Table 1: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.196	-0.004	-0.067	0.138	0.019	0.970	6.196	-0.004	-0.069	0.136	0.018	0.975
β_S	0.296	-0.004	-1.379	0.054	0.003	0.955	0.296	-0.004	-1.343	0.053	0.003	0.965
σ_L^2	1.048	0.048	4.769	0.209	0.046	0.960	1.042	0.042	4.215	0.207	0.045	0.955
σ_S^2	0.137	0.037	37.063	0.040	0.003	0.955	0.134	0.034	33.680	0.025	0.002	0.960
σ_{LS}	-0.009	-0.009	-0.896	0.054	0.003	0.990	-0.007	-0.007	-0.675	0.053	0.003	0.995
σ_ϵ^2	0.099	-0.001	-0.933	0.181	0.033	0.355	0.102	0.002	2.212	0.203	0.041	0.355
K_e	-	-	-	-	-	-	3.662	-	-	0.222	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.127	0.003	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 2: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.203	0.003	0.044	0.128	0.016	0.965	6.204	0.004	0.066	0.120	0.014	0.975
β_S	0.299	-0.001	-0.218	0.052	0.003	0.980	0.298	-0.002	-0.666	0.050	0.002	0.985
σ_L^2	0.906	-0.094	-9.393	1.425	2.040	0.275	0.868	-0.132	-13.170	1.395	1.964	0.130
σ_S^2	0.123	0.023	23.152	0.086	0.008	0.865	0.104	0.004	3.731	0.086	0.007	0.530
σ_{LS}	-0.031	-0.031	-3.055	0.196	0.039	0.710	-0.032	-0.032	-3.208	0.192	0.038	0.505
σ_ϵ^2	0.097	-0.003	-3.085	0.017	0.000	0.910	0.096	-0.004	-4.371	0.016	0.000	0.915
K_u	-	-	-	-	-	-	1.892	-	-	0.491	-	-
α	-	-	-	-	-	-	0.978	-0.022	-2.214	0.006	0.001	1.000

Table 3: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.187	-0.013	-0.203	0.127	0.016	0.961	6.200	0.000	-0.003	0.111	0.012	0.955
β_S	0.293	-0.007	-2.320	0.054	0.003	0.978	0.294	-0.006	-2.083	0.049	0.002	0.985
σ_L^2	0.965	-0.035	-3.503	1.144	1.310	0.328	0.929	-0.071	-7.137	1.095	1.203	0.090
σ_S^2	0.131	0.031	30.850	0.091	0.009	0.728	0.109	0.009	8.848	0.090	0.008	0.365
σ_{LS}	-0.005	-0.005	-0.463	0.198	0.039	0.694	-0.007	-0.007	-0.656	0.186	0.035	0.435
σ_ϵ^2	0.088	-0.012	-12.113	0.068	0.005	0.294	0.086	-0.014	-13.910	0.063	0.004	0.305
K_e	-	-	-	-	-	-	3.651	-	-	0.202	-	-
K_u	-	-	-	-	-	-	1.956	-	-	0.520	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.136	0.003	0.000	1.000
α_2	-	-	-	-	-	-	0.979	-0.021	-2.147	0.006	0.000	1.000

Table 4: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.180	-0.020	-0.325	0.165	0.028	0.950	6.181	-0.019	-0.307	0.163	0.027	0.945
β_S	0.304	0.004	1.247	0.052	0.003	0.975	0.302	0.002	0.737	0.051	0.003	0.970
σ_L^2	1.048	0.048	4.768	0.263	0.071	0.960	1.049	0.049	4.901	0.260	0.070	0.960
σ_S^2	0.141	0.041	41.475	0.030	0.003	0.930	0.140	0.040	39.527	0.027	0.002	0.920
σ_{LS}	-0.014	-0.014	-1.357	0.063	0.004	0.975	-0.011	-0.011	-1.056	0.058	0.004	0.970
σ_ϵ^2	0.552	0.052	10.376	0.903	0.819	0.235	0.545	0.045	8.942	0.876	0.769	0.170
K_e	-	-	-	-	-	-	3.782	-	-	0.322	-	-
α	-	-	-	-	-	-	1.000	0.000	0.030	0.004	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 5: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.218	0.018	0.295	0.185	0.034	0.950	6.208	0.008	0.127	0.139	0.019	0.945
β_S	0.301	0.001	0.337	0.053	0.003	0.975	0.297	-0.003	-1.055	0.049	0.002	0.975
σ_L^2	1.365	0.365	36.525	7.423	55.238	0.330	1.324	0.324	32.350	7.276	53.048	0.215
σ_S^2	0.158	0.058	58.039	0.341	0.120	0.855	0.138	0.038	37.758	0.335	0.114	0.520
σ_{LS}	-0.001	-0.001	-0.097	0.799	0.639	0.765	-0.005	-0.005	-0.504	0.782	0.612	0.555
σ_e^2	0.490	-0.010	-2.023	0.058	0.003	0.930	0.487	-0.013	-2.529	0.057	0.003	0.925
K_u	-	-	-	-	-	-	1.891	-	-	0.487	-	-
α	-	-	-	-	-	-	0.978	-0.022	-2.228	0.006	0.001	1.000

Table 6: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.191	-0.009	-0.143	0.164	0.027	0.950	6.192	-0.008	-0.127	0.139	0.019	0.955
β_S	0.298	-0.002	-0.818	0.057	0.003	0.985	0.298	-0.002	-0.537	0.048	0.002	0.980
σ_L^2	1.123	0.123	12.272	2.066	4.284	0.410	1.078	0.078	7.781	2.023	4.098	0.205
σ_S^2	0.145	0.045	44.530	0.260	0.070	0.755	0.123	0.023	22.847	0.256	0.066	0.360
σ_{LS}	0.039	0.039	3.932	0.636	0.406	0.750	0.038	0.038	3.789	0.621	0.387	0.525
σ_e^2	0.463	-0.037	-7.453	0.373	0.140	0.185	0.457	-0.043	-8.663	0.365	0.135	0.145
K_e	-	-	-	-	-	-	3.734	-	-	0.309	-	-
K_u	-	-	-	-	-	-	1.882	-	-	0.494	-	-
α_1	-	-	-	-	-	-	1.000	0.000	-0.025	0.004	0.000	1.000
α_2	-	-	-	-	-	-	0.978	-0.022	-2.197	0.006	0.001	1.000

