

## Finite Sample Performance of Standard Error Estimators for Dynamic Factor Analysis of Non-Normal Data Using the Kalman Filter Algorithm

Zijun Ke

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## CHAPTER 1

### RESULTS OF ALL CONDITIONS

In this file, a complete report of results of all conditions (Distribution  $\times$  T\_N  $\times$  Initial Settings  $\times$  Ratio  $\times$  Ways of Manipulating Ratio) is included. Section 1 summarizes the bias of the normal theory based ML estimator. The relative bias of the four SE estimators is included in section 2. Section 3 reports mis-coverage rates of the 95% confidence interval.

## 1.1 Point Estimates

### 1.1.1 Using The Stationary Initial Setting

TABLE 1.1

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTING

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M11)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	.102	.50	.50	.50	.50	.50	.50	TAB
N	T50N1	-4.0	0.6	-1.2	-2.9	-0.1	-0.6	0.2	0.2	-3.1	2.3	-2.6	-2.2	-1.0	-0.7	0.3	-1.4	-0.9	24.2
	T100N1	-2.0	0.7	-0.5	-1.8	0.2	0.4	0.5	0.2	-1.6	0.6	-1.6	-0.3	-0.3	-0.6	-0.7	-1.0	-0.7	13.7
	T200N1	-1.1	0.0	0.3	-1.2	0.2	0.0	0.2	0.0	-0.8	0.4	-1.1	-0.2	-0.3	-0.4	-0.1	-0.4	-0.1	7.0
	T500N1	-0.3	0.0	-0.1	-0.3	0.0	-0.1	0.2	0.1	0.1	0.2	-0.7	0.1	-0.1	-0.2	0.0	-0.3	-0.3	3.0
LN	T50N1	-3.6	-0.4	-1.1	-3.2	0.6	0.1	0.9	0.9	-5.0	2.9	-7.7	-2.0	-1.1	-1.3	0.5	-0.8	-0.8	33.0
	T100N1	-2.0	0.4	-0.4	-2.0	0.0	0.0	0.2	-0.2	-3.5	1.4	-4.0	-0.8	-0.7	-0.1	-1.6	-0.2	-0.5	18.2
	T200N1	-1.0	-0.5	0.2	-0.8	-0.1	0.0	0.2	0.1	-1.1	0.2	-1.9	-1.0	-0.3	0.0	-0.4	-0.9	-0.1	8.8
	T500N1	-0.4	-0.1	0.0	-0.5	0.0	0.0	0.1	0.0	0.1	0.3	-0.5	0.0	-0.2	0.2	-0.2	-0.3	-0.1	3.1
CN	T50N1	-5.3	0.1	-1.1	-5.0	1.3	1.5	1.6	1.7	3.5	2.4	2.5	0.2	0.1	-0.6	0.0	-0.3	-0.7	27.9
	T100N1	-2.3	0.7	-0.2	-3.5	-0.1	0.1	0.2	0.2	1.6	1.7	0.9	-1.4	-0.4	0.1	-1.7	-1.7	-2.1	18.7
	T200N1	-1.3	0.2	0.3	-1.7	0.1	0.2	-0.2	0.1	1.5	-0.6	0.1	-0.1	-0.2	-1.4	-0.6	0.1	-0.2	8.9
	T500N1	-0.5	0.2	0.0	-0.6	0.0	0.0	-0.1	-0.2	0.8	0.1	0.7	0.1	-0.1	-0.4	0.1	0.1	0.1	3.9
Medium Signal-To-Noise Ratio (Model M21)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	.102	2.50	2.50	2.50	2.50	2.50	2.50	TAB
N	T50N1	-6.6	2.6	1.7	-4.9	5.7	2.9	5.2	2.7	3.6	4.6	4.0	-13.2	-8.6	-5.4	-10.7	-10.0	-6.0	98.4
	T100N1	-3.0	1.7	0.4	-3.0	1.2	2.2	2.5	2.6	0.7	2.0	-0.9	-2.0	-4.1	-2.6	-3.8	-4.0	-7.2	44.1
	T200N1	-1.3	0.3	0.7	-1.9	0.3	0.2	0.6	1.1	1.0	1.2	-0.1	-2.7	-2.4	-1.3	-1.7	-2.0	-1.8	20.5
	T500N1	-0.6	-0.1	0.1	-0.5	0.3	0.3	0.5	0.6	0.3	1.0	-0.5	-0.5	-0.4	-1.0	-0.8	-1.8	-1.2	10.4
LN	T50N1	-6.2	1.7	1.0	-4.5	4.4	7.0	5.9	6.2	6.0	4.0	-2.1	-7.7	-25.4	-39.0	-13.7	-11.6	-19.2	165.7
	T100N1	-1.7	1.4	-0.1	-2.8	2.0	1.4	2.8	1.9	-3.7	2.8	-0.1	-4.7	-18.4	-1.3	-3.3	-11.0	-10.3	69.7
	T200N1	-1.3	-0.1	0.5	-0.9	0.6	0.1	0.2	0.4	0.7	0.6	0.8	-8.7	-0.8	-3.3	-6.2	-8.7	0.0	33.7
	T500N1	-0.5	0.0	-0.1	-0.6	0.2	0.4	0.7	0.2	0.5	0.6	-0.6	0.6	-3.7	1.5	-2.3	-3.7	-1.6	18.0
CN	T50N1	-8.3	1.6	2.8	-9.2	6.2	10.0	6.3	7.0	36.2	-0.3	33.7	-27.6	-17.3	-23.4	-27.5	-22.0	-21.6	261.0
	T100N1	-4.2	2.2	1.4	-5.6	2.7	1.1	3.9	5.4	13.5	2.3	14.2	-12.2	-10.6	-8.0	-13.5	-15.4	-17.6	133.9
	T200N1	-2.3	0.8	1.3	-2.5	1.1	1.2	1.7	1.3	7.2	0.1	5.3	-2.4	-4.1	-6.7	-7.9	-4.9	-1.4	52.1
	T500N1	-0.8	0.4	0.2	-1.1	0.6	0.1	0.5	0.3	2.1	0.1	2.5	-0.8	-2.1	-3.1	-0.5	-1.3	-0.9	17.5
Low Signal-To-Noise Ratio (Model M31)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	.102	10.00	10.00	10.00	10.00	10.00	10.00	TAB
N	T50N1	-12.9	5.9	8.7	-9.0	0.7	3.5	21.9	24.6	130.6	-4.4	74.9	-157.1	-74.1	-55.5	-100.9	-55.5	-88.4	828.6
	T100N1	-5.6	5.7	1.5	-7.9	15.7	10.5	12.4	15.5	41.9	4.8	41.3	-56.3	-47.1	-30.1	-59.5	-37.7	-60.7	454.3
	T200N1	-2.6	2.6	2.2	-3.2	4.4	8.6	6.1	5.4	13.1	5.0	10.4	-19.2	-14.4	-19.5	-21.2	-15.2	-15.5	168.6
	T500N1	-1.1	0.6	1.3	-1.2	0.9	0.7	2.1	1.6	4.7	3.2	2.6	-4.9	-6.5	-6.6	-5.4	-10.5	-6.5	60.3
LN	T50N1	-7.9	0.9	8.2	-6.9	0.7	4.9	24.3	20.6	154.5	-22.0	42.3	-184.2	-72.4	-313.1	-165.9	-227.4	-360.1	1616.3
	T100N1	-7.2	4.2	7.1	-7.0	6.9	8.2	11.8	11.5	45.2	-1.0	39.3	-119.7	-178.1	-163.0	-109.5	-226.5	-231.3	1177.5
	T200N1	-2.7	2.9	2.3	-2.5	5.7	3.4	2.9	3.0	13.7	2.5	15.3	-80.1	-68.4	-76.0	-117.1	-99.6	-65.7	563.7
	T500N1	-1.8	1.1	1.3	-1.4	1.8	1.6	2.7	2.9	7.4	2.4	6.2	-3.4	-39.3	3.9	-28.4	-32.6	-42.9	181.0
CN	T50N1	-14.5	5.3	2.4	-17.2	6.9	4.6	19.6	24.6	260.0	-19.9	212.6	-224.1	-137.1	-197.9	-183.6	-197.4	-175.4	1703.0
	T100N1	-10.4	10.2	2.3	-13.5	18.5	9.2	14.9	12.0	131.0	-28.7	139.2	-137.5	-111.0	-128.7	-146.9	-129.2	-157.7	1201.0
	T200N1	-8.8	3.0	7.8	-6.2	5.3	7.8	9.8	9.8	66.1	-5.9	78.7	-69.2	-57.0	-73.1	-92.7	-55.8	-40.4	597.5
	T500N1	-2.7	2.0	2.2	-2.8	2.7	2.0	2.6	2.9	19.0	-0.6	23.8	-16.6	-13.8	-20.8	-16.5	-12.2	-12.6	155.9

