Table 1: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 5$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N data	MSE	**0.014**	0.014	0.013	**0.004**	0.004	0.004	**0.002**	0.002	0.002
	CP	**0.970**	0.803	0.816	**0.955**	0.792	0.804	**0.944**	0.794	0.799
N-Semi data	MSE	0.009	**0.006**	0.006	0.065	**0.001**	0.001	0.006	**0.000**	0.000
	CP	0.937	**0.958**	0.940	0.900	**0.933**	0.915	0.897	**0.927**	0.902
Semi-Semi data	MSE	0.009	0.007	**0.007**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
	CP	0.965	0.970	**0.970**	0.968	0.975	**0.965**	0.953	0.945	**0.943**

Note. MSE: mean square error; CP: coverage probability. In the table, on the rows are the different types of generated data with sample size = 50, 200, and 500. On the columns are the four types of distributional models used to analyze the generated data. For each type of the generated data, four distributional models are fitted to them. The average MSE and CP for the six model parameters (β_L, β_S, σ_L^2, σ_S^2, σ_{LS}, σ_e^2) are obtained, as displayed in the table.

Table 2: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 5$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.031**	0.055	0.033	**0.006**	0.007	0.007	**0.003**	0.005	0.003
data	CP	**0.955**	0.849	0.876	**0.946**	0.869	0.879	**0.942**	0.842	0.879
N-Semi	MSE	0.016	**0.013**	0.013	0.004	**0.003**	0.003	0.060	**0.002**	0.002
data	CP	0.893	**0.913**	0.872	0.882	**0.918**	0.872	0.827	**0.860**	0.802
Semi-Semi	MSE	0.012	0.012	**0.012**	0.004	0.004	**0.004**	0.001	0.001	**0.001**
data	CP	0.983	0.975	**0.983**	0.948	0.943	**0.948**	0.955	0.950	**0.955**

Table 3: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 5$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.019**	0.018	0.018	**0.004**	0.005	0.004	**0.002**	0.002	0.002
data	CP	**0.915**	0.672	0.684	**0.894**	0.636	0.637	**0.881**	0.604	0.614
N-Semi	MSE	0.007	**0.006**	0.006	0.002	**0.001**	0.001	0.002	**0.001**	0.001
data	CP	0.905	**0.923**	0.907	0.782	**0.832**	0.777	0.712	**0.753**	0.692
Semi-Semi	MSE	0.013	0.011	**0.011**	0.003	0.003	**0.003**	0.001	0.001	**0.001**
data	CP	0.958	0.970	**0.965**	0.948	0.950	**0.948**	0.943	0.943	**0.950**

Table 4: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 5$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.030**	0.060	0.030	**0.008**	0.016	0.009	**0.004**	0.010	0.004
data	CP	**0.859**	0.706	0.719	**0.804**	0.636	0.655	**0.779**	0.597	0.626
N-Semi	MSE	0.040	**0.014**	0.014	0.028	**0.003**	0.003	0.010	**0.002**	0.002
data	CP	0.897	**0.928**	0.888	0.840	**0.893**	0.828	0.775	**0.818**	0.735
Semi-Semi	MSE	0.023	0.022	**0.021**	0.004	0.004	**0.004**	0.001	0.001	**0.001**
data	CP	0.965	0.968	**0.970**	0.953	0.955	**0.950**	0.970	0.968	**0.963**

Table 5: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 5$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.016**	0.015	0.015	**0.004**	0.004	0.004	**0.002**	0.002	0.002
data	CP	**0.957**	0.672	0.674	**0.953**	0.677	0.686	**0.934**	0.642	0.642
N-Semi	MSE	0.009	**0.007**	0.007	0.003	**0.001**	0.001	0.001	**0.001**	0.001
data	CP	0.892	**0.940**	0.885	0.882	**0.943**	0.893	0.903	**0.948**	0.907
Semi-Semi	MSE	0.013	0.008	**0.008**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.965	0.973	**0.970**	0.968	0.975	**0.973**	0.943	0.960	**0.955**