Table 7: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.203	0.003	0.049	0.081	0.007	0.950	6.204	0.004	0.065	0.078	0.006	0.955
β_S	0.297	-0.003	-0.927	0.038	0.001	0.955	0.297	-0.003	-0.835	0.036	0.001	0.955
σ_L^2	1.030	0.030	3.017	0.144	0.022	0.925	1.029	0.029	2.875	0.140	0.020	0.930
σ_S^2	0.130	0.030	30.379	0.032	0.002	0.925	0.129	0.029	29.027	0.029	0.002	0.935
σ_{LS}	-0.014	-0.014	-1.406	0.048	0.002	0.960	-0.013	-0.013	-1.339	0.043	0.002	0.955
σ_e^2	0.384	-0.116	-23.280	0.291	0.098	0.140	0.385	-0.115	-23.015	0.293	0.099	0.125
K_e	-	-	-	-	-	-	4.295	-	-	0.238	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.105	0.005	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 8: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.203	0.003	0.048	0.073	0.005	0.960	6.202	0.002	0.024	0.070	0.005	0.965
β_S	0.298	-0.002	-0.643	0.042	0.002	0.950	0.298	-0.002	-0.550	0.043	0.002	0.955
σ_L^2	0.823	-0.177	-17.653	0.837	0.731	0.160	0.823	-0.177	-17.704	0.834	0.727	0.120
σ_S^2	0.135	0.035	34.916	0.075	0.007	0.845	0.140	0.040	39.809	0.079	0.008	0.800
σ_{LS}	-0.040	-0.040	-4.030	0.173	0.032	0.650	-0.048	-0.048	-4.796	0.170	0.031	0.540
σ_e^2	0.469	-0.031	-6.252	0.041	0.003	0.850	0.464	-0.036	-7.205	0.040	0.003	0.835
K_u	-	-	-	-	-	-	2.494	-	-	0.582	-	-
α	-	-	-	-	-	-	0.972	-0.028	-2.777	0.008	0.001	1.000

Table 9: Parameter estimates for the N-N and Semi-Semi distributional models when$N = 200$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.199	-0.001	-0.017	0.083	0.007	0.915	6.201	0.001	0.020	0.080	0.006	0.920
β_S	0.300	0.000	0.125	0.040	0.002	0.970	0.301	0.001	0.226	0.037	0.001	0.975
σ_L^2	0.830	-0.170	-16.965	1.039	1.108	0.140	0.824	-0.176	-17.586	1.031	1.093	0.075
σ_S^2	0.136	0.036	35.757	0.087	0.009	0.760	0.137	0.037	37.021	0.089	0.009	0.690
σ_{LS}	-0.019	-0.019	-1.855	0.198	0.040	0.570	-0.023	-0.023	-2.252	0.196	0.039	0.515
σ_e^2	0.516	0.016	3.113	0.574	0.330	0.125	0.511	0.011	2.163	0.576	0.332	0.095
K_e	-	-	-	-	-	-	4.321	-	-	0.257	-	-
K_u	-	-	-	-	-	-	2.639	-	-	0.580	-	-
α_1	-	-	-	-	-	-	1.000	0.000	-0.037	0.005	0.000	1.000
α_2	-	-	-	-	-	-	0.974	-0.026	-2.572	0.008	0.001	1.000

Table 10: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.205	0.005	0.079	0.076	0.006	0.955	6.206	0.006	0.090	0.075	0.006	0.955
β_S	0.300	0.000	0.113	0.024	0.001	0.950	0.300	0.000	0.144	0.024	0.001	0.950
σ_L^2	1.011	0.011	1.107	0.105	0.011	0.960	1.013	0.013	1.255	0.105	0.011	0.960
σ_S^2	0.107	0.007	7.132	0.011	0.000	0.955	0.107	0.007	7.192	0.011	0.000	0.940
σ_{LS}	-0.004	-0.004	-0.392	0.025	0.001	0.970	-0.004	-0.004	-0.413	0.025	0.001	0.960
σ_e^2	0.107	0.007	7.037	0.152	0.023	0.140	0.107	0.007	6.982	0.151	0.023	0.095
K_e	-	-	-	-	-	-	4.262	-	-	0.309	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.139	0.006	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 11: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.196	-0.004	-0.065	0.079	0.006	0.930	6.202	0.002	0.024	0.058	0.003	0.940
β_S	0.298	-0.002	-0.516	0.022	0.000	0.960	0.298	-0.002	-0.552	0.019	0.000	0.965
σ_L^2	1.026	0.026	2.640	3.017	9.103	0.140	1.018	0.018	1.814	3.005	9.028	0.055
σ_S^2	0.095	-0.005	-4.958	0.130	0.017	0.210	0.090	-0.010	-9.618	0.130	0.017	0.080
σ_{LS}	-0.027	-0.027	-2.748	0.349	0.122	0.270	-0.028	-0.028	-2.838	0.347	0.121	0.145
σ_e^2	0.099	-0.001	-0.532	0.006	0.000	0.935	0.099	-0.001	-0.719	0.006	0.000	0.925
K_u	-	-	-	-	-	-	2.410	-	-	0.594	-	-
α	-	-	-	-	-	-	0.974	-0.026	-2.582	0.008	0.001	1.000

Table 12: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 200$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.197	-0.003	-0.054	0.070	0.005	0.960	6.197	-0.003	-0.047	0.061	0.004	0.970
β_S	0.297	-0.003	-1.004	0.023	0.001	0.965	0.297	-0.003	-0.936	0.020	0.000	0.975
σ_L^2	0.883	-0.117	-11.695	1.002	1.017	0.145	0.874	-0.126	-12.638	0.997	1.009	0.065
σ_S^2	0.102	0.002	1.832	0.130	0.017	0.105	0.097	-0.003	-3.196	0.130	0.017	0.025
σ_{LS}	-0.018	-0.018	-1.783	0.218	0.048	0.315	-0.018	-0.018	-1.800	0.217	0.048	0.135
σ_e^2	0.103	0.003	3.106	0.125	0.016	0.100	0.103	0.003	3.032	0.125	0.016	0.070
K_e	-	-	-	-	-	-	4.271	-	-	0.320	-	-
K_u	-	-	-	-	-	-	2.419	-	-	0.660	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.146	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.975	-0.025	-2.539	0.008	0.001	1.000

Table 13: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.202	0.002	0.025	0.049	0.002	0.925	6.202	0.002	0.029	0.049	0.002	0.925
β_S	0.302	0.002	0.613	0.017	0.000	0.955	0.302	0.002	0.526	0.017	0.000	0.960
σ_L^2	1.005	0.005	0.491	0.077	0.006	0.935	1.006	0.006	0.644	0.078	0.006	0.930
σ_S^2	0.105	0.005	5.098	0.010	0.000	0.950	0.105	0.005	4.914	0.010	0.000	0.945
σ_{LS}	-0.001	-0.001	-0.079	0.018	0.000	0.960	-0.001	-0.001	-0.071	0.018	0.000	0.960
σ_ϵ^2	0.101	0.001	0.831	0.119	0.014	0.170	0.101	0.001	0.777	0.118	0.014	0.150
K_e	-	-	-	-	-	-	4.544	-	-	0.212	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.119	0.006	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 14: Parameter estimates for the N-N and N-Semi distributional models when $N = 500$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.199	-0.001	-0.011	0.038	0.001	0.980	6.197	-0.003	-0.043	0.034	0.001	0.970
β_S	0.302	0.002	0.580	0.017	0.000	0.920	0.302	0.002	0.581	0.016	0.000	0.940
σ_L^2	0.947	-0.053	-5.341	1.731	3.000	0.120	0.946	-0.054	-5.403	1.731	2.999	0.075
σ_S^2	0.108	0.008	8.233	0.160	0.026	0.175	0.109	0.009	8.734	0.160	0.026	0.140
σ_{LS}	0.011	0.011	1.053	0.403	0.162	0.340	0.009	0.009	0.852	0.402	0.162	0.245
σ_ϵ^2	0.097	-0.003	-2.803	0.006	0.000	0.915	0.096	-0.004	-3.980	0.005	0.000	0.870
K_u	-	-	-	-	-	-	2.895	-	-	0.631	-	-
α	-	-	-	-	-	-	0.972	-0.028	-2.839	0.010	0.001	1.000

