11.7
5 Categories	Symmetric	200	0.5	0.6	0.6	0.6	-0.4
		500	0.5	0.6	0.5	0.6	-0.1
		1,000	0.2	0.2	0.2	0.3	0.0
		5,000	0.0	0.0	0.0	0.0	-0.1
	Moderately Skewed & Kurtotic	200	-1.6	-5.1	-1.8	-4.4	-15.2
		500	-0.4	-5.6	-3.1	-4.7	-16.8
		1,000	0.5	-4.3	-2.3	-3.3	-16.3
		5,000	0.8	-4.4	-2.3	-3.5	-17.1
	Severely Skewed & Kurtotic	200	0.4	-3.0	-0.2	-2.4	-17.2
		500	0.2	-2.6	-1.4	-2.2	-18.3
		1,000	0.5	-2.3	-0.9	-1.7	-18.6
		5,000	1.1	-1.3	-0.3	-1.1	-18.7
3 Categories	Symmetric	200	0.0	-0.4	-0.1	-0.2	-0.9
		500	0.7	0.9	0.8	1.0	-0.1
		1,000	0.3	0.3	0.3	0.3	0.0
		5,000	0.1	0.0	0.1	0.0	-0.1
	Moderately Skewed & Kurtotic	200	-0.3	-3.0	0.6	-0.1	-16.7
		500	1.8	-2.9	-0.5	-1.9	-18.4
		1,000	2.8	-1.4	0.0	-0.9	-17.8
		5,000	3.3	-1.5	0.1	-1.0	-18.6
	Severely Skewed & Kurtotic	200	3.4	0.8	5.4	3.5	-16.2
		500	3.8	1.8	2.6	1.6	-17.3
		1,000	3.8	1.5	2.3	1.7	-17.6
		5,000	4.3	2.5	3.0	2.3	-17.8

Table S8

Relative Bias (%) of Estimated Standard Error of γ_1 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	11.7	0.1	2.3	1.4	1.0
		500	1.8	2.0	-3.0	-0.7	-0.5
		1,000	4.4	1.5	-0.4	1.3	1.3
		5,000	-0.6	2.2	2.8	-0.5	-1.5
	Moderately Skewed & Kurtotic	200	3.9	7.5	-3.9	0.7	-0.5
		500	0.0	6.9	-0.6	1.1	2.6
		1,000	0.1	7.9	-1.1	-2.9	0.5
		5,000	2.1	7.0	0.0	0.0	5.0
	Severely Skewed & Kurtotic	200	29.3	17.1	16.1	28.6	-8.7
		500	5.2	25.8	-2.5	-1.2	-3.9
		1,000	-6.8	-10.4	-7.8	-3.8	-5.7
		5,000	2.1	-0.8	0.8	0.0	-14.1
5 Categories	Symmetric	200	10.8	5.4	6.0	0.2	-3.2
		500	3.6	4.3	-2.2	1.0	2.3
		1,000	3.8	1.4	-1.4	1.7	1.1
		5,000	-0.2	1.8	3.1	-0.7	-0.4
	Moderately Skewed & Kurtotic	200	13.4	8.1	4.5	5.3	-1.3
		500	1.1	3.1	1.0	-1.3	5.3
		1,000	1.7	7.4	1.1	1.1	3.7
		5,000	1.0	4.3	-1.8	0.0	5.7
	Severely Skewed & Kurtotic	200	13.5	23.8	13.7	67.3	-5.3
		500	-2.6	-4.2	-4.5	-6.9	-4.3
		1,000	-5.1	-4.4	-3.1	-2.9	-2.9
		5,000	-2.3	-0.8	-2.5	-0.8	-4.2
3 Categories	Symmetric	200	23.1	14.5	14.3	14.2	-2.5
		500	4.1	3.8	2.1	2.8	-0.4
		1,000	6.1	5.0	1.6	3.9	4.3
		5,000	-0.9	0.9	2.3	-0.3	-0.3
	Moderately Skewed & Kurtotic	200	32.4	13.2	13.5	12.7	-6.9
		500	1.4	1.0	0.0	-0.7	-1.9
		1,000	1.9	9.5	3.5	2.0	-1.8
		5,000	0.9	2.5	-2.1	-0.2	1.0
	Severely Skewed & Kurtotic	200	47.3	53.9	37.1	66.0	-12.5
		500	7.0	9.0	6.8	16.0	-5.0
		1,000	-2.3	0.4	-2.3	-2.3	-5.4
		5,000	0.4	0.8	0.7	1.5	-6.6