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.2

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTING

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M11)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	.50	.50	.50	.50	.50	.50	TAB
N	T10N50	-1.1	0.9	0.1	-0.9	-0.2	-0.1	-0.1	0.2	1.8	-0.1	-0.8	-0.3	0.1	-1.4	-1.3	0.5	-0.1	9.9
	T20N25	-0.9	-0.5	0.3	-0.4	0.0	0.1	0.1	0.3	-0.1	1.5	-1.8	-0.2	-1.3	-0.3	0.6	0.2	-0.4	8.9
	T25N20	-0.8	-0.2	-0.1	-0.2	-0.1	-0.1	0.1	0.2	-0.4	0.2	-1.1	-0.8	-0.4	0.2	0.4	-0.2	-0.1	5.6
	T50N10	-0.6	0.1	-0.3	-0.4	0.0	-0.1	0.1	-0.1	-0.9	0.4	0.0	-0.4	0.1	0.1	0.2	0.2	0.0	4.1
LN	T10N50	-1.2	1.1	-0.7	-1.8	-0.1	0.4	-0.1	0.0	7.3	0.3	-0.7	1.9	0.8	-3.1	-1.0	1.1	-0.1	21.6
	T20N25	-0.9	-1.2	0.2	-0.3	0.2	0.2	0.1	0.2	2.8	1.2	-3.6	0.7	-1.7	0.7	0.3	-0.6	-1.1	15.8
	T25N20	-0.5	-0.6	-0.5	-0.1	0.2	0.1	0.2	0.2	0.8	0.5	-1.2	-0.1	-0.3	0.5	-0.4	-0.8	0.4	7.3
	T50N10	-0.5	0.2	-0.7	-0.2	0.1	0.3	0.2	0.0	-0.6	0.1	-0.3	0.2	-0.2	-0.1	0.2	-0.3	0.1	4.3
CN	T10N50	-1.3	0.1	-0.3	-0.9	-0.2	-0.1	0.0	0.1	1.3	-0.8	5.7	-0.2	2.6	1.2	0.8	1.2	1.5	18.3
	T20N25	-0.7	-0.6	0.1	-0.9	0.0	0.1	0.0	0.2	0.9	-1.4	5.5	-0.2	2.7	2.4	1.9	2.7	1.3	21.5
	T25N20	-0.5	-0.4	-0.4	-0.6	0.0	-0.1	0.4	0.5	0.6	-0.6	2.3	0.1	1.4	2.6	1.2	1.1	-0.3	13.0
	T50N10	-0.5	0.0	-0.2	-0.5	0.1	0.2	0.3	0.0	0.2	-1.5	1.4	1.1	1.3	0.2	0.8	0.2	0.7	9.2
Medium Signal-To-Noise Ratio (Model M21)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	2.50	2.50	2.50	2.50	2.50	2.50	TAB
N	T10N50	-1.0	0.9	-0.1	-1.1	-0.6	-0.2	-0.5	0.3	2.7	0.0	1.7	0.7	-1.5	-6.4	-6.4	1.3	-0.2	25.5
	T20N25	-1.6	-0.9	1.2	-0.2	0.5	0.3	0.8	0.9	1.7	2.0	-2.8	-2.0	-6.2	-0.8	2.4	0.7	-1.4	26.5
	T25N20	-1.3	0.2	0.3	-0.4	0.3	0.0	0.3	0.7	1.4	-0.7	-0.8	-2.5	-3.6	0.7	0.3	-1.1	-0.8	15.4
	T50N10	-0.6	0.3	-0.2	-0.8	0.1	0.4	0.7	0.4	-0.7	0.8	0.5	-1.1	0.5	0.7	-0.2	0.3	0.1	8.4
LN	T10N50	-1.1	1.3	-1.0	-2.0	0.3	0.8	0.2	0.4	8.3	0.8	0.7	20.5	6.1	-21.8	0.9	4.4	6.4	77.0
	T20N25	-1.6	-1.3	0.7	0.0	0.8	1.2	0.4	0.0	4.5	1.2	-3.3	8.3	-7.8	3.3	-5.8	-10.0	-10.4	60.7
	T25N20	-0.8	-0.6	-0.3	-0.3	0.4	0.5	0.2	0.5	1.2	0.4	-1.2	2.7	-3.0	2.3	-7.5	-6.1	3.9	31.8
	T50N10	-0.5	0.3	-0.5	-0.2	0.1	0.7	0.8	0.5	-0.4	0.5	-1.5	3.5	-2.4	-2.9	-6.0	-5.0	2.3	28.3
CN	T10N50	-1.7	0.8	-0.5	-1.9	0.5	0.4	-0.1	0.4	3.6	0.0	9.5	-1.0	10.9	5.3	1.5	3.6	7.1	48.8
	T20N25	-1.6	-0.5	0.9	-1.1	-0.2	0.2	0.4	1.5	3.5	-1.2	4.9	-1.4	10.6	9.1	8.4	11.1	6.8	63.5
	T25N20	-1.4	-0.1	0.2	-0.7	0.5	-0.1	0.8	1.1	2.9	-1.6	3.4	-1.3	5.8	11.0	2.6	5.0	-1.2	39.7
	T50N10	-0.2	0.5	-0.3	-1.0	0.8	1.1	1.4	0.5	-1.5	-0.5	2.3	3.4	4.0	0.3	0.0	0.2	2.2	20.0
Low Signal-To-Noise Ratio (Model M31)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	10.00	10.00	10.00	10.00	10.00	10.00	TAB
N	T10N50	-0.9	2.6	-1.7	-2.4	1.7	1.2	-0.8	2.9	5.8	3.7	8.4	3.6	-11.2	-25.7	-24.0	-0.9	-4.3	102.0
	T20N25	-4.0	-1.9	3.6	1.4	1.8	1.9	3.7	2.8	11.5	3.0	-6.8	-13.3	-23.9	-3.7	8.1	1.5	-4.1	96.9
	T25N20	-2.6	1.1	1.8	-0.9	1.5	1.7	1.9	2.7	8.6	-2.4	1.1	-14.3	-13.9	0.3	-4.5	-4.3	-4.1	67.6
	T50N10	-0.9	1.6	0.4	-1.9	1.3	1.6	3.1	1.4	2.2	1.7	3.8	-12.2	-0.2	-0.2	-7.8	-0.5	-3.0	43.9
LN	T10N50	-1.4	3.5	-2.5	-3.4	2.7	4.6	0.5	1.3	17.6	4.0	4.7	98.3	11.6	-133.1	3.6	-6.0	-16.3	315.2
	T20N25	-4.4	-1.7	3.6	0.9	2.3	3.8	3.1	2.8	12.9	2.1	-3.9	46.8	-46.6	-13.7	-74.9	-82.8	-73.2	379.6
	T25N20	-1.4	0.4	0.3	-0.4	2.3	1.8	1.1	0.3	3.8	1.0	4.9	21.9	-26.8	-28.3	-89.5	-58.7	24.9	267.8
	T50N10	-1.3	0.3	0.2	-0.1	4.1	4.9	4.3	2.4	0.8	1.7	-0.9	15.8	-41.3	-11.4	-70.4	-72.9	3.5	236.2
CN	T10N50	-4.5	2.8	0.4	-3.6	2.9	3.4	1.6	2.7	28.2	0.7	33.9	-23.8	33.7	8.0	-8.0	7.9	17.3	183.4
	T20N25	-3.9	0.8	3.8	-3.1	0.5	1.7	1.8	5.4	23.1	-2.8	26.3	-21.8	36.5	26.3	11.4	33.3	12.7	215.4
	T25N20	-3.5	2.9	2.9	-2.9	3.6	2.3	3.6	5.3	18.7	-3.6	19.9	-14.6	11.6	35.0	-6.9	17.8	-6.5	161.5
	T50N10	-1.4	3.5	0.5	-3.5	4.2	5.8	4.7	2.8	11.2	1.2	22.0	-5.9	5.4	-5.9	-14.2	-11.5	-4.5	108.3