Table 15: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 500$, $T = 3$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	0.000	0.053	0.003	0.920	6.202	0.002	0.033	0.048	0.002	0.915
β_S	0.301	0.001	0.247	0.015	0.000	0.980	0.300	0.000	0.035	0.014	0.000	0.970
σ_L^2	0.938	-0.062	-6.151	1.490	2.223	0.080	0.937	-0.063	-6.319	1.490	2.223	0.010
σ_S^2	0.112	0.012	11.517	0.177	0.032	0.185	0.111	0.011	11.034	0.178	0.032	0.135
σ_{LS}	-0.008	-0.008	-0.848	0.258	0.067	0.230	-0.010	-0.010	-0.957	0.257	0.066	0.160
σ_ϵ^2	0.103	0.003	2.802	0.089	0.008	0.085	0.102	0.002	1.989	0.089	0.008	0.080
K_e	-	-	-	-	-	-	4.558	-	-	0.218	-	-
K_u	-	-	-	-	-	-	2.904	-	-	0.606	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.063	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.972	-0.028	-2.832	0.009	0.001	1.000

Table 16: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.207	0.007	0.106	0.050	0.003	0.945	6.208	0.008	0.121	0.049	0.003	0.945
β_S	0.298	-0.002	-0.643	0.017	0.000	0.970	0.298	-0.002	-0.734	0.016	0.000	0.955
σ_L^2	0.991	-0.009	-0.865	0.081	0.007	0.945	0.994	-0.006	-0.637	0.077	0.006	0.945
σ_S^2	0.105	0.005	4.737	0.010	0.000	0.930	0.104	0.004	4.167	0.008	0.000	0.955
σ_{LS}	-0.003	-0.003	-0.255	0.023	0.001	0.920	-0.002	-0.002	-0.242	0.021	0.000	0.930
σ_ϵ^2	0.438	-0.062	-12.362	0.402	0.165	0.060	0.438	-0.062	-12.408	0.400	0.164	0.035
K_e	-	-	-	-	-	-	4.564	-	-	0.239	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.107	0.007	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 17: Parameter estimates for the N-N and N-Semi distributional models when$N = 500$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.203	0.003	0.051	0.049	0.002	0.960	6.204	0.004	0.070	0.042	0.002	0.955
β_S	0.300	0.000	0.055	0.018	0.000	0.920	0.300	0.000	-0.042	0.017	0.000	0.940
σ_L^2	0.925	-0.075	-7.483	1.285	1.658	0.110	0.926	-0.074	-7.357	1.284	1.653	0.095
σ_S^2	0.089	-0.011	-10.834	0.091	0.008	0.150	0.089	-0.011	-10.831	0.092	0.008	0.080
σ_{LS}	-0.014	-0.014	-1.363	0.252	0.063	0.335	-0.017	-0.017	-1.663	0.251	0.063	0.285
σ_e^2	0.496	-0.004	-0.774	0.018	0.000	0.950	0.494	-0.006	-1.202	0.018	0.000	0.915
K_u	-	-	-	-	-	-	2.802	-	-	0.603	-	-
α	-	-	-	-	-	-	0.970	-0.030	-2.991	0.009	0.001	1.000

Table 18: Parameter estimates for the N-N and Semi-Semi distributional models when$N = 500$, $T = 5$, $C = 5$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.198	-0.002	-0.028	0.043	0.002	0.955	6.198	-0.002	-0.024	0.038	0.001	0.960
β_S	0.301	0.001	0.252	0.016	0.000	0.945	0.301	0.001	0.338	0.014	0.000	0.955
σ_L^2	0.826	-0.174	-17.370	0.955	0.942	0.095	0.822	-0.178	-17.801	0.948	0.931	0.050
σ_S^2	0.121	0.021	21.221	0.376	0.142	0.120	0.119	0.019	19.155	0.375	0.141	0.080
σ_{LS}	0.017	0.017	1.677	0.368	0.136	0.295	0.017	0.017	1.703	0.367	0.135	0.245
σ_e^2	0.530	0.030	6.038	0.637	0.407	0.045	0.530	0.030	6.081	0.645	0.417	0.020
K_e	-	-	-	-	-	-	4.597	-	-	0.220	-	-
K_u	-	-	-	-	-	-	2.877	-	-	0.638	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.005	0.007	0.000	1.000
α_2	-	-	-	-	-	-	0.972	-0.028	-2.840	0.010	0.001	1.000

Table 19: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.210	0.010	0.157	0.144	0.021	0.955	6.211	0.011	0.171	0.144	0.021	0.970
β_S	0.303	0.003	1.138	0.065	0.004	0.965	0.303	0.003	1.139	0.064	0.004	0.965
σ_L^2	1.047	0.047	4.696	0.225	0.053	0.955	1.043	0.043	4.277	0.223	0.052	0.950
σ_S^2	0.138	0.038	37.634	0.047	0.004	0.945	0.136	0.036	35.937	0.049	0.004	0.965
σ_{LS}	-0.008	-0.008	-0.830	0.064	0.004	0.955	-0.006	-0.006	-0.636	0.063	0.004	0.960
σ_e^2	0.110	0.010	9.603	0.295	0.087	0.370	0.110	0.010	10.372	0.281	0.079	0.370
K_e	-	-	-	-	-	-	4.315	-	-	0.377	-	-
α	-	-	-	-	-	-	0.998	-0.002	-0.156	0.004	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 20: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.198	-0.002	-0.027	0.139	0.019	0.955	6.196	-0.004	-0.059	0.136	0.018	0.950
β_S	0.306	0.006	1.838	0.061	0.004	0.960	0.303	0.003	1.127	0.060	0.004	0.960
σ_L^2	0.936	-0.064	-6.398	1.592	2.539	0.300	0.898	-0.102	-10.247	1.558	2.436	0.090
σ_S^2	0.147	0.047	47.089	0.198	0.041	0.850	0.127	0.027	27.380	0.195	0.039	0.510
σ_{LS}	-0.007	-0.007	-0.719	0.304	0.092	0.685	-0.009	-0.009	-0.941	0.297	0.088	0.440
σ_e^2	0.097	-0.003	-3.329	0.017	0.000	0.925	0.095	-0.005	-4.586	0.017	0.000	0.920
K_u	-	-	-	-	-	-	1.918	-	-	0.559	-	-
α	-	-	-	-	-	-	0.975	-0.025	-2.495	0.006	0.001	1.000

Table 21: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.189	-0.011	-0.183	0.128	0.017	0.930	6.192	-0.008	-0.134	0.120	0.015	0.925
β_S	0.303	0.003	1.012	0.058	0.003	0.960	0.302	0.002	0.567	0.056	0.003	0.965
σ_L^2	0.868	-0.132	-13.165	0.968	0.955	0.285	0.830	-0.170	-16.954	0.945	0.922	0.130
σ_S^2	0.148	0.048	47.574	0.169	0.031	0.770	0.128	0.028	27.885	0.171	0.030	0.445
σ_{LS}	-0.003	-0.003	-0.314	0.241	0.058	0.700	-0.006	-0.006	-0.568	0.237	0.056	0.470
σ_e^2	0.091	-0.009	-8.796	0.084	0.007	0.350	0.090	-0.010	-10.218	0.077	0.006	0.320
K_e	-	-	-	-	-	-	4.317	-	-	0.408	-	-
K_u	-	-	-	-	-	-	2.007	-	-	0.609	-	-
α_1	-	-	-	-	-	-	0.998	-0.002	-0.159	0.004	0.000	1.000
α_2	-	-	-	-	-	-	0.976	-0.024	-2.409	0.006	0.001	1.000