Table S9

Coverage Rate (%) of γ_1

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	98.7	96.2	98.1	98.9	98.6
		500	98.6	95.4	98.3	98.4	98.3
		1,000	99.3	95.5	98.5	98.8	99.5
		5,000	99.3	96.1	98.8	98.4	99.2
	Moderately Skewed & Kurtotic	200	97.0	96.6	95.9	96.2	95.8
		500	97.4	97.0	96.6	97.1	94.0
		1,000	97.8	97.1	97.5	97.5	89.9
		5,000	97.4	96.0	96.8	97.1	40.4
	Severely Skewed & Kurtotic	200	92.5	96.6	91.2	92.7	92.7
		500	92.8	94.1	92.6	92.5	89.5
		1,000	93.5	95.0	92.5	93.4	82.6
		5,000	94.6	95.3	94.5	94.7	29.4
5 Categories	Symmetric	200	98.7	96.7	99.4	99.1	98.9
		500	99.1	95.9	98.9	99.4	99.2
		1,000	99.2	95.3	99.4	99.4	99.7
		5,000	99.4	96.1	99.4	98.8	99.6
	Moderately Skewed & Kurtotic	200	94.0	95.9	95.4	95.9	86.4
		500	95.2	96.8	95.6	96.7	76.4
		1,000	95.3	95.5	94.9	96.3	60.5
		5,000	92.4	88.4	92.5	91.3	1.6
	Severely Skewed & Kurtotic	200	87.6	95.9	92.5	94.5	77.9
		500	87.0	94.5	91.3	92.8	61.5
		1,000	83.9	94.4	91.0	94.3	39.6
		5,000	85.4	95.0	92.1	94.5	0.6
3 Categories	Symmetric	200	100.0	96.5	100.0	100.0	100.0
		500	100.0	96.4	100.0	100.0	100.0
		1,000	100.0	96.0	100.0	100.0	100.0
		5,000	100.0	95.4	100.0	100.0	100.0
	Moderately Skewed & Kurtotic	200	99.9	96.2	99.9	100.0	99.6
		500	100.0	98.3	100.0	100.0	99.1
		1,000	100.0	97.2	100.0	100.0	98.4
		5,000	100.0	95.3	100.0	100.0	47.1
	Severely Skewed & Kurtotic	200	99.5	95.6	99.9	99.9	99.7
		500	99.7	95.5	100.0	100.0	98.6
		1,000	99.4	95.1	99.8	99.8	95.2
		5,000	99.1	93.5	99.8	99.9	37.4

Table S10

Relative Bias (%) of γ_2 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	4.5	2.6	3.3	3.7	1.1
		500	0.5	0.2	-0.1	-0.4	0.0
		1,000	-1.0	-0.8	-0.8	-0.9	-0.6
		5,000	-0.3	-0.3	-0.4	-0.4	-0.5
	Moderately Skewed & Kurtotic	200	-3.4	2.8	0.2	-2.4	-7.1
		500	1.8	4.8	1.4	1.1	-5.4
		1,000	-0.8	4.8	-0.3	-0.2	-8.1
		5,000	0.0	5.2	0.1	-0.1	-6.4
	Severely Skewed & Kurtotic	200	5.6	4.3	10.5	3.1	3.4
		500	0.7	1.8	1.7	-0.8	1.3
		1,000	2.0	2.7	1.6	1.0	1.2
		5,000	-0.2	1.8	-0.1	-0.2	0.1
5 Categories	Symmetric	200	2.6	1.4	2.6	2.1	0.5
		500	0.9	0.3	0.5	0.0	0.1
		1,000	-0.9	-0.9	-0.8	-0.8	-0.9
		5,000	-0.5	-0.6	-0.5	-0.5	-0.9
	Moderately Skewed & Kurtotic	200	-8.0	2.2	-3.7	-3.6	-12.5
		500	-2.0	1.1	-5.1	-3.2	-11.1
		1,000	-3.5	-0.1	-7.7	-5.2	-13.5
		5,000	-1.2	0.4	-6.2	-4.7	-12.3
	Severely Skewed & Kurtotic	200	13.7	19.2	12.7	15.4	8.9
		500	14.9	18.5	12.6	13.3	7.6
		1,000	14.7	18.4	12.7	14.4	7.2
		5,000	13.2	17.2	11.0	13.0	6.1
3 Categories	Symmetric	200	4.4	3.3	2.5	3.7	0.8
		500	1.6	0.7	0.9	0.5	0.6
		1,000	-1.3	-0.9	-0.7	-0.8	-0.6
		5,000	-0.6	-0.3	-0.6	-0.7	-0.9
	Moderately Skewed & Kurtotic	200	0.1	9.4	1.5	2.2	-14.9
		500	3.2	8.5	0.4	1.9	-15.2
		1,000	2.8	8.8	-2.4	1.3	-17.8
		5,000	5.0	9.0	-1.3	1.1	-17.0
	Severely Skewed & Kurtotic	200	33.0	33.2	30.8	34.0	15.5
		500	32.3	34.1	28.9	30.2	14.5
		1,000	30.3	33.2	26.7	28.0	13.3
		5,000	29.1	32.3	25.6	26.8	12.1