Table 6: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 5$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.021**	0.021	0.020	**0.006**	0.006	0.006	**0.002**	0.002	0.002
data	CP	**0.953**	0.845	0.841	**0.939**	0.822	0.819	**0.946**	0.833	0.827
N-Semi	MSE	0.018	**0.008**	0.008	0.003	**0.002**	0.002	0.002	**0.001**	0.001
data	CP	0.870	**0.948**	0.872	0.868	**0.938**	0.865	0.872	**0.937**	0.870
Semi-Semi	MSE	0.015	0.011	**0.011**	0.004	0.003	**0.003**	0.001	0.001	**0.001**
data	CP	0.970	0.968	**0.968**	0.948	0.960	**0.953**	0.953	0.960	**0.958**

Table 7: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 5$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.017**	0.016	0.016	**0.004**	0.012	0.003	**0.002**	0.002	0.002
data	CP	**0.934**	0.598	0.594	**0.946**	0.608	0.608	**0.937**	0.587	0.587
N-Semi	MSE	0.006	**0.005**	0.005	0.002	**0.001**	0.001	0.001	**0.001**	0.001
data	CP	0.877	**0.938**	0.877	0.817	**0.913**	0.827	0.752	**0.852**	0.737
Semi-Semi	MSE	0.010	0.009	**0.008**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.958	0.960	**0.958**	0.948	0.950	**0.948**	0.955	0.958	**0.955**

Table 8: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 5$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.024**	0.024	0.022	**0.005**	0.006	0.005	**0.002**	0.035	0.002
data	CP	**0.907**	0.696	0.704	**0.882**	0.677	0.687	**0.884**	0.647	0.672
N-Semi	MSE	0.013	**0.008**	0.008	0.005	**0.002**	0.002	0.007	**0.001**	0.001
data	CP	0.888	**0.962**	0.887	0.812	**0.935**	0.807	0.757	**0.865**	0.753
Semi-Semi	MSE	0.010	0.009	**0.009**	0.005	0.003	**0.002**	0.001	0.001	**0.001**
data	CP	0.975	0.975	**0.973**	0.965	0.955	**0.958**	0.960	0.983	**0.975**

Table 9: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 20$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.017**	0.016	0.016	**0.004**	0.004	0.004	**0.001**	0.002	0.001
data	CP	**0.962**	0.784	0.792	**0.951**	0.784	0.793	**0.951**	0.784	0.791
N-Semi	MSE	0.009	**0.007**	0.007	0.010	**0.002**	0.002	0.020	**0.001**	0.001
data	CP	0.925	**0.943**	0.932	0.897	**0.922**	0.900	0.872	**0.935**	0.910
Semi-Semi	MSE	0.010	0.009	**0.009**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.940	0.948	**0.945**	0.955	0.955	**0.958**	0.948	0.950	**0.950**

Note. MSE: mean square error; CP: coverage probability. In the table, on the rows are the different types of generated data with sample size = 50, 200, and 500. On the columns are the four types of distributional models used to analyze the generated data. For each type of the generated data, four distributional models are fitted to them. The average MSE and CP for the six model parameters (β_L, β_S, σ_L^2, σ_S^2, σ_{LS}, σ_e^2) are obtained, as displayed in the table.

Table 10: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 20$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.034**	0.045	0.036	**0.006**	0.009	0.006	**0.003**	0.004	0.003
data	CP	**0.957**	0.863	0.877	**0.956**	0.874	0.894	**0.942**	0.843	0.876
N-Semi	MSE	0.024	**0.011**	0.011	0.028	**0.004**	0.004	0.007	**0.001**	0.001
data	CP	0.923	**0.947**	0.913	0.868	**0.913**	0.875	0.855	**0.888**	0.832
Semi-Semi	MSE	0.014	0.014	**0.012**	0.003	0.003	**0.003**	0.002	0.001	**0.001**
data	CP	0.978	0.980	**0.983**	0.948	0.953	**0.955**	0.943	0.948	**0.945**

Table 11: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.016**	0.015	0.015	**0.004**	0.004	0.004	**0.002**	0.002	0.002
data	CP	**0.910**	0.670	0.674	**0.905**	0.662	0.659	**0.894**	0.617	0.609
N-Semi	MSE	0.019	**0.007**	0.007	0.012	**0.001**	0.001	0.005	**0.001**	0.001
data	CP	0.895	**0.913**	0.895	0.775	**0.835**	0.777	0.747	**0.780**	0.728
Semi-Semi	MSE	0.009	0.008	**0.008**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.985	0.980	**0.980**	0.960	0.965	**0.963**	0.973	0.958	**0.961**