Table 22: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.188	-0.012	-0.201	0.170	0.029	0.950	6.192	-0.008	-0.132	0.169	0.029	0.955
β_S	0.305	0.005	1.702	0.082	0.007	0.975	0.301	0.001	0.345	0.075	0.006	0.980
σ_L^2	1.140	0.140	13.963	0.284	0.100	0.965	1.131	0.131	13.137	0.266	0.088	0.970
σ_S^2	0.242	0.142	141.724	0.115	0.033	0.495	0.225	0.125	124.950	0.066	0.020	0.490
σ_{LS}	0.216	-0.084	-28.145	0.099	0.017	0.870	0.226	-0.074	-24.783	0.091	0.014	0.890
σ_e^2	0.418	-0.082	-16.418	0.363	0.139	0.260	0.422	-0.078	-15.529	0.371	0.144	0.230
K_e	-	-	-	-	-	-	4.489	-	-	0.444	-	-
α	-	-	-	-	-	-	1.000	0.000	-0.013	0.005	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 23: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.191	-0.009	-0.153	0.155	0.024	0.960	6.199	-0.001	-0.020	0.157	0.025	0.950
β_S	0.298	-0.002	-0.809	0.079	0.006	0.980	0.296	-0.004	-1.486	0.079	0.006	0.970
σ_L^2	0.962	-0.038	-3.776	0.805	0.649	0.495	0.934	-0.066	-6.646	0.788	0.625	0.295
σ_S^2	0.228	0.128	127.618	0.102	0.027	0.665	0.222	0.122	122.016	0.107	0.026	0.560
σ_{LS}	0.159	-0.141	-46.916	0.265	0.090	0.330	0.143	-0.157	-52.464	0.255	0.090	0.175
σ_e^2	0.449	-0.051	-10.218	0.077	0.009	0.875	0.442	-0.058	-11.520	0.077	0.009	0.860
K_u	-	-	-	-	-	-	2.523	-	-	0.542	-	-
α	-	-	-	-	-	-	0.981	-0.019	-1.924	0.005	0.000	1.000

Table 24: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.087	0.166	0.028	0.980	6.196	-0.004	-0.060	0.147	0.021	0.970
β_S	0.300	0.000	0.161	0.079	0.006	0.980	0.298	-0.002	-0.526	0.073	0.005	0.980
σ_L^2	1.098	0.098	9.841	1.258	1.592	0.425	1.051	0.051	5.126	1.220	1.491	0.295
σ_S^2	0.247	0.147	147.283	0.300	0.112	0.710	0.217	0.117	116.946	0.151	0.037	0.635
σ_{LS}	0.157	-0.143	-47.786	0.440	0.214	0.275	0.163	-0.137	-45.702	0.351	0.142	0.165
σ_e^2	0.550	0.050	10.086	0.907	0.826	0.285	0.543	0.043	8.606	0.959	0.922	0.230
K_e	-	-	-	-	-	-	4.501	-	-	0.420	-	-
K_u	-	-	-	-	-	-	2.416	-	-	0.584	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.016	0.004	0.000	1.000
α_2	-	-	-	-	-	-	0.980	-0.020	-2.007	0.006	0.000	1.000

Table 25: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.208	0.008	0.129	0.157	0.025	0.955	6.206	0.006	0.102	0.157	0.025	0.945
β_S	0.301	0.001	0.176	0.052	0.003	0.980	0.300	0.000	0.071	0.050	0.003	0.985
σ_L^2	1.044	0.044	4.402	0.287	0.084	0.930	1.041	0.041	4.074	0.271	0.075	0.935
σ_S^2	0.138	0.038	38.268	0.029	0.002	0.935	0.137	0.037	37.058	0.027	0.002	0.945
σ_{LS}	-0.021	-0.021	-2.059	0.062	0.004	0.975	-0.019	-0.019	-1.878	0.059	0.004	0.975
σ_ϵ^2	0.423	-0.077	-15.398	0.306	0.100	0.175	0.420	-0.080	-15.964	0.305	0.099	0.135
K_e	-	-	-	-	-	-	4.470	-	-	0.550	-	-
α	-	-	-	-	-	-	1.000	0.000	-0.035	0.005	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 26: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.185	-0.015	-0.249	0.151	0.023	0.950	6.188	-0.012	-0.186	0.142	0.020	0.955
β_S	0.299	-0.001	-0.305	0.050	0.003	0.980	0.298	-0.002	-0.759	0.050	0.002	0.985
σ_L^2	0.756	-0.244	-24.368	0.680	0.522	0.400	0.727	-0.273	-27.279	0.667	0.519	0.270
σ_S^2	0.117	0.017	17.240	0.078	0.006	0.870	0.098	-0.002	-2.486	0.078	0.006	0.455
σ_{LS}	-0.031	-0.031	-3.109	0.166	0.028	0.810	-0.034	-0.034	-3.450	0.162	0.028	0.620
σ_ϵ^2	0.498	-0.002	-0.348	0.056	0.003	0.940	0.496	-0.004	-0.872	0.055	0.003	0.940
K_u	-	-	-	-	-	-	1.843	-	-	0.495	-	-
α	-	-	-	-	-	-	0.974	-0.026	-2.579	0.005	0.001	1.000

Table 27: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.183	-0.017	-0.269	0.153	0.024	0.950	6.182	-0.018	-0.291	0.145	0.021	0.955
β_S	0.297	-0.003	-0.945	0.049	0.002	0.975	0.297	-0.003	-0.838	0.047	0.002	0.980
σ_L^2	0.909	-0.091	-9.114	1.005	1.019	0.380	0.875	-0.125	-12.533	0.990	0.997	0.235
σ_S^2	0.120	0.020	19.767	0.090	0.008	0.800	0.098	-0.002	-1.620	0.090	0.008	0.415
σ_{LS}	-0.047	-0.047	-4.733	0.259	0.069	0.755	-0.048	-0.048	-4.781	0.256	0.068	0.555
σ_ϵ^2	0.481	-0.019	-3.835	0.460	0.212	0.220	0.472	-0.028	-5.565	0.441	0.195	0.145
K_e	-	-	-	-	-	-	4.482	-	-	0.606	-	-
K_u	-	-	-	-	-	-	1.869	-	-	0.494	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.007	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.974	-0.026	-2.558	0.005	0.001	1.000