Table S11

Relative Bias (%) of Estimated Standard Error of γ_2 Estimate

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	-0.5	2.0	-1.1	3.1	-2.5
		500	0.2	0.8	-0.3	-2.0	-2.1
		1,000	1.9	3.3	3.0	2.1	1.6
		5,000	-1.5	-2.1	-2.4	-1.8	-2.2
	Moderately Skewed & Kurtotic	200	1.5	3.9	-5.2	-2.4	-0.2
		500	-5.0	-5.0	-6.3	-8.5	-1.8
		1,000	-0.3	-0.8	-2.0	-0.8	2.3
		5,000	4.5	2.0	1.6	1.0	3.4
	Severely Skewed & Kurtotic	200	81.6	7.9	30.5	32.1	-5.4
		500	-0.2	3.6	-4.8	0.0	-2.8
		1,000	-4.7	-5.9	-5.3	-2.3	-3.6
		5,000	-7.0	-4.1	-4.6	-4.0	-2.0
5 Categories	Symmetric	200	15.3	6.1	0.9	0.7	-2.6
		500	1.9	1.5	0.7	-0.2	-1.1
		1,000	2.2	4.1	3.0	2.0	0.2
		5,000	0.1	-0.8	-1.5	-1.6	-1.6
	Moderately Skewed & Kurtotic	200	11.1	9.7	5.8	3.3	-0.1
		500	-2.7	-1.7	-2.7	-4.4	-0.4
		1,000	-0.4	1.5	-0.6	0.7	2.5
		5,000	3.9	0.7	1.2	0.5	2.9
	Severely Skewed & Kurtotic	200	29.8	29.0	4.8	25.8	-1.9
		500	-2.2	-0.4	-3.8	-7.9	-3.5
		1,000	-2.5	-2.0	-3.7	-3.1	-2.3
		5,000	-4.6	-2.4	-1.8	-1.9	-2.2
3 Categories	Symmetric	200	24.3	15.5	6.2	18.7	-2.8
		500	1.1	2.8	0.5	0.7	-2.2
		1,000	5.8	5.9	6.3	6.2	3.2
		5,000	2.0	-2.5	0.0	-0.4	-2.0
	Moderately Skewed & Kurtotic	200	38.8	13.1	11.4	16.7	-4.3
		500	-2.4	-3.1	-1.6	-6.6	-4.6
		1,000	-2.2	-2.0	-4.5	-2.3	-1.9
		5,000	2.2	3.3	1.4	1.3	-0.3
	Severely Skewed & Kurtotic	200	36.0	36.3	53.9	90.4	-6.8
		500	8.2	9.4	13.7	11.9	-7.4
		1,000	-3.6	-1.7	-4.3	-5.3	-6.6
		5,000	-3.1	-1.9	-0.8	-0.8	-6.0