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.3

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTINGS

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M12)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T50N1	-4.4	0.3	-0.8	-3.3	0.3	-0.2	1.3	0.9	-1.3	0.9	-1.4	-0.6	0.0	-0.3	0.4	-0.4	-0.6	17.3
	T100N1	-2.4	0.8	0.2	-1.8	0.0	0.1	0.6	0.3	-0.4	0.3	-0.6	-0.2	-0.1	0.2	-0.3	-0.2	-0.2	8.5
	T200N1	-0.9	0.1	0.3	-1.0	0.0	-0.1	0.0	0.0	-0.1	0.1	-0.5	-0.1	-0.1	-0.1	0.0	-0.1	0.0	3.5
	T500N1	-0.3	0.1	-0.1	-0.2	0.0	-0.1	0.0	0.1	0.0	0.1	-0.2	0.0	0.0	0.0	0.0	-0.2	0.0	1.4
LN	T50N1	-3.3	-0.3	-1.1	-3.2	0.0	0.5	1.1	1.3	-1.4	1.1	-1.3	-0.5	0.0	-0.2	0.6	-0.1	-0.4	16.5
	T100N1	-1.9	0.8	-0.3	-1.8	0.1	0.2	0.4	0.0	-0.4	0.6	-0.6	-0.5	0.2	-0.1	-0.3	-0.3	-0.1	8.5
	T200N1	-0.7	-0.3	0.3	-0.9	0.1	0.1	0.1	0.0	0.0	0.1	-0.2	-0.2	-0.2	0.0	-0.2	-0.1	0.2	3.7
	T500N1	-0.3	0.1	0.1	-0.5	-0.1	-0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	1.8
CN	T50N1	-4.6	-1.0	-0.7	-3.6	0.3	1.7	2.0	0.3	2.5	0.3	1.2	0.4	1.8	0.5	1.2	0.3	1.0	23.3
	T100N1	-2.6	1.1	-0.1	-3.1	0.4	0.4	-0.2	0.3	1.5	0.3	0.9	0.2	0.0	0.0	0.0	-0.2	-0.5	11.7
	T200N1	-1.2	0.0	0.3	-1.4	0.1	0.0	0.2	0.2	1.0	0.2	0.3	0.0	0.1	-0.3	-0.1	0.0	0.3	5.7
	T500N1	-0.4	0.2	0.1	-0.5	0.0	0.2	0.1	0.2	0.3	0.0	0.2	0.1	0.1	-0.1	0.1	0.0	0.0	2.5
Medium Signal-To-Noise Ratio (Model M22)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	1.00	1.00	1.00	1.00	1.00	1.00	TAB
N	T50N1	-6.3	3.0	1.0	-4.9	5.3	3.7	5.2	4.6	2.1	2.3	2.0	-5.8	-4.4	-3.5	-3.6	-3.3	-3.7	64.6
	T100N1	-2.0	1.5	-0.3	-2.9	1.2	1.6	1.0	1.6	-0.6	1.4	0.1	-1.3	-1.1	-0.8	-2.1	-1.5	-2.3	23.2
	T200N1	-1.3	0.0	0.8	-1.4	0.3	0.4	1.4	1.5	0.4	0.3	-0.6	-0.7	0.0	-1.1	-0.3	-0.9	-0.5	11.7
	T500N1	-0.6	0.4	0.2	-0.6	0.2	-0.1	0.3	0.0	0.4	0.1	0.2	-0.2	-0.3	-0.4	-0.6	-0.7	-0.5	5.7
LN	T50N1	-6.1	1.5	0.6	-5.1	4.1	5.2	7.4	5.3	2.6	2.2	0.0	-4.8	-7.8	-6.6	0.1	-4.7	-1.9	65.8
	T100N1	-2.5	1.4	-0.1	-2.9	0.7	0.9	2.1	1.5	0.8	1.4	-0.1	-3.1	-3.0	-1.4	-1.1	-1.8	-2.7	27.2
	T200N1	-1.6	0.1	0.7	-1.4	0.5	1.6	0.9	0.6	-0.1	0.6	-0.2	-1.5	0.3	-0.5	-2.7	-2.4	-0.1	15.9
	T500N1	-0.6	0.1	0.1	-0.6	0.3	-0.1	0.5	0.2	0.1	0.2	0.2	0.0	-0.7	0.5	-0.6	-0.5	-0.6	5.8
CN	T50N1	-6.3	3.4	-0.2	-9.3	8.2	8.2	8.6	7.5	13.5	0.8	13.0	-13.8	-7.5	-4.7	-10.5	-11.2	-10.1	136.7
	T100N1	-3.9	2.2	1.3	-6.1	3.3	1.2	2.3	4.3	6.9	-0.2	7.8	-3.9	-2.7	-2.0	-5.5	-4.3	-5.9	63.7
	T200N1	-2.0	0.8	1.0	-2.5	0.1	1.0	1.2	0.6	3.3	-0.1	2.3	-1.6	-1.0	-3.2	-2.2	-1.2	-1.1	25.1
	T500N1	-0.9	0.4	0.4	-1.1	-0.1	0.1	0.7	0.6	1.2	-0.1	1.0	-0.3	-0.3	-1.4	-0.1	-0.3	-0.2	9.3
Low Signal-To-Noise Ratio (Model M32)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	4.00	4.00	4.00	4.00	4.00	4.00	TAB
N	T50N1	-11.7	2.8	8.9	-11.7	4.7	1.1	10.5	11.9	52.2	0.4	44.5	-60.8	-29.6	-35.6	-41.1	-37.9	-26.5	391.9
	T100N1	-8.1	5.0	2.3	-5.5	16.6	11.3	7.6	7.2	18.9	1.0	16.8	-24.4	-21.5	-17.3	-23.1	-14.4	-17.4	218.4
	T200N1	-1.9	3.9	1.4	-4.5	5.1	4.4	3.6	3.8	5.8	2.0	7.9	-8.2	-6.9	-6.2	-10.2	-7.7	-6.6	90.0
	T500N1	-1.0	0.8	0.9	-1.4	0.9	1.0	2.0	2.4	1.5	1.2	1.0	-1.5	-1.5	-2.9	-2.8	-4.2	-2.7	29.6
LN	T50N1	-12.7	4.7	11.4	-10.5	14.3	17.3	19.8	11.6	32.9	3.9	18.1	-99.4	-65.0	-68.4	-51.9	-10.3	-37.6	489.5
	T100N1	-6.9	5.4	4.5	-6.6	6.2	6.6	15.1	11.7	17.3	-0.2	11.7	-47.8	-32.5	-35.2	-40.0	-32.8	-56.1	336.4
	T200N1	-3.8	2.5	2.4	-2.8	3.8	4.8	3.7	2.4	6.6	1.8	7.0	-23.7	-7.7	-15.3	-30.6	-27.6	-12.3	158.8
	T500N1	-1.6	0.5	1.6	-1.1	0.9	-0.2	3.6	2.5	2.8	0.9	0.8	-4.1	-9.5	0.9	-4.1	-7.2	-6.1	48.2
CN	T50N1	-14.3	2.3	-0.4	-14.2	9.2	11.6	18.1	22.8	97.1	-12.5	83.2	-94.5	-85.2	-87.3	-94.2	-82.6	-84.4	813.7
	T100N1	-9.1	7.1	1.8	-12.6	12.5	8.9	5.3	6.0	48.4	-9.8	54.3	-54.4	-39.9	-39.7	-69.1	-52.0	-49.6	480.4
	T200N1	-6.9	4.8	4.7	-7.3	6.7	7.8	8.5	7.0	27.4	-4.3	27.0	-29.2	-23.9	-30.6	-39.3	-21.6	-15.0	272.2
	T500N1	-2.4	2.8	1.7	-3.0	2.2	1.6	2.7	3.0	9.4	-0.5	8.3	-7.0	-4.8	-7.8	-3.9	-4.8	-4.7	70.4