Table 28: Parameter estimates for the N-N and Semi-N distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.192	-0.008	-0.136	0.142	0.020	0.955	6.190	-0.010	-0.167	0.140	0.020	0.950
β_S	0.296	-0.004	-1.210	0.043	0.002	0.970	0.295	-0.005	-1.513	0.043	0.002	0.980
σ_L^2	1.040	0.040	4.044	0.186	0.036	0.970	1.041	0.041	4.116	0.187	0.037	0.975
σ_S^2	0.133	0.033	33.442	0.023	0.002	0.890	0.133	0.033	32.660	0.022	0.002	0.895
σ_{LS}	0.287	-0.013	-4.499	0.057	0.003	0.960	0.288	-0.012	-4.050	0.057	0.003	0.960
σ_ϵ^2	0.089	-0.011	-10.735	0.086	0.007	0.170	0.088	-0.012	-11.749	0.084	0.007	0.100
K_e	-	-	-	-	-	-	4.350	-	-	0.548	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.137	0.006	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 29: Parameter estimates for the N-N and N-Semi distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.193	-0.007	-0.112	0.142	0.020	0.930	6.195	-0.005	-0.075	0.128	0.016	0.930
β_S	0.304	0.004	1.295	0.046	0.002	0.970	0.304	0.004	1.335	0.042	0.002	0.970
σ_L^2	1.029	0.029	2.876	2.144	4.597	0.280	0.988	-0.012	-1.175	2.098	4.402	0.105
σ_S^2	0.131	0.031	31.195	0.181	0.034	0.575	0.108	0.008	8.417	0.178	0.032	0.125
σ_{LS}	0.276	-0.024	-8.162	0.609	0.372	0.275	0.269	-0.031	-10.179	0.596	0.356	0.035
σ_e^2	0.095	-0.005	-5.178	0.010	0.000	0.910	0.095	-0.005	-5.362	0.010	0.000	0.910
K_u	-	-	-	-	-	-	1.476	-	-	0.307	-	-
α	-	-	-	-	-	-	0.971	-0.029	-2.918	0.004	0.001	1.000

Table 30: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 50$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.208	0.008	0.129	0.144	0.021	0.955	6.205	0.005	0.088	0.123	0.015	0.950
β_S	0.305	0.005	1.565	0.045	0.002	0.980	0.303	0.003	1.100	0.039	0.002	0.985
σ_L^2	0.887	-0.113	-11.343	1.137	1.306	0.250	0.849	-0.151	-15.114	1.115	1.266	0.085
σ_S^2	0.118	0.018	17.835	0.113	0.013	0.540	0.095	-0.005	-5.343	0.110	0.012	0.145
σ_{LS}	0.238	-0.062	-20.578	0.340	0.120	0.220	0.234	-0.066	-22.002	0.333	0.115	0.035
σ_e^2	0.089	-0.011	-11.355	0.078	0.006	0.205	0.088	-0.012	-12.393	0.076	0.006	0.160
K_e	-	-	-	-	-	-	4.326	-	-	0.579	-	-
K_u	-	-	-	-	-	-	1.465	-	-	0.342	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.149	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.971	-0.029	-2.949	0.004	0.001	1.000

Table 31: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.201	0.001	0.009	0.082	0.007	0.960	6.201	0.001	0.008	0.081	0.007	0.955
β_S	0.303	0.003	0.845	0.041	0.002	0.980	0.302	0.002	0.620	0.039	0.001	0.970
σ_L^2	1.016	0.016	1.576	0.138	0.019	0.970	1.014	0.014	1.395	0.134	0.018	0.970
σ_S^2	0.135	0.035	35.280	0.035	0.002	0.910	0.132	0.032	31.663	0.028	0.002	0.940
σ_{LS}	-0.022	-0.022	-2.157	0.058	0.004	0.905	-0.019	-0.019	-1.899	0.053	0.003	0.945
σ_e^2	0.475	-0.025	-5.076	0.365	0.134	0.240	0.476	-0.024	-4.835	0.364	0.133	0.215
K_e	-	-	-	-	-	-	5.800	-	-	0.653	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.069	0.006	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 32: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.211	0.011	0.172	0.084	0.007	0.955	6.209	0.009	0.144	0.078	0.006	0.960
β_S	0.295	-0.005	-1.668	0.044	0.002	0.950	0.296	-0.004	-1.356	0.042	0.002	0.955
σ_L^2	1.160	0.160	15.959	2.310	5.360	0.205	1.158	0.158	15.847	2.301	5.320	0.165
σ_S^2	0.139	0.039	38.534	0.094	0.010	0.855	0.145	0.045	45.319	0.097	0.012	0.765
σ_{LS}	-0.080	-0.080	-7.990	0.336	0.120	0.605	-0.088	-0.088	-8.837	0.335	0.120	0.545
σ_e^2	0.472	-0.028	-5.684	0.043	0.003	0.865	0.465	-0.035	-6.910	0.042	0.003	0.825
K_u	-	-	-	-	-	-	2.710	-	-	0.697	-	-
α	-	-	-	-	-	-	0.970	-0.030	-3.033	0.007	0.001	1.000

Table 33: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.191	-0.009	-0.138	0.072	0.005	0.945	6.193	-0.007	-0.114	0.067	0.005	0.950
β_S	0.303	0.003	1.033	0.043	0.002	0.970	0.304	0.004	1.276	0.041	0.002	0.960
σ_L^2	0.822	-0.178	-17.779	0.859	0.769	0.135	0.818	-0.182	-18.167	0.857	0.767	0.075
σ_S^2	0.144	0.044	44.172	0.148	0.024	0.750	0.147	0.047	47.325	0.151	0.025	0.650
σ_{LS}	-0.061	-0.061	-6.071	0.225	0.054	0.565	-0.066	-0.066	-6.640	0.223	0.054	0.500
σ_e^2	0.511	0.011	2.204	0.512	0.262	0.110	0.504	0.004	0.855	0.508	0.258	0.105
K_e	-	-	-	-	-	-	5.841	-	-	0.587	-	-
K_u	-	-	-	-	-	-	2.737	-	-	0.759	-	-
α_1	-	-	-	-	-	-	1.000	0.000	-0.036	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.970	-0.030	-2.986	0.008	0.001	1.000

Table 34: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.207	0.007	0.116	0.074	0.006	0.965	6.210	0.010	0.154	0.074	0.006	0.965
β_S	0.299	-0.001	-0.211	0.027	0.001	0.955	0.300	0.000	0.089	0.026	0.001	0.955
σ_L^2	1.028	0.028	2.821	0.103	0.011	0.970	1.026	0.026	2.649	0.102	0.011	0.980
σ_S^2	0.126	0.026	25.828	0.018	0.001	0.710	0.124	0.024	24.416	0.016	0.001	0.725
σ_{LS}	0.281	-0.019	-6.435	0.034	0.002	0.895	0.282	-0.018	-5.916	0.033	0.001	0.900
σ_e^2	0.086	-0.014	-14.006	0.066	0.005	0.105	0.087	-0.013	-13.360	0.069	0.005	0.080
K_e	-	-	-	-	-	-	5.731	-	-	0.642	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.142	0.006	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 35: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.198	-0.002	-0.027	0.067	0.005	0.940	6.201	0.001	0.014	0.057	0.003	0.955
β_S	0.300	0.000	-0.155	0.026	0.001	0.970	0.300	0.000	0.127	0.023	0.001	0.980
σ_L^2	1.534	0.534	53.358	8.174	67.094	0.135	1.523	0.523	52.305	8.142	66.561	0.050
σ_S^2	0.168	0.068	68.334	0.693	0.484	0.385	0.165	0.065	64.643	0.690	0.481	0.235
σ_{LS}	0.422	0.122	40.770	2.374	5.650	0.150	0.419	0.119	39.602	2.364	5.603	0.055
σ_e^2	0.087	-0.013	-12.573	0.007	0.000	0.575	0.087	-0.013	-12.954	0.007	0.000	0.570
K_u	-	-	-	-	-	-	2.021	-	-	0.504	-	-
α	-	-	-	-	-	-	0.963	-0.037	-3.676	0.005	0.001	1.000