Table S12

Coverage Rate (%) of γ_2

Indicators' Categories	Indicators' Distribution	N	Latent Variable Interaction Modeling Method				
			Matching	Parceling	2M+P	M+2P	LMS
Continuous	Symmetric	200	96.3	96.1	96.0	96.9	95.0
		500	96.1	95.6	96.7	97.3	94.9
		1,000	96.2	95.6	96.7	97.8	96.4
		5,000	95.5	94.5	95.7	95.8	95.2
	Moderately Skewed & Kurtotic	200	95.5	94.9	95.5	96.1	96.1
		500	94.8	93.8	94.3	94.9	95.1
		1,000	95.0	93.6	95.1	95.5	95.2
		5,000	95.5	93.7	96.4	96.3	93.5
	Severely Skewed & Kurtotic	200	93.0	93.3	92.7	93.9	93.8
		500	93.4	95.1	93.9	94.4	94.1
		1,000	92.3	93.7	93.8	95.0	95.5
		5,000	93.0	94.3	94.1	94.2	94.9
5 Categories	Symmetric	200	96.8	95.3	96.9	97.6	95.3
		500	96.7	96.4	97.8	97.9	96.6
		1,000	96.4	95.6	96.9	98.3	96.5
		5,000	96.0	94.5	96.0	96.5	95.2
	Moderately Skewed & Kurtotic	200	91.6	96.3	92.4	94.7	90.7
		500	89.8	94.9	90.7	93.0	87.5
		1,000	88.1	95.9	89.3	92.8	85.6
		5,000	88.5	95.8	87.2	92.0	72.6
	Severely Skewed & Kurtotic	200	87.2	92.4	87.9	90.5	87.3
		500	84.2	92.4	86.9	90.0	86.0
		1,000	81.9	88.5	84.5	88.4	87.5
		5,000	68.6	73.7	76.6	78.6	83.8
3 Categories	Symmetric	200	100.0	97.1	100.0	99.9	99.9
		500	99.9	96.2	99.8	100.0	99.9
		1,000	100.0	96.5	100.0	100.0	100.0
		5,000	100.0	94.2	100.0	99.9	99.9
	Moderately Skewed & Kurtotic	200	99.8	96.4	100.0	100.0	99.8
		500	99.9	94.6	99.8	100.0	99.8
		1,000	99.8	92.9	100.0	100.0	99.8
		5,000	99.9	91.3	99.8	99.8	98.2
	Severely Skewed & Kurtotic	200	99.0	91.3	99.0	99.4	99.5
		500	99.0	85.5	99.3	99.7	99.5
		1,000	98.1	81.0	99.0	99.6	99.7
		5,000	89.1	39.2	93.9	95.5	99.0

Table S13

Chi-square Distributions of Unique Factors in Moderately and Severely Skewed and Kurtotic Conditions

Indicators	Moderately Skewed and Kurtotic	Severely Skewed and Kurtotic
X_1	$\chi^2(df = 1.6)$	$\chi^2(df = 0.8)$
X_2	$\chi^2(df = 3.2)$	$\chi^2(df = 0.9)$
X_3	$\chi^2(df = 4.2)$	$\chi^2(df = 0.8)$
X_4	$\chi^2(df = 2.4)$	$\chi^2(df = 0.95)$
X_5	$\chi^2(df = 3.0)$	$\chi^2(df = 1.0)$
X_6	$\chi^2(df = 2.0)$	$\chi^2(df = 1.5)$
X_7	$\chi^2(df = 1.6)$	$\chi^2(df = 0.6)$
X_8	$\chi^2(df = 1.7)$	$\chi^2(df = 0.9)$
X_9	$\chi^2(df = 2.0)$	$\chi^2(df = 0.6)$
X_{10}	$\chi^2(df = 4.0)$	$\chi^2(df = 0.6)$
X_{11}	$\chi^2(df = 1.5)$	$\chi^2(df = 0.6)$
X_{12}	$\chi^2(df = 5.0)$	$\chi^2(df = 1.4)$
X_{13}	$\chi^2(df = 1.8)$	$\chi^2(df = 1.4)$
X_{14}	$\chi^2(df = 1.4)$	$\chi^2(df = 0.8)$
X_{15}	$\chi^2(df = 5.0)$	$\chi^2(df = 1.4)$