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.4

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTING

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M12)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T10N50	-1.0	0.8	0.0	-0.8	-0.3	-0.1	-0.1	-0.1	0.6	-0.1	0.0	0.0	0.0	-0.5	-0.6	0.2	0.1	5.5
	T20N25	-0.9	-0.3	0.4	-0.5	0.0	0.0	0.1	0.2	0.0	0.7	-0.6	-0.1	-0.5	0.1	0.2	0.1	-0.1	4.7
	T25N20	-0.6	-0.4	0.0	-0.1	-0.1	-0.1	0.2	0.3	0.0	0.2	-0.6	-0.2	-0.3	0.1	0.2	-0.1	0.0	3.6
	T50N10	-0.5	0.4	-0.5	-0.3	0.1	0.2	0.2	0.1	-0.5	0.2	0.2	-0.2	0.1	0.1	0.2	0.1	0.0	3.5
LN	T10N50	-1.1	1.2	-0.2	-1.5	0.1	0.2	-0.2	-0.1	2.2	-0.1	0.1	0.5	0.3	-0.9	-0.4	0.4	0.0	9.5
	T20N25	-0.7	-1.0	0.2	-0.3	0.0	0.2	0.2	0.2	0.8	0.7	-0.9	0.1	-0.7	0.2	0.2	0.0	-0.4	6.5
	T25N20	-0.6	-0.4	-0.2	-0.1	-0.2	-0.1	0.0	0.2	0.5	0.1	-0.4	-0.1	-0.1	0.2	0.1	-0.2	0.1	3.5
	T50N10	-0.3	0.2	-0.6	-0.2	-0.2	0.2	0.1	-0.1	-0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	2.4
CN	T10N50	-1.3	0.0	-0.3	-0.9	-0.2	0.0	0.1	0.2	0.5	-0.1	2.5	0.1	1.2	0.6	0.4	0.6	0.8	9.9
	T20N25	-0.6	-0.6	0.3	-0.7	-0.4	-0.2	-0.1	0.1	0.5	-0.5	2.1	0.1	1.3	1.1	0.8	1.2	0.7	11.1
	T25N20	-0.7	-0.4	-0.2	-0.5	0.1	-0.2	0.3	0.5	0.6	-0.1	1.2	0.0	0.6	1.1	0.7	0.6	-0.1	7.8
	T50N10	-0.4	0.0	-0.3	-0.3	0.2	0.2	0.4	0.0	0.0	-0.5	0.7	0.6	0.6	0.1	0.4	0.1	0.4	5.1
Medium Signal-To-Noise Ratio (Model M22)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	1.00	1.00	1.00	1.00	1.00	1.00	TAB
N	T10N50	-1.3	1.0	-0.5	-1.2	-0.6	-0.3	-0.6	0.4	1.2	0.4	0.9	0.4	-0.6	-2.4	-2.5	0.9	-0.3	15.5
	T20N25	-1.7	-0.9	1.0	-0.2	0.3	0.1	0.9	0.9	1.1	0.7	-1.2	-1.1	-2.4	-0.2	1.0	0.4	-0.5	14.4
	T25N20	-1.2	0.3	0.1	-0.2	0.2	0.2	0.1	0.9	0.6	-0.2	-0.5	-1.4	-1.2	0.4	0.2	-0.3	-0.1	8.1
	T50N10	-0.3	0.6	-0.5	-0.7	0.5	0.3	0.6	0.1	-0.7	0.2	0.3	-0.5	0.2	0.2	-0.1	0.1	-0.3	6.1
LN	T10N50	-1.3	1.5	-0.8	-1.8	0.5	1.2	0.0	0.2	1.9	0.4	0.4	4.8	1.4	-6.6	-0.5	2.2	0.7	26.2
	T20N25	-1.7	-1.4	0.9	-0.2	0.5	0.8	0.6	0.4	1.5	0.7	-1.3	2.4	-3.8	1.3	-0.6	-2.4	-2.7	23.2
	T25N20	-0.8	-0.3	-0.2	-0.2	0.6	0.8	0.2	1.0	0.2	0.3	-0.5	0.8	-0.7	0.3	-1.5	-1.8	0.8	11.1
	T50N10	-0.5	0.4	-0.7	-0.2	0.7	1.0	0.7	0.2	-0.3	0.2	-0.3	0.7	-0.4	-0.2	-0.4	-1.4	0.3	8.6
CN	T10N50	-1.8	0.6	-0.4	-1.8	-0.1	-0.3	0.1	0.2	2.0	-0.2	3.6	-0.8	4.8	1.9	0.9	1.7	3.0	24.2
	T20N25	-1.3	-0.3	0.8	-1.1	-0.2	-0.5	0.1	0.7	1.1	-0.7	2.8	-0.5	4.9	4.4	2.4	4.6	2.9	29.2
	T25N20	-1.3	0.3	0.4	-1.1	0.2	-0.3	1.0	1.3	1.2	-0.8	1.5	0.1	2.6	4.7	1.2	2.4	-0.3	20.6
	T50N10	-0.8	0.1	0.1	-0.7	0.2	0.5	0.7	0.1	0.2	-0.4	1.2	1.5	1.6	0.1	0.2	0.1	1.0	9.5
Low Signal-To-Noise Ratio (Model M32)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	4.00	4.00	4.00	4.00	4.00	4.00	TAB
N	T10N50	-0.7	2.2	-1.8	-2.2	1.5	2.0	-1.7	2.3	1.5	1.6	4.1	1.2	-4.0	-10.1	-9.1	0.0	-1.0	46.8
	T20N25	-4.5	-1.8	4.2	1.0	2.7	1.9	3.2	2.9	4.6	1.5	-2.0	-4.7	-10.0	-1.9	3.3	0.2	-2.0	52.2
	T25N20	-2.9	0.8	1.7	-0.4	1.4	1.2	1.6	3.4	4.0	-0.7	-0.4	-6.0	-5.6	1.0	-0.3	-1.4	-0.9	33.8
	T50N10	-1.0	2.1	0.4	-1.7	2.0	1.2	1.8	0.5	0.8	0.8	1.4	-4.8	0.1	0.0	-2.4	1.1	-0.3	22.4
LN	T10N50	-0.5	4.3	-3.2	-3.2	3.0	4.6	0.0	1.9	3.1	1.4	2.6	31.1	7.4	-40.5	-2.5	5.4	8.6	123.4
	T20N25	-4.9	-2.1	4.6	1.1	1.7	2.9	2.3	2.7	5.1	0.9	-1.6	15.0	-16.5	8.8	-14.4	-23.9	-21.9	130.3
	T25N20	-2.1	-0.1	1.3	0.0	1.6	0.8	1.9	2.5	2.7	0.1	0.4	5.5	-3.8	2.9	-21.5	-11.1	7.8	66.1
	T50N10	-1.4	0.5	0.7	-0.1	1.6	3.1	1.9	1.3	1.2	0.9	-0.1	3.6	-7.0	1.5	-15.9	-12.8	-2.3	56.1
CN	T10N50	-5.0	3.4	1.0	-4.1	3.8	4.3	1.9	3.9	12.2	0.5	15.1	-8.8	11.7	0.9	-2.1	3.6	8.6	90.8
	T20N25	-3.9	1.3	4.0	-3.7	1.6	3.1	2.4	4.6	8.7	-0.7	10.7	-6.0	13.0	13.0	5.4	13.6	8.7	104.4
	T25N20	-4.3	2.6	3.2	-2.7	3.5	1.7	3.2	4.3	9.0	-1.5	8.7	-7.7	6.6	14.9	-5.1	5.5	-4.7	89.1
	T50N10	-1.2	2.6	1.4	-3.6	1.8	4.1	4.4	3.9	4.3	0.6	9.3	-1.7	5.0	-2.2	-5.3	-2.9	0.5	54.4

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.5

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M13)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.10	0.10	0.10	0.10	0.10	0.10	TAB
N	T50N1	-3.5	0.8	-1.4	-3.2	0.4	0.5	0.7	0.3	-0.4	0.6	-0.7	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	13.5
	T100N1	-1.8	0.8	-0.2	-1.7	-0.2	0.3	0.4	0.9	-0.2	0.2	-0.1	0.1	-0.1	-0.1	-0.2	-0.1	-0.2	7.7
	T200N1	-0.7	-0.1	0.1	-1.0	0.2	0.0	0.4	0.0	-0.2	0.0	-0.2	0.0	0.0	0.0	0.0	-0.1	0.0	3.2
	T500N1	-0.4	0.1	0.0	-0.3	0.1	0.0	0.3	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.6
LN	T50N1	-3.5	0.9	0.1	-4.1	0.3	0.2	0.3	0.0	-0.7	0.5	-0.6	-0.1	-0.1	-0.3	0.1	0.1	-0.1	12.1
	T100N1	-1.3	0.8	-1.2	-1.9	0.3	0.3	0.1	-0.1	-0.4	0.3	0.0	-0.1	-0.1	0.1	-0.3	-0.1	-0.2	7.5
	T200N1	-0.9	-0.2	0.4	-1.1	-0.1	-0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.1	-0.1	-0.1	-0.1	0.0	3.7
	T500N1	-0.4	0.0	0.0	-0.3	-0.1	-0.1	0.2	0.1	0.1	0.0	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.6
CN	T50N1	-4.9	0.5	-1.1	-5.0	0.8	2.6	1.1	1.4	0.9	0.3	0.5	0.2	0.1	-0.1	0.0	0.1	0.2	19.9
	T100N1	-2.4	0.6	-0.1	-3.0	0.7	0.5	0.5	0.5	0.7	0.1	0.4	0.3	0.4	0.3	0.0	0.0	0.1	10.6
	T200N1	-1.2	0.1	0.3	-1.2	0.2	0.4	0.2	0.1	0.4	0.0	-0.1	0.1	0.2	-0.1	-0.1	0.2	0.2	5.0
	T500N1	-0.4	0.1	0.1	-0.5	0.0	0.0	0.1	-0.1	-0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	2.0
Medium Signal-To-Noise Ratio (Model M23)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.50	0.50	0.50	0.50	0.50	0.50	TAB
N	T50N1	-4.9	1.2	1.3	-5.2	4.2	4.5	6.1	5.5	1.0	0.8	0.8	-2.1	-2.0	-2.0	-0.7	-2.1	-2.5	46.8
	T100N1	-2.0	1.5	-0.1	-2.8	1.4	1.8	2.6	1.4	0.0	0.5	0.2	-0.6	-0.6	-0.9	-0.8	-0.9	-1.3	19.2
	T200N1	-1.5	-0.1	1.1	-1.8	0.4	0.4	1.2	0.8	0.1	0.3	-0.1	-0.5	-0.4	-0.4	-0.3	-0.6	-0.2	10.2
	T500N1	-0.6	0.0	0.3	-0.5	0.1	0.3	0.6	0.5	0.1	0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.2	4.6
LN	T50N1	-6.5	2.3	1.3	-5.9	2.7	3.0	3.9	5.0	1.5	0.9	1.3	-2.2	-1.1	-3.2	-1.6	-1.0	-2.4	45.8
	T100N1	-2.8	1.4	0.5	-3.3	0.9	1.6	1.7	1.4	0.5	0.4	0.8	-0.8	-0.8	-0.4	-0.8	-1.5	-1.3	21.0
	T200N1	-1.2	0.0	1.0	-1.5	0.4	0.0	0.8	0.3	0.2	0.2	0.2	-0.5	0.1	-0.2	-0.5	-0.6	0.6	8.3
	T500N1	-0.4	0.2	0.1	-0.7	0.2	-0.1	0.1	0.5	0.3	0.1	0.0	0.2	-0.1	0.3	-0.1	-0.1	-0.2	3.9
CN	T50N1	-7.4	1.7	1.8	-6.5	5.0	6.7	7.7	4.2	7.8	0.5	6.9	-4.9	-2.3	-2.8	-2.4	-4.0	-2.3	75.0
	T100N1	-3.5	3.3	0.5	-6.5	2.5	1.1	2.6	2.8	3.0	0.1	4.4	-1.2	-0.8	-0.5	-2.1	-1.5	-2.4	38.6
	T200N1	-2.1	0.7	1.2	-2.5	0.5	0.8	1.5	1.3	2.0	-0.1	1.4	-0.5	-0.3	-0.9	-1.2	-0.5	0.1	17.7
	T500N1	-1.0	0.8	0.5	-1.2	0.2	0.0	0.2	0.4	0.7	0.0	0.8	0.0	0.1	-0.3	0.2	0.3	0.1	6.6
Low Signal-To-Noise Ratio (Model M33)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	2.00	2.00	2.00	2.00	2.00	2.00	TAB
N	T50N1	-11.6	1.9	5.5	-8.2	17.9	15.0	17.0	13.3	18.2	0.3	18.9	-29.3	-17.6	-23.1	-26.7	-14.0	-19.8	258.3
	T100N1	-6.6	2.3	2.0	-4.7	9.6	9.4	4.7	7.8	8.7	1.0	10.4	-11.8	-7.9	-8.1	-12.7	-7.0	-9.6	124.3
	T200N1	-2.0	2.1	1.7	-3.0	3.7	4.7	4.9	3.6	2.5	0.9	2.7	-4.5	-2.4	-3.2	-4.3	-4.0	-3.2	53.3
	T500N1	-0.8	0.8	0.4	-1.1	1.7	1.5	1.5	1.6	0.4	0.5	0.8	-0.5	-1.3	-1.2	-1.6	-1.7	-1.5	19.1
LN	T50N1	-8.8	2.0	7.8	-7.3	6.4	4.7	17.2	12.6	18.6	-1.7	15.2	-41.9	-18.7	-27.2	-38.5	-28.5	-13.7	270.7
	T100N1	-5.9	3.6	3.3	-6.1	8.1	4.3	11.6	9.3	9.2	0.8	7.2	-17.7	-19.9	-7.2	-17.6	-14.4	-18.5	164.7
	T200N1	-2.2	2.3	2.1	-3.3	3.3	4.0	4.1	3.1	1.8	1.0	2.8	-9.0	-1.7	-2.2	-8.4	-9.9	-1.1	62.5
	T500N1	-1.7	1.1	1.2	-1.3	2.0	1.6	1.6	2.2	0.7	0.7	0.6	-0.5	-2.5	-0.2	-2.5	-2.1	-1.4	23.7
CN	T50N1	-14.5	9.5	-1.6	-20.4	16.8	9.4	16.3	4.8	45.0	0.1	41.9	-55.6	-49.2	-43.1	-51.8	-50.7	-46.8	477.6
	T100N1	-8.8	10.3	0.5	-13.8	5.7	5.9	4.1	4.3	26.9	-5.9	30.8	-29.8	-22.2	-25.9	-36.4	-29.4	-30.0	290.8
	T200N1	-6.7	4.4	5.1	-7.7	2.9	6.2	8.9	6.0	13.4	-2.5	14.2	-15.3	-9.6	-14.4	-19.9	-11.8	-9.8	158.9
	T500N1	-2.3	1.6	1.7	-2.6	2.1	2.2	1.3	2.8	4.1	0.1	4.3	-3.2	-1.6	-3.4	-2.4	-1.6	-1.7	39.0