Table 36: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 200$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	0.000	0.070	0.005	0.950	6.201	0.001	0.023	0.064	0.004	0.950
β_S	0.299	-0.001	-0.460	0.023	0.001	0.975	0.300	0.000	-0.166	0.022	0.001	0.975
σ_L^2	0.988	-0.012	-1.174	1.329	1.768	0.135	0.978	-0.022	-2.169	1.323	1.750	0.050
σ_S^2	0.119	0.019	19.016	0.118	0.014	0.330	0.113	0.013	13.410	0.118	0.014	0.185
σ_{LS}	0.258	-0.042	-14.032	0.377	0.144	0.115	0.257	-0.043	-14.399	0.375	0.142	0.030
σ_e^2	0.091	-0.009	-8.980	0.109	0.012	0.110	0.091	-0.009	-8.928	0.109	0.012	0.090
K_e	-	-	-	-	-	-	5.711	-	-	0.588	-	-
K_u	-	-	-	-	-	-	1.989	-	-	0.510	-	-
α_1	-	-	-	-	-	-	0.998	-0.002	-0.170	0.006	0.000	1.000
α_2	-	-	-	-	-	-	0.963	-0.037	-3.728	0.005	0.001	1.000

Table 37: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.206	0.006	0.101	0.072	0.005	0.950	6.206	0.006	0.100	0.071	0.005	0.950
β_S	0.300	0.000	-0.157	0.023	0.001	0.945	0.300	0.000	-0.044	0.023	0.001	0.950
σ_L^2	1.002	0.002	0.197	0.108	0.012	0.940	1.003	0.003	0.344	0.108	0.012	0.935
σ_S^2	0.105	0.005	5.030	0.010	0.000	0.965	0.105	0.005	5.239	0.010	0.000	0.950
σ_{LS}	0.002	0.002	0.207	0.023	0.001	0.955	0.002	0.002	0.154	0.023	0.001	0.950
σ_e^2	0.094	-0.006	-6.108	0.139	0.019	0.070	0.094	-0.006	-6.337	0.138	0.019	0.060
K_e	-	-	-	-	-	-	5.572	-	-	0.802	-	-
α	-	-	-	-	-	-	0.997	-0.003	-0.290	0.008	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 38: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	0.005	0.054	0.003	0.985	6.199	-0.001	-0.020	0.051	0.003	0.975
β_S	0.299	-0.001	-0.457	0.021	0.000	0.970	0.298	-0.002	-0.699	0.019	0.000	0.965
σ_L^2	0.836	-0.164	-16.353	1.304	1.726	0.120	0.829	-0.171	-17.113	1.299	1.715	0.050
σ_S^2	0.094	-0.006	-6.150	0.098	0.010	0.195	0.089	-0.011	-10.798	0.098	0.010	0.055
σ_{LS}	-0.009	-0.009	-0.919	0.244	0.060	0.345	-0.010	-0.010	-1.015	0.243	0.059	0.135
σ_e^2	0.099	-0.001	-0.529	0.005	0.000	0.955	0.099	-0.001	-0.737	0.005	0.000	0.950
K_u	-	-	-	-	-	-	2.418	-	-	0.789	-	-
α	-	-	-	-	-	-	0.967	-0.033	-3.309	0.008	0.001	1.000

Table 39: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	0.006	0.066	0.004	0.975	6.202	0.002	0.027	0.060	0.004	0.965
β_S	0.298	-0.002	-0.757	0.027	0.001	0.955	0.298	-0.002	-0.627	0.020	0.000	0.955
σ_L^2	0.822	-0.178	-17.805	0.820	0.705	0.140	0.813	-0.187	-18.682	0.817	0.703	0.050
σ_S^2	0.133	0.033	32.614	0.281	0.080	0.160	0.128	0.028	27.502	0.280	0.079	0.055
σ_{LS}	-0.011	-0.011	-1.105	0.242	0.059	0.305	-0.011	-0.011	-1.140	0.241	0.058	0.135
σ_e^2	0.089	-0.011	-11.194	0.067	0.005	0.150	0.089	-0.011	-11.437	0.067	0.005	0.115
K_e	-	-	-	-	-	-	5.776	-	-	0.713	-	-
K_u	-	-	-	-	-	-	2.425	-	-	0.780	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.103	0.007	0.000	1.000
α_2	-	-	-	-	-	-	0.967	-0.033	-3.316	0.007	0.001	1.000

Table 40: Parameter estimates for the N-N and Semi-N distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.210	0.010	0.167	0.084	0.007	0.945	6.210	0.010	0.160	0.084	0.007	0.940
β_S	0.299	-0.001	-0.274	0.028	0.001	0.950	0.300	0.000	0.093	0.028	0.001	0.955
σ_L^2	1.064	0.064	6.447	0.146	0.026	0.950	1.054	0.054	5.404	0.129	0.020	0.950
σ_S^2	0.127	0.027	27.291	0.020	0.001	0.660	0.125	0.025	25.049	0.018	0.001	0.660
σ_{LS}	0.266	-0.034	-11.220	0.039	0.003	0.850	0.271	-0.029	-9.511	0.036	0.002	0.900
σ_e^2	0.574	0.074	14.861	0.877	0.774	0.105	0.576	0.076	15.268	0.882	0.785	0.065
K_e	-	-	-	-	-	-	5.816	-	-	0.771	-	-
α	-	-	-	-	-	-	0.999	-0.001	-0.060	0.007	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 41: Parameter estimates for the N-N and N-Semi distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.089	0.075	0.006	0.964	6.203	0.003	0.047	0.070	0.005	0.960
β_S	0.300	0.000	0.007	0.024	0.001	0.979	0.300	0.000	0.012	0.022	0.000	0.990
σ_L^2	0.883	-0.117	-11.720	1.057	1.131	0.164	0.860	-0.140	-13.981	0.944	0.910	0.110
σ_S^2	0.106	0.006	5.927	0.090	0.008	0.321	0.102	0.002	1.660	0.085	0.007	0.200
σ_{LS}	0.204	-0.096	-31.950	0.293	0.095	0.100	0.196	-0.104	-34.727	0.265	0.081	0.035
σ_e^2	0.476	-0.024	-4.789	0.024	0.001	0.814	0.476	-0.024	-4.897	0.024	0.001	0.825
K_u	-	-	-	-	-	-	2.027	-	-	0.481	-	-
α	-	-	-	-	-	-	0.963	-0.037	-3.685	0.005	0.001	1.000