Table 12: Mean squared errors and coverage probabilities for different data and models ($T = 3$, $C = 20$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.031**	0.038	0.032	**0.007**	0.014	0.008	**0.004**	0.010	0.005
data	CP	**0.857**	0.705	0.714	**0.819**	0.649	0.671	**0.772**	0.614	0.617
N-Semi	MSE	0.015	**0.013**	0.013	0.042	**0.003**	0.003	0.009	**0.002**	0.002
data	CP	0.887	**0.927**	0.873	0.857	**0.897**	0.833	0.791	**0.833**	0.755
Semi-Semi	MSE	0.016	0.014	**0.013**	0.003	0.003	**0.003**	0.002	0.002	**0.002**
data	CP	0.975	0.980	**0.975**	0.963	0.968	**0.958**	0.956	0.955	**0.955**

Table 13: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 20$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.016**	0.015	0.015	**0.004**	0.004	0.004	**0.001**	0.001	0.001
data	CP	**0.950**	0.675	0.684	**0.947**	0.683	0.676	**0.944**	0.655	0.659
N-Semi	MSE	0.010	**0.005**	0.005	0.034	**0.001**	0.001	0.025	**0.001**	0.001
data	CP	0.903	**0.958**	0.908	0.930	**0.963**	0.927	0.878	**0.952**	0.900
Semi-Semi	MSE	0.009	0.007	**0.007**	0.003	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.978	0.973	**0.978**	0.953	0.958	**0.960**	0.960	0.960	**0.963**

Table 14: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 20$, $\sigma_{LS} = 0$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.022**	0.022	0.021	**0.005**	0.007	0.005	**0.002**	0.002	0.002
data	CP	**0.957**	0.836	0.831	**0.951**	0.840	0.852	**0.945**	0.835	0.838
N-Semi	MSE	0.010	**0.009**	0.008	0.103	**0.002**	0.002	0.024	**0.001**	0.001
data	CP	0.900	**0.960**	0.900	0.865	**0.941**	0.870	0.863	**0.955**	0.880
Semi-Semi	MSE	0.013	0.012	**0.012**	0.004	0.003	**0.003**	0.001	0.001	**0.001**
data	CP	0.968	0.963	**0.968**	0.935	0.940	**0.938**	0.958	0.948	**0.955**

Table 15: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.1$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.013**	0.012	0.012	**0.004**	0.004	0.004	**0.001**	0.002	0.001
data	CP	**0.952**	0.613	0.609	**0.936**	0.604	0.607	**0.938**	0.614	0.611
N-Semi	MSE	0.008	**0.006**	0.006	0.015	**0.003**	0.005	0.003	**0.001**	0.001
data	CP	0.855	**0.937**	0.865	0.813	**0.922**	0.804	0.767	**0.867**	0.753
Semi-Semi	MSE	0.011	0.009	**0.008**	0.002	0.002	**0.002**	0.001	0.001	**0.001**
data	CP	0.968	0.960	**0.968**	0.960	0.958	**0.968**	0.968	0.958	**0.963**

Table 16: Mean squared errors and coverage probabilities for different data and models ($T = 5$, $C = 20$, $\sigma_{LS} = 0.3$, $\sigma_e^2 = 0.5$)

		N=50			N=200			N=500		
		Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi	Semi-N	N-Semi	Semi-Semi
Semi-N	MSE	**0.022**	0.023	0.020	**0.006**	0.009	0.006	**0.002**	0.003	0.002
data	CP	**0.889**	0.690	0.695	**0.881**	0.656	0.671	**0.866**	0.649	0.664
N-Semi	MSE	0.009	**0.009**	0.009	0.003	**0.002**	0.002	0.003	**0.001**	0.001
data	CP	0.872	**0.948**	0.870	0.831	**0.925**	0.832	0.775	**0.878**	0.755
Semi-Semi	MSE	0.012	0.011	**0.010**	0.004	0.003	**0.003**	0.001	0.001	**0.001**
data	CP	0.990	0.985	**0.988**	0.958	0.948	**0.955**	0.970	0.973	**0.973**