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.6

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE STATIONARY INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M13)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.10	0.10	0.10	0.10	0.10	0.10	TAB
N	T10N50	-0.7	0.9	-0.1	-1.0	-0.3	0.0	-0.2	0.1	0.3	0.0	-0.1	0.0	0.0	-0.3	-0.2	0.2	0.0	4.4
	T20N25	-0.8	-0.4	0.4	-0.2	-0.1	0.0	0.1	0.3	0.1	0.2	-0.4	0.0	-0.2	0.0	0.1	0.1	0.0	3.4
	T25N20	-0.7	-0.4	-0.2	0.1	0.1	0.1	0.1	0.3	0.0	0.1	-0.3	0.0	-0.1	0.1	0.1	0.0	0.0	2.9
	T50N10	-0.4	0.2	-0.6	-0.3	0.0	0.0	0.2	0.1	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	2.5
LN	T10N50	-0.9	1.1	-0.5	-1.2	0.0	0.1	-0.1	0.2	0.8	-0.1	0.0	0.2	0.2	-0.4	-0.2	0.2	0.0	6.1
	T20N25	-0.8	-0.8	0.2	-0.2	0.2	0.2	0.1	-0.1	0.3	0.3	-0.4	0.1	-0.3	0.1	0.1	0.0	-0.1	4.3
	T25N20	-0.7	-0.5	-0.3	-0.1	-0.1	-0.1	0.0	0.2	0.2	0.1	-0.1	-0.1	0.0	0.1	0.0	-0.1	0.1	2.7
	T50N10	-0.4	0.3	-0.8	-0.3	0.2	0.0	0.4	0.1	-0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.0	3.0
CN	T10N50	-1.3	0.0	-0.3	-1.1	0.0	0.2	0.0	0.2	0.3	0.0	1.2	0.0	0.7	0.3	0.3	0.3	0.4	6.4
	T20N25	-0.7	-0.8	0.3	-0.6	-0.1	0.0	0.0	0.1	0.3	-0.2	0.9	0.0	0.7	0.6	0.5	0.6	0.5	6.8
	T25N20	-0.7	-0.3	-0.4	-0.4	0.2	-0.1	0.3	0.4	0.1	0.0	0.5	0.1	0.4	0.6	0.3	0.3	0.0	5.2
	T50N10	-0.4	-0.1	-0.5	-0.1	0.1	0.1	0.1	0.0	0.1	-0.3	0.4	0.3	0.3	0.1	0.2	0.1	0.1	3.4
Medium Signal-To-Noise Ratio (Model M23)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.50	0.50	0.50	0.50	0.50	0.50	TAB
N	T10N50	-1.1	1.1	-0.4	-1.0	-0.3	0.0	-0.8	0.0	0.6	0.1	0.4	0.2	-0.2	-1.3	-1.2	0.4	0.0	9.2
	T20N25	-1.6	-0.9	1.1	-0.1	0.5	0.4	0.6	0.9	0.3	0.4	-0.6	-0.3	-1.2	-0.1	0.6	0.3	-0.2	10.2
	T25N20	-1.1	0.1	0.2	-0.3	0.6	0.4	0.3	0.9	0.1	-0.1	-0.3	-0.6	-0.7	0.2	0.1	-0.1	-0.1	6.2
	T50N10	-0.4	0.4	-0.3	-0.5	0.7	0.5	0.9	0.6	-0.3	0.2	0.0	-0.5	0.0	0.3	0.1	0.2	-0.1	5.9
LN	T10N50	-1.3	1.8	-0.6	-1.8	0.3	1.0	-0.4	0.4	0.8	0.1	0.5	1.9	0.9	-2.6	-0.6	1.0	0.3	16.2
	T20N25	-1.9	-1.4	1.2	0.1	0.9	1.1	0.8	0.8	0.9	0.4	-0.6	1.0	-1.4	0.7	0.3	-0.3	-1.1	14.9
	T25N20	-0.9	-0.5	0.0	0.1	0.3	0.4	0.3	0.9	0.4	0.1	-0.2	0.3	-0.1	0.6	-0.3	-0.6	0.4	6.6
	T50N10	-0.5	0.3	-0.5	-0.1	-0.1	0.5	0.6	0.4	0.1	0.1	-0.1	0.2	0.0	-0.2	0.1	-0.2	0.2	4.2
CN	T10N50	-1.7	0.5	0.0	-1.7	-0.4	0.0	-0.2	0.4	0.9	0.0	1.9	-0.2	2.7	1.6	1.1	1.3	2.0	16.6
	T20N25	-1.5	-0.1	0.9	-1.2	-0.1	0.0	-0.2	0.8	0.7	-0.5	1.5	0.3	3.0	2.5	1.8	2.7	2.2	20.4
	T25N20	-1.0	0.1	-0.1	-0.9	0.7	-0.2	0.8	1.5	0.5	-0.3	0.9	0.2	1.7	2.8	0.8	1.6	0.5	14.5
	T50N10	-0.3	0.3	-0.2	-0.8	0.6	0.1	1.1	0.1	0.0	-0.1	0.7	1.1	1.3	0.7	0.7	0.4	1.1	9.8
Low Signal-To-Noise Ratio (Model M33)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	2.00	2.00	2.00	2.00	2.00	2.00	TAB
N	T10N50	-0.9	3.2	-1.9	-2.3	1.6	0.8	-0.8	1.2	1.1	0.7	1.8	1.2	-2.5	-5.2	-5.3	-0.2	-0.1	31.0
	T20N25	-4.8	-2.3	4.4	1.4	2.9	2.9	2.9	2.8	1.9	0.9	-1.3	-2.8	-4.9	-0.7	1.2	0.8	-0.8	39.6
	T25N20	-2.5	1.5	1.4	-0.5	1.8	2.2	2.0	3.3	1.5	-0.2	-0.1	-2.7	-3.2	0.0	-0.4	-1.5	-0.5	25.4
	T50N10	-1.0	0.7	0.7	-1.0	1.1	0.6	3.0	1.0	0.7	0.4	0.3	-2.5	-0.1	0.0	-0.9	0.4	-0.2	14.7
LN	T10N50	0.0	5.0	-3.4	-3.7	3.2	4.3	0.2	1.2	0.3	0.8	1.7	14.1	3.5	-15.0	-1.2	3.8	2.2	63.8
	T20N25	-4.7	-2.1	4.1	1.2	2.2	3.3	3.2	2.4	2.9	0.5	-0.7	4.9	-6.6	2.2	-3.8	-6.8	-8.8	60.4
	T25N20	-2.1	-0.3	1.9	-0.2	1.1	0.9	1.4	2.4	1.2	0.0	0.4	2.1	-1.6	1.2	-7.7	-4.1	3.3	31.9
	T50N10	-1.0	0.8	0.3	-0.5	0.7	3.1	2.5	1.1	0.5	0.4	0.0	1.1	-2.9	-2.0	-4.0	-4.9	1.0	26.8
CN	T10N50	-5.4	3.0	2.0	-3.7	3.1	3.1	1.8	3.5	5.9	0.4	7.1	-4.6	6.7	1.9	-1.2	1.4	3.7	58.5
	T20N25	-4.1	0.6	4.0	-2.8	0.8	2.4	1.6	4.4	4.8	-0.2	5.3	-3.1	7.4	5.7	2.6	6.8	4.4	61.0
	T25N20	-3.8	2.3	2.9	-2.7	4.4	1.2	3.7	5.2	4.7	-1.0	4.1	-2.4	3.3	7.5	-1.1	3.1	-2.5	56.0
	T50N10	-0.9	3.2	0.0	-3.4	2.8	4.8	3.8	1.0	2.2	0.4	4.1	-0.8	1.6	-2.1	-3.3	-1.5	0.4	36.4

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .



## 1.1.2 Using The Noninformative Initial Setting

TABLE 1.7

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M11)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	.50	.50	.50	.50	.50	.50	TAB
N	T50N1	-6.9	2.2	0.5	-5.6	-0.3	-0.6	-0.1	-0.1	-2.6	1.5	-2.0	-2.5	-1.3	-0.6	-0.1	-1.6	-0.8	29.3
	T100N1	-3.5	1.9	0.7	-3.3	0.1	0.2	0.5	0.2	-0.9	0.1	-1.3	-0.6	-0.4	-0.6	-1.0	-0.9	-0.8	16.8
	T200N1	-1.8	0.7	0.9	-2.1	0.2	0.0	0.2	-0.1	-0.6	0.0	-0.6	-0.4	-0.3	-0.4	-0.1	-0.4	-0.2	9.0
	T500N1	-0.6	0.2	0.1	-0.6	0.0	-0.2	0.2	0.1	0.3	0.1	-0.7	-0.1	-0.1	-0.2	0.0	-0.4	-0.3	4.3
LN	T50N1	-6.9	2.5	1.6	-6.3	0.4	-0.4	0.2	0.3	-3.7	2.7	-6.7	-2.1	-1.5	-1.1	-0.4	-1.2	-1.3	39.2
	T100N1	-3.6	1.9	0.9	-3.6	-0.1	-0.1	0.0	-0.4	-2.5	1.1	-2.5	-1.0	-1.0	0.2	-1.5	-0.4	-0.8	21.6
	T200N1	-1.8	0.3	0.9	-1.5	-0.2	0.0	0.1	0.0	-1.2	0.1	-1.2	-0.9	-0.3	-0.2	-0.6	-1.0	-0.1	10.4
	T500N1	-0.7	0.2	0.2	-0.8	0.0	-0.1	0.1	-0.1	0.0	0.2	-0.5	0.0	-0.3	0.1	-0.3	-0.4	-0.2	4.1
CN	T50N1	-8.1	2.4	1.1	-7.7	0.4	1.4	1.3	1.2	3.3	1.0	3.1	-1.5	-0.1	-2.2	-1.7	-1.4	-1.8	39.4
	T100N1	-4.1	2.1	1.4	-4.8	-0.1	-0.1	0.0	0.1	2.2	1.4	2.1	-2.0	-1.0	-0.5	-2.6	-2.1	-2.7	29.1
	T200N1	-2.2	0.8	1.0	-2.4	-0.2	0.0	-0.2	0.2	1.1	-0.3	0.6	-0.5	0.0	-1.3	-0.7	-0.1	-0.7	12.2
	T500N1	-0.8	0.4	0.2	-0.9	-0.1	-0.1	-0.1	-0.2	0.8	0.0	0.5	-0.2	-0.1	-0.5	0.0	-0.1	-0.1	5.2
Medium Signal-To-Noise Ratio (Model M21)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	2.50	2.50	2.50	2.50	2.50	2.50	TAB
N	T50N1	-9.7	3.3	3.4	-8.4	2.4	0.8	4.1	2.1	8.7	3.7	5.1	-17.0	-6.7	-7.7	-11.2	-9.8	-8.6	112.6
	T100N1	-5.3	3.3	1.8	-5.5	-0.1	1.1	1.1	1.4	4.4	0.6	3.0	-4.3	-4.6	-2.9	-6.7	-4.3	-7.2	57.5
	T200N1	-2.7	1.3	1.8	-3.3	-0.2	-0.3	0.3	0.6	2.5	0.5	2.0	-4.0	-2.2	-1.4	-3.4	-2.5	-1.9	30.9
	T500N1	-1.2	0.5	0.7	-1.1	0.1	0.1	0.4	0.3	1.2	0.6	0.3	-1.2	-0.8	-1.2	-1.3	-2.0	-1.4	14.3
LN	T50N1	-8.7	3.6	3.5	-8.2	0.7	3.4	4.8	3.1	10.1	2.9	2.0	-16.7	-24.1	-29.1	-14.7	-15.3	-19.7	170.5
	T100N1	-4.3	3.1	1.7	-5.2	0.5	0.6	2.3	0.9	-0.4	1.7	3.4	-7.0	-18.1	-0.9	-6.7	-13.0	-13.0	82.9
	T200N1	-2.7	1.1	1.6	-2.2	0.2	-0.4	-0.2	-0.2	2.4	-0.1	2.4	-10.4	-2.6	-3.8	-8.7	-8.5	-0.7	48.1
	T500N1	-1.1	0.6	0.5	-1.2	0.1	0.2	0.5	0.0	1.0	0.4	0.2	-0.7	-4.1	0.6	-3.0	-4.0	-2.3	20.6
CN	T50N1	-11.2	4.7	3.6	-12.8	3.1	5.9	4.0	5.7	39.9	-4.1	38.0	-29.7	-14.7	-23.6	-35.4	-22.0	-25.3	283.7
	T100N1	-6.2	4.2	2.4	-7.9	1.7	0.3	1.6	3.8	17.4	0.8	18.8	-15.5	-11.3	-8.7	-18.1	-15.5	-19.2	153.3
	T200N1	-3.8	1.7	2.5	-3.8	0.4	0.5	1.1	0.7	9.6	-0.5	7.0	-4.6	-4.4	-6.6	-9.5	-5.0	-2.0	63.8
	T500N1	-1.3	1.0	0.7	-1.7	0.4	0.0	0.3	0.1	2.9	-0.3	3.5	-1.9	-2.1	-3.1	-1.4	-1.4	-1.0	23.0
Low Signal-To-Noise Ratio (Model M31)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	10.00	10.00	10.00	10.00	10.00	10.00	TAB
N	T50N1	-14.5	2.7	7.3	-15.0	4.0	4.8	8.3	7.5	119.1	-3.5	103.0	-142.7	-83.8	-62.6	-111.1	-76.2	-77.4	843.2
	T100N1	-9.3	4.8	2.3	-12.0	6.4	6.3	8.4	7.4	50.1	4.9	49.2	-60.2	-40.1	-35.7	-67.1	-41.0	-46.4	451.6
	T200N1	-5.0	4.5	2.3	-5.9	3.9	6.5	2.2	1.6	17.2	3.3	16.9	-21.0	-16.9	-17.2	-26.5	-15.1	-17.0	183.1
	T500N1	-2.7	1.9	2.4	-2.9	0.0	-0.1	1.1	0.6	8.2	1.6	6.2	-7.7	-6.7	-6.9	-8.1	-10.8	-6.4	74.5
LN	T50N1	-14.1	2.0	4.0	-8.8	2.8	13.5	7.1	14.4	80.3	-3.7	49.4	-282.1	-205.7	-333.1	-294.6	-282.8	-289.9	1888.3
	T100N1	-9.2	4.6	3.2	-10.5	9.5	10.7	12.6	14.1	32.6	3.5	31.2	-176.9	-185.2	-87.7	-163.5	-185.5	-188.5	1129.1
	T200N1	-5.7	3.2	3.8	-4.6	3.7	1.5	0.7	1.2	18.0	1.2	16.6	-103.6	-52.7	-43.8	-120.5	-113.2	-69.5	563.5
	T500N1	-3.3	2.1	2.4	-3.0	0.5	0.6	1.7	2.4	9.2	1.6	8.4	-27.9	-57.2	-12.0	-45.1	-33.8	-35.1	246.6
CN	T50N1	-20.4	8.2	2.5	-21.9	16.5	20.4	12.4	24.4	202.0	-5.6	170.8	-276.0	-231.4	-253.3	-260.5	-245.2	-256.7	2028.2
	T100N1	-12.9	9.7	2.8	-13.6	14.5	12.6	14.7	14.0	117.7	-16.5	127.0	-140.8	-114.6	-126.0	-156.9	-137.5	-158.0	1189.7
	T200N1	-9.4	3.6	6.5	-8.7	5.7	7.0	7.6	9.2	64.5	-2.9	75.9	-70.5	-59.5	-79.7	-99.3	-58.1	-48.7	616.8
	T500N1	-3.7	3.4	2.6	-5.1	1.9	0.8	1.6	1.6	21.0	-1.3	27.2	-20.0	-13.3	-20.7	-19.4	-13.0	-13.9	170.5