Table 42: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 200$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.196	-0.004	-0.063	0.083	0.007	0.945	6.198	-0.002	-0.032	0.071	0.005	0.945
β_S	0.300	0.000	0.150	0.033	0.001	0.960	0.301	0.001	0.406	0.027	0.001	0.965
σ_L^2	1.169	0.169	16.915	1.767	3.151	0.185	1.155	0.155	15.469	1.760	3.120	0.110
σ_S^2	0.133	0.033	33.053	0.162	0.027	0.355	0.128	0.028	28.036	0.163	0.027	0.195
σ_{LS}	0.299	-0.001	-0.361	0.515	0.266	0.120	0.298	-0.002	-0.718	0.512	0.263	0.025
σ_e^2	0.450	-0.050	-10.010	0.740	0.551	0.120	0.449	-0.051	-10.146	0.740	0.550	0.090
K_e	-	-	-	-	-	-	5.921	-	-	0.831	-	-
K_u	-	-	-	-	-	-	1.975	-	-	0.558	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.043	0.008	0.000	1.000
α_2	-	-	-	-	-	-	0.963	-0.037	-3.743	0.006	0.001	1.000

Table 43: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.199	-0.001	-0.015	0.047	0.002	0.955	6.199	-0.001	-0.009	0.047	0.002	0.950
β_S	0.302	0.002	0.744	0.018	0.000	0.940	0.302	0.002	0.651	0.017	0.000	0.960
σ_L^2	0.995	-0.005	-0.463	0.067	0.005	0.955	0.996	-0.004	-0.433	0.067	0.005	0.960
σ_S^2	0.105	0.005	4.970	0.010	0.000	0.925	0.104	0.004	4.189	0.009	0.000	0.925
σ_{LS}	-0.002	-0.002	-0.167	0.018	0.000	0.965	-0.001	-0.001	-0.091	0.017	0.000	0.960
σ_e^2	0.086	-0.014	-13.546	0.065	0.004	0.115	0.087	-0.013	-12.984	0.065	0.004	0.110
K_e	-	-	-	-	-	-	6.593	-	-	0.758	-	-
α	-	-	-	-	-	-	0.998	-0.002	-0.173	0.007	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 44: Parameter estimates for the N-N and N-Semi distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	-0.007	0.053	0.003	0.940	6.200	0.000	0.007	0.039	0.001	0.965
β_S	0.300	0.000	-0.122	0.019	0.000	0.940	0.300	0.000	-0.123	0.015	0.000	0.965
σ_L^2	1.167	0.167	16.709	2.957	8.771	0.115	1.166	0.166	16.622	2.956	8.763	0.045
σ_S^2	0.099	-0.001	-1.129	0.116	0.013	0.155	0.099	-0.001	-0.563	0.117	0.014	0.100
σ_{LS}	-0.014	-0.014	-1.435	0.345	0.119	0.285	-0.016	-0.016	-1.633	0.345	0.119	0.215
σ_e^2	0.098	-0.002	-2.071	0.006	0.000	0.915	0.097	-0.003	-3.354	0.006	0.000	0.875
K_u	-	-	-	-	-	-	2.793	-	-	0.841	-	-
α	-	-	-	-	-	-	0.962	-0.038	-3.771	0.009	0.001	1.000

Table 45: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.199	-0.001	-0.018	0.045	0.002	0.940	6.199	-0.001	-0.011	0.037	0.001	0.940
β_S	0.301	0.001	0.302	0.018	0.000	0.950	0.301	0.001	0.276	0.016	0.000	0.960
σ_L^2	0.962	-0.038	-3.825	1.350	1.823	0.100	0.959	-0.041	-4.053	1.349	1.821	0.020
σ_S^2	0.112	0.012	11.563	0.146	0.022	0.140	0.111	0.011	10.508	0.146	0.022	0.085
σ_{LS}	-0.013	-0.013	-1.286	0.265	0.071	0.330	-0.013	-0.013	-1.344	0.265	0.070	0.235
σ_e^2	0.104	0.004	3.552	0.155	0.024	0.135	0.103	0.003	2.910	0.156	0.024	0.130
K_e	-	-	-	-	-	-	6.494	-	-	0.876	-	-
K_u	-	-	-	-	-	-	2.789	-	-	0.811	-	-
α_1	-	-	-	-	-	-	0.997	-0.003	-0.264	0.008	0.000	1.000
α_2	-	-	-	-	-	-	0.962	-0.038	-3.784	0.008	0.002	1.000

Table 46: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.200	0.000	-0.002	0.047	0.002	0.935	6.200	0.000	-0.007	0.047	0.002	0.955
β_S	0.300	0.000	-0.143	0.019	0.000	0.940	0.299	-0.001	-0.307	0.018	0.000	0.945
σ_L^2	1.018	0.018	1.766	0.068	0.005	0.960	1.017	0.017	1.674	0.068	0.005	0.960
σ_S^2	0.117	0.017	16.562	0.012	0.000	0.655	0.115	0.015	15.369	0.011	0.000	0.660
σ_{LS}	0.287	-0.013	-4.399	0.022	0.001	0.940	0.289	-0.011	-3.709	0.020	0.001	0.950
σ_e^2	0.088	-0.012	-12.356	0.084	0.007	0.090	0.088	-0.012	-11.571	0.086	0.008	0.085
K_e	-	-	-	-	-	-	6.609	-	-	0.873	-	-
α	-	-	-	-	-	-	0.998	-0.002	-0.163	0.009	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 47: Parameter estimates for the N-N and N-Semi distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.084	0.047	0.002	0.950	6.196	-0.004	-0.068	0.040	0.002	0.965
β_S	0.301	0.001	0.495	0.017	0.000	0.955	0.301	0.001	0.480	0.016	0.000	0.960
σ_L^2	0.970	-0.030	-3.020	1.354	1.833	0.075	0.968	-0.032	-3.153	1.354	1.833	0.025
σ_S^2	0.113	0.013	12.612	0.130	0.017	0.185	0.112	0.012	12.014	0.130	0.017	0.120
σ_{LS}	0.266	-0.034	-11.445	0.403	0.164	0.095	0.264	-0.036	-11.915	0.403	0.164	0.040
σ_e^2	0.090	-0.010	-9.732	0.005	0.000	0.450	0.090	-0.010	-10.273	0.005	0.000	0.415
K_u	-	-	-	-	-	-	2.170	-	-	0.612	-	-
α	-	-	-	-	-	-	0.956	-0.044	-4.381	0.007	0.002	1.000

Table 48: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 500$, $T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.1$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.194	-0.006	-0.098	0.042	0.002	0.940	6.194	-0.006	-0.098	0.037	0.001	0.950
β_S	0.299	-0.001	-0.304	0.015	0.000	0.975	0.299	-0.001	-0.381	0.014	0.000	0.972
σ_L^2	0.883	-0.117	-11.697	1.381	1.922	0.075	0.876	-0.124	-12.352	1.377	1.912	0.039
σ_S^2	0.109	0.009	8.623	0.190	0.036	0.205	0.107	0.007	7.165	0.195	0.038	0.117
σ_{LS}	0.251	-0.049	-16.286	0.503	0.255	0.070	0.251	-0.049	-16.191	0.508	0.261	0.022
σ_e^2	0.085	-0.015	-15.297	0.062	0.004	0.105	0.085	-0.015	-14.641	0.064	0.004	0.072
K_e	-	-	-	-	-	-	6.689	-	-	0.879	-	-
K_u	-	-	-	-	-	-	2.200	-	-	0.551	-	-
α_1	-	-	-	-	-	-	0.999	-0.001	-0.106	0.009	0.000	1.000
α_2	-	-	-	-	-	-	0.957	-0.043	-4.345	0.006	0.002	1.000

Table 49: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.075	0.047	0.002	0.970	6.196	-0.004	-0.067	0.047	0.002	0.965
β_S	0.299	-0.001	-0.266	0.016	0.000	0.940	0.299	-0.001	-0.280	0.016	0.000	0.940
σ_L^2	1.002	0.002	0.193	0.088	0.008	0.915	1.005	0.005	0.473	0.083	0.007	0.930
σ_S^2	0.104	0.004	3.870	0.009	0.000	0.945	0.103	0.003	3.471	0.009	0.000	0.945
σ_{LS}	0.000	0.000	0.002	0.020	0.000	0.930	0.000	0.000	-0.015	0.019	0.000	0.945
σ_e^2	0.441	-0.059	-11.825	0.349	0.126	0.095	0.441	-0.059	-11.879	0.349	0.125	0.075
K_e	-	-	-	-	-	-	6.911	-	-	0.906	-	-
α	-	-	-	-	-	-	1.001	0.001	0.119	0.009	0.000	1.000

Note. Est.: estimate; AB: absolute bias; RB: relative bias; SE: standard error; MSE: mean square error; CP: coverage probability.

Table 50: Parameter estimates for the N-N and N-Semi distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.199	-0.001	-0.021	0.050	0.002	0.950	6.198	-0.002	-0.030	0.047	0.002	0.950
β_S	0.299	-0.001	-0.487	0.014	0.000	0.985	0.298	-0.002	-0.598	0.014	0.000	0.985
σ_L^2	1.001	0.001	0.109	1.569	2.463	0.100	1.003	0.003	0.252	1.568	2.460	0.065
σ_S^2	0.101	0.001	0.784	0.131	0.017	0.185	0.101	0.001	0.633	0.131	0.017	0.160
σ_{LS}	0.019	0.019	1.898	0.284	0.081	0.325	0.016	0.016	1.599	0.283	0.080	0.255
σ_e^2	0.497	-0.003	-0.648	0.019	0.000	0.935	0.495	-0.005	-1.060	0.019	0.000	0.930
K_u	-	-	-	-	-	-	2.858	-	-	0.780	-	-
α	-	-	-	-	-	-	0.963	-0.037	-3.675	0.007	0.001	1.000

Table 51: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.192	-0.008	-0.127	0.049	0.002	0.945	6.194	-0.006	-0.094	0.042	0.002	0.955
β_S	0.302	0.002	0.543	0.021	0.000	0.955	0.301	0.001	0.190	0.018	0.000	0.955
σ_L^2	0.985	-0.015	-1.523	1.312	1.722	0.095	0.982	-0.018	-1.829	1.313	1.725	0.055
σ_S^2	0.127	0.027	26.656	0.242	0.059	0.125	0.125	0.025	24.758	0.242	0.059	0.070
σ_{LS}	-0.056	-0.056	-5.633	0.401	0.164	0.295	-0.056	-0.056	-5.647	0.400	0.163	0.250
σ_e^2	0.489	-0.011	-2.162	0.368	0.136	0.060	0.489	-0.011	-2.287	0.369	0.136	0.040
K_e	-	-	-	-	-	-	6.790	-	-	0.983	-	-
K_u	-	-	-	-	-	-	2.889	-	-	0.886	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.009	0.009	0.000	1.000
α_2	-	-	-	-	-	-	0.964	-0.036	-3.612	0.010	0.001	1.000

Table 52: Parameter estimates for the N-N and Semi-N distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-N model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.079	0.047	0.002	0.965	6.195	-0.005	-0.076	0.046	0.002	0.955
β_S	0.298	-0.002	-0.720	0.016	0.000	0.970	0.298	-0.002	-0.647	0.015	0.000	0.965
σ_L^2	1.044	0.044	4.403	0.088	0.010	0.905	1.041	0.041	4.092	0.085	0.009	0.915
σ_S^2	0.115	0.015	15.442	0.011	0.000	0.650	0.114	0.014	13.531	0.010	0.000	0.680
σ_{LS}	0.279	-0.021	-6.881	0.025	0.001	0.785	0.282	-0.018	-5.847	0.024	0.001	0.815
σ_e^2	0.424	-0.076	-15.130	0.340	0.121	0.060	0.426	-0.074	-14.774	0.344	0.124	0.040
K_e	-	-	-	-	-	-	6.939	-	-	0.946	-	-
α	-	-	-	-	-	-	1.001	0.001	0.148	0.009	0.000	1.000

Table 53: Parameter estimates for the N-N and N-Semi distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						N-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.196	-0.004	-0.062	0.054	0.003	0.945	6.195	-0.005	-0.082	0.049	0.002	0.945
β_S	0.297	-0.003	-0.875	0.016	0.000	0.975	0.297	-0.003	-0.960	0.015	0.000	0.965
σ_L^2	1.053	0.053	5.340	1.520	2.314	0.125	1.054	0.054	5.381	1.519	2.311	0.090
σ_S^2	0.111	0.011	10.783	0.134	0.018	0.175	0.110	0.010	10.455	0.134	0.018	0.135
σ_{LS}	0.264	-0.036	-12.104	0.432	0.188	0.065	0.260	-0.040	-13.169	0.431	0.187	0.020
σ_e^2	0.480	-0.020	-3.938	0.017	0.001	0.765	0.479	-0.021	-4.205	0.017	0.001	0.725
K_u	-	-	-	-	-	-	2.508	-	-	0.516	-	-
α	-	-	-	-	-	-	0.960	-0.040	-3.966	0.005	0.002	1.000

Table 54: Parameter estimates for the N-N and Semi-Semi distributional models when $N = 500$, $T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, and $\sigma_e^2 = 0.5$

	N-N model						Semi-Semi model					
	Est.	AB	RB (%)	SE	MSE	CP	Est.	AB	RB (%)	SE	MSE	CP
β_L	6.195	-0.005	-0.078	0.053	0.003	0.960	6.196	-0.004	-0.071	0.040	0.002	0.970
β_S	0.298	-0.002	-0.589	0.018	0.000	0.960	0.299	-0.001	-0.476	0.014	0.000	0.975
σ_L^2	1.126	0.126	12.568	1.854	3.454	0.075	1.119	0.119	11.930	1.852	3.445	0.035
σ_S^2	0.137	0.037	36.898	0.262	0.070	0.155	0.134	0.034	34.302	0.262	0.070	0.080
σ_{LS}	0.318	0.018	6.113	0.680	0.463	0.070	0.319	0.019	6.382	0.679	0.461	0.025
σ_e^2	0.475	-0.025	-4.944	0.363	0.133	0.060	0.476	-0.024	-4.846	0.366	0.134	0.025
K_e	-	-	-	-	-	-	6.809	-	-	0.957	-	-
K_u	-	-	-	-	-	-	2.463	-	-	0.731	-	-
α_1	-	-	-	-	-	-	1.000	0.000	0.024	0.009	0.000	1.000
α_2	-	-	-	-	-	-	0.961	-0.039	-3.944	0.009	0.002	1.000