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.8

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M11)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	.50	.50	.50	.50	.50	.50	TAB
N	T10N50	-12.1	8.2	7.6	-11.8	-1.3	-1.1	-1.1	-0.9	6.1	-1.0	3.2	-1.2	0.1	-1.2	-2.3	0.7	0.1	60.1
	T20N25	-8.6	5.6	6.4	-8.1	-0.6	-0.6	-0.6	-0.4	2.8	0.3	1.0	-0.8	-1.3	-0.1	-0.1	0.2	-0.3	37.8
	T25N20	-7.3	4.9	5.1	-6.6	-0.6	-0.7	-0.4	-0.3	2.0	-0.7	1.0	-1.3	-0.4	0.2	0.0	-0.2	0.0	31.8
	T50N10	-4.0	2.9	2.4	-3.7	-0.4	-0.4	-0.2	-0.4	0.2	-0.2	1.1	-0.8	0.2	0.2	-0.1	0.2	0.1	17.5
LN	T10N50	-12.3	8.6	7.7	-12.8	-1.2	-0.7	-1.2	-1.0	11.9	-0.5	3.9	1.0	1.1	-2.9	-1.9	1.2	0.2	70.3
	T20N25	-9.1	5.5	7.1	-8.5	-0.4	-0.4	-0.6	-0.6	5.9	-0.2	-0.5	0.1	-1.6	0.6	-0.4	-0.6	-0.9	43.1
	T25N20	-7.4	5.1	5.3	-6.9	-0.4	-0.5	-0.4	-0.4	3.2	-0.7	1.2	-0.4	-0.4	0.6	-0.8	-0.4	0.6	34.6
	T50N10	-4.0	3.2	2.2	-3.6	-0.3	0.0	-0.1	-0.4	0.6	-0.6	1.2	-0.1	0.0	0.0	-0.3	-0.3	0.2	17.2
CN	T10N50	-12.4	8.1	7.5	-11.8	-1.3	-1.2	-1.0	-0.9	6.4	-1.2	10.5	-1.2	2.9	1.5	0.1	1.4	1.7	71.2
	T20N25	-8.2	5.9	6.3	-8.8	-0.6	-0.6	-0.8	-0.4	3.7	-2.5	8.4	-0.7	2.9	2.5	1.3	2.9	1.5	58.2
	T25N20	-7.0	5.2	5.1	-7.1	-0.6	-0.7	-0.2	0.0	3.1	-1.7	5.1	-0.5	1.5	2.8	0.8	1.3	-0.2	42.8
	T50N10	-3.9	2.9	2.6	-3.9	-0.2	-0.2	0.0	-0.2	1.4	-2.0	2.4	0.7	1.2	0.4	0.5	0.1	0.8	23.4
Medium Signal-To-Noise Ratio (Model M21)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	2.50	2.50	2.50	2.50	2.50	2.50	TAB
N	T10N50	-14.6	6.2	5.5	-14.5	-6.1	-5.8	-5.9	-5.1	25.0	2.1	22.3	-11.0	-0.3	-4.9	-17.6	3.1	1.2	151.2
	T20N25	-11.4	5.6	7.3	-10.2	-2.6	-2.9	-2.8	-2.7	13.9	0.3	10.2	-8.4	-5.8	-0.4	-4.7	1.4	-0.7	91.2
	T25N20	-9.9	6.1	6.3	-9.0	-2.5	-2.8	-2.5	-2.1	12.0	-2.9	9.6	-8.1	-3.0	1.1	-5.3	-0.4	-0.6	84.1
	T50N10	-6.2	4.5	4.1	-6.2	-1.5	-1.3	-0.9	-1.2	6.0	-1.7	6.7	-4.9	0.6	0.8	-3.6	0.3	0.2	50.7
LN	T10N50	-15.3	6.2	4.8	-16.2	-5.1	-5.3	-5.3	-5.4	32.8	4.7	23.6	8.8	6.8	-19.4	-9.8	5.1	8.2	182.7
	T20N25	-11.6	5.6	7.4	-10.4	-2.7	-2.2	-3.2	-3.6	17.0	-0.6	9.4	2.1	-6.2	5.2	-12.1	-8.2	-9.6	117.3
	T25N20	-10.0	6.0	6.4	-9.2	-2.4	-2.2	-2.7	-2.4	12.0	-2.0	9.1	-2.6	-2.3	1.6	-13.0	-3.9	5.0	92.8
	T50N10	-6.3	4.9	4.2	-6.0	-1.6	-0.9	-0.8	-1.2	6.1	-2.0	5.2	-0.8	-2.0	-1.6	-9.0	-5.5	1.8	59.9
CN	T10N50	-16.0	5.5	4.4	-15.4	-5.8	-5.7	-5.8	-5.1	28.8	5.1	32.0	-14.0	13.2	7.3	-9.6	6.1	8.1	187.8
	T20N25	-11.4	6.2	7.0	-11.1	-3.6	-3.1	-3.2	-2.2	16.4	-2.6	18.4	-8.0	11.7	10.3	0.9	12.6	7.7	136.5
	T25N20	-10.1	6.1	6.3	-9.4	-2.4	-3.2	-2.3	-1.9	14.2	-3.6	14.6	-6.8	6.4	11.9	-3.2	5.7	-0.4	108.6
	T50N10	-6.0	5.0	4.2	-6.7	-1.0	-0.7	-0.3	-1.2	5.2	-3.1	9.1	-0.4	3.7	-0.2	-3.4	0.1	2.2	52.2
Low Signal-To-Noise Ratio (Model M31)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	1.02	-.35	1.02	10.00	10.00	10.00	10.00	10.00	10.00	TAB
N	T10N50	-29.2	-6.7	-7.8	-28.0	-17.8	-18.4	-18.6	-14.7	154.8	59.2	142.2	-98.2	-3.1	-15.6	-114.0	10.1	2.9	741.3
	T20N25	-17.5	2.0	3.2	-15.4	-9.8	-9.9	-10.2	-10.7	67.2	13.5	55.5	-53.2	-21.5	-0.4	-40.7	4.0	-2.9	337.8
	T25N20	-14.6	4.0	4.5	-12.9	-9.3	-8.9	-8.9	-8.3	52.9	0.9	43.6	-49.0	-11.2	2.6	-37.9	-2.7	-1.6	273.9
	T50N10	-9.8	5.5	5.2	-9.8	-5.2	-5.0	-3.3	-4.9	26.9	-1.9	25.9	-32.0	-0.1	0.2	-25.4	0.1	-1.7	162.9
LN	T10N50	-30.3	-8.1	-8.8	-31.8	-0.5	2.3	21.0	-1.3	178.0	50.8	129.9	-16.1	-57.1	-147.2	-89.4	-86.4	-73.7	932.6
	T20N25	-18.6	2.2	3.8	-16.5	-5.2	0.9	-7.3	-3.5	63.1	12.5	53.2	5.2	-58.9	-35.1	-142.3	-92.7	-112.9	633.8
	T25N20	-15.7	3.2	4.2	-13.5	-4.3	-3.6	-1.7	-8.4	46.7	6.6	41.2	-9.2	-27.7	-60.6	-122.5	-66.9	-13.1	449.1
	T50N10	-10.5	4.7	5.1	-9.3	9.9	2.1	23.6	0.8	22.1	-1.3	18.9	-0.2	-62.9	-39.4	-88.9	-117.0	-15.8	432.4
CN	T10N50	-33.9	-10.3	-11.7	-31.7	-9.5	-5.6	1.4	-0.7	197.7	61.6	163.9	-146.7	38.0	4.5	-88.6	-7.3	6.3	819.3
	T20N25	-19.5	0.6	0.6	-19.2	-8.9	-9.8	-9.6	-6.3	104.1	14.9	97.3	-82.7	38.9	27.0	-46.2	35.0	15.0	535.6
	T25N20	-16.6	3.2	2.8	-15.7	-8.9	-8.5	-6.7	-6.4	72.7	5.7	72.3	-58.9	18.0	38.2	-51.3	22.1	-3.1	410.9
	T50N10	-10.3	5.7	4.2	-12.0	-3.2	-3.3	0.1	-3.8	35.7	0.1	43.1	-27.7	4.5	-0.9	-31.2	-14.4	-1.0	201.3

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.9

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTINGS

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M12)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T50N1	-8.2	3.3	1.8	-7.0	0.0	-0.3	0.9	0.5	-1.0	0.5	-0.7	-0.8	-0.2	-0.5	0.1	-0.5	-0.6	26.7
	T100N1	-4.6	2.2	1.7	-4.1	-0.1	-0.1	0.5	0.1	-0.2	0.1	-0.4	-0.3	-0.3	0.0	-0.5	-0.3	-0.3	15.6
	T200N1	-2.1	0.8	1.2	-2.3	-0.1	-0.2	-0.1	-0.2	0.0	-0.1	-0.4	-0.3	-0.1	-0.1	-0.2	-0.2	-0.1	8.3
	T500N1	-0.8	0.3	0.2	-0.7	0.0	-0.1	0.0	0.0	0.0	0.0	-0.2	0.0	-0.1	-0.1	-0.1	-0.2	0.0	2.9
LN	T50N1	-8.4	3.5	2.4	-7.5	-0.6	-0.5	0.3	0.7	-0.1	0.7	-0.5	-0.8	-0.3	-0.5	0.0	-0.2	-0.4	27.1
	T100N1	-4.4	2.4	1.4	-4.0	0.0	-0.1	0.0	-0.2	-0.2	0.4	-0.5	-0.6	-0.1	-0.2	-0.6	-0.3	-0.3	15.7
	T200N1	-2.1	0.8	1.4	-2.2	-0.1	0.0	0.0	0.0	-0.2	0.0	-0.3	-0.3	-0.1	-0.2	-0.4	-0.2	0.0	8.3
	T500N1	-0.8	0.3	0.3	-0.8	-0.1	-0.1	0.0	0.1	0.1	0.0	-0.3	-0.1	-0.1	0.0	-0.1	-0.2	-0.1	3.3
CN	T50N1	-8.9	2.8	2.4	-9.0	-0.3	1.5	0.5	0.1	2.5	-0.3	2.5	-0.3	0.5	-0.1	-0.2	-0.3	0.5	32.7
	T100N1	-5.1	2.8	1.9	-5.4	0.2	0.2	-0.2	-0.1	1.7	0.1	1.2	0.1	-0.1	-0.1	-0.3	-0.4	-0.7	20.7
	T200N1	-2.4	0.9	1.2	-2.7	-0.1	-0.2	0.1	0.1	1.1	0.0	0.2	-0.3	0.1	-0.4	-0.4	0.0	0.0	10.2
	T500N1	-0.9	0.4	0.4	-1.0	0.0	0.1	0.1	0.1	0.3	0.0	0.2	-0.1	-0.1	-0.2	0.0	-0.1	-0.1	4.0
Medium Signal-To-Noise Ratio (Model M22)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	1.00	1.00	1.00	1.00	1.00	1.00	TAB
N	T50N1	-11.2	4.6	4.4	-9.4	2.3	0.4	3.1	3.9	4.9	1.2	3.0	-8.1	-4.1	-2.6	-3.3	-3.3	-3.9	73.4
	T100N1	-5.6	4.1	2.5	-6.5	-0.2	0.6	0.0	0.4	1.1	0.7	1.8	-2.7	-1.4	-1.1	-3.4	-1.9	-2.4	36.3
	T200N1	-3.3	1.8	2.5	-3.5	-0.1	-0.1	1.0	0.8	1.3	-0.2	0.4	-1.2	-0.4	-1.1	-1.1	-1.1	-0.6	20.4
	T500N1	-1.5	1.1	0.9	-1.4	-0.1	-0.2	0.1	-0.2	0.8	-0.2	0.5	-0.4	-0.4	-0.5	-0.9	-0.8	-0.4	10.4
LN	T50N1	-11.0	4.3	4.6	-9.2	1.8	2.5	3.5	2.3	4.1	1.5	1.9	-5.7	-6.2	-7.9	-3.3	-6.7	-4.2	80.8
	T100N1	-5.9	3.8	2.8	-6.5	0.1	0.2	1.1	0.6	1.7	0.8	1.5	-4.5	-3.4	-1.7	-2.1	-1.5	-2.9	40.9
	T200N1	-3.7	1.9	2.6	-3.5	0.2	1.2	0.2	0.0	0.9	0.1	0.6	-1.8	0.0	-1.4	-3.3	-2.3	-0.6	24.1
	T500N1	-1.4	0.8	0.8	-1.4	0.2	-0.3	0.3	0.1	0.5	0.0	0.5	-0.2	-1.0	0.1	-1.0	-0.6	-0.9	10.2
CN	T50N1	-11.8	5.6	3.3	-12.3	5.1	5.9	7.4	5.1	15.3	0.1	13.9	-15.1	-9.2	-7.6	-12.6	-13.6	-9.9	153.8
	T100N1	-7.6	5.6	3.8	-9.2	2.0	0.6	1.4	3.0	8.0	-0.3	8.3	-6.2	-4.0	-3.5	-7.6	-5.2	-7.1	83.2
	T200N1	-4.0	2.5	2.8	-4.7	-0.8	0.1	0.4	0.1	4.2	-0.7	3.3	-3.0	-1.6	-3.2	-3.6	-1.8	-1.8	38.6
	T500N1	-1.8	1.2	1.2	-1.9	-0.3	-0.2	0.4	0.2	1.7	-0.3	1.4	-0.8	-0.5	-1.5	-0.7	-0.5	-0.4	14.8
Low Signal-To-Noise Ratio (Model M32)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	4.00	4.00	4.00	4.00	4.00	4.00	TAB
N	T50N1	-16.0	2.0	5.5	-16.3	7.5	2.6	6.3	9.5	48.7	3.0	37.8	-56.1	-32.9	-29.7	-37.8	-31.6	-39.0	382.0
	T100N1	-11.7	6.7	3.3	-10.7	10.9	7.1	6.5	4.8	22.7	0.2	21.3	-27.8	-16.9	-15.4	-27.6	-17.2	-17.4	228.0
	T200N1	-7.3	7.0	4.9	-9.4	1.5	1.8	1.7	0.7	10.3	0.5	11.0	-11.3	-6.1	-7.8	-12.3	-7.8	-6.6	108.1
	T500N1	-3.5	3.0	3.0	-4.1	-0.1	0.0	0.9	1.4	3.5	0.1	3.1	-3.2	-2.2	-3.5	-4.5	-4.5	-3.2	43.8
LN	T50N1	-15.7	4.5	5.3	-12.8	7.6	11.6	7.2	8.3	29.8	2.9	18.5	-76.6	-63.8	-82.4	-86.4	-61.3	-67.9	562.6
	T100N1	-11.0	6.5	5.7	-10.5	1.6	4.9	9.6	6.9	17.7	0.2	15.1	-50.7	-44.5	-44.8	-52.2	-45.3	-53.8	380.8
	T200N1	-7.5	4.6	5.2	-6.9	2.5	2.0	1.0	-0.5	7.6	1.2	9.2	-35.4	-18.9	-24.2	-45.6	-27.5	-23.3	223.0
	T500N1	-4.2	2.3	3.9	-3.4	0.3	-1.2	2.3	1.3	4.5	0.0	2.6	-5.7	-8.4	-2.0	-6.6	-7.3	-5.6	61.4
CN	T50N1	-14.8	4.6	0.7	-22.2	3.0	12.4	15.1	21.0	81.9	-2.2	79.6	-115.1	-80.9	-96.1	-98.7	-89.6	-92.6	830.5
	T100N1	-10.6	10.1	2.2	-16.6	14.8	8.9	7.5	10.2	44.3	-6.3	51.6	-57.0	-43.0	-48.9	-72.4	-58.2	-53.8	516.2
	T200N1	-11.3	6.2	6.4	-12.2	0.9	3.0	4.6	3.8	32.0	-2.0	27.8	-31.9	-19.0	-30.8	-41.6	-23.2	-19.7	276.2
	T500N1	-5.2	4.4	3.8	-5.4	1.4	0.8	2.1	1.9	11.5	-1.4	10.0	-9.4	-6.0	-8.4	-5.9	-6.1	-5.1	88.5

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.10

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
High Signal-To-Noise Ratio (Model M12)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T10N50	-14.6	10.4	9.7	-14.1	-1.4	-1.1	-1.2	-1.2	3.0	-1.0	2.1	-0.4	0.0	-0.4	-1.0	0.2	0.1	62.1
	T20N25	-12.1	9.0	9.7	-11.7	-0.5	-0.6	-0.6	-0.5	1.6	-0.3	0.9	-0.3	-0.5	0.1	-0.1	0.2	0.0	48.6
	T25N20	-10.5	8.0	8.3	-9.9	-0.7	-0.7	-0.3	-0.4	1.4	-0.8	0.8	-0.5	-0.2	0.2	-0.1	-0.1	0.0	42.5
	T50N10	-5.2	4.4	3.4	-5.0	-0.2	-0.2	-0.2	-0.3	0.2	-0.4	0.8	-0.3	0.1	0.1	0.0	0.0	0.0	20.8
LN	T10N50	-14.5	10.6	9.9	-14.8	-1.0	-0.9	-1.2	-1.1	4.3	-0.9	2.2	0.1	0.3	-0.9	-0.9	0.4	0.1	64.0
	T20N25	-12.1	8.7	10.1	-11.9	-0.7	-0.5	-0.5	-0.4	2.6	-0.5	0.5	-0.2	-0.6	0.2	-0.1	-0.1	-0.3	49.9
	T25N20	-10.8	8.3	8.6	-10.1	-0.7	-0.7	-0.6	-0.4	1.8	-0.9	0.9	-0.4	-0.1	0.2	-0.3	-0.2	0.2	45.0
	T50N10	-5.4	4.5	3.6	-5.1	-0.5	-0.2	-0.2	-0.4	0.5	-0.4	0.6	-0.2	0.0	0.0	0.0	-0.1	0.1	21.6
CN	T10N50	-14.9	10.3	9.6	-14.3	-1.3	-1.1	-1.1	-0.9	3.0	-0.9	4.7	-0.4	1.3	0.6	-0.1	0.6	0.8	65.9
	T20N25	-11.5	9.2	9.7	-12.1	-1.1	-0.9	-0.7	-0.6	2.1	-1.5	3.7	-0.3	1.3	1.1	0.5	1.2	0.6	58.2
	T25N20	-10.7	8.5	8.5	-10.4	-0.5	-0.8	-0.4	-0.1	1.9	-1.1	2.5	-0.1	0.6	1.1	0.4	0.6	0.0	48.1
	T50N10	-5.3	4.3	3.9	-5.3	-0.2	-0.2	0.0	-0.3	0.8	-1.0	1.4	0.3	0.4	0.0	0.1	0.0	0.2	23.8
Medium Signal-To-Noise Ratio (Model M22)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T10N50	-17.7	7.8	6.8	-17.1	-6.1	-6.2	-6.3	-5.4	11.4	1.3	10.3	-4.4	-0.2	-1.5	-7.1	1.4	0.6	111.6
	T20N25	-14.2	8.4	9.8	-13.0	-2.8	-2.9	-2.9	-2.7	6.5	-0.4	4.5	-3.5	-2.0	0.2	-1.8	0.7	-0.2	76.5
	T25N20	-13.1	9.3	9.2	-11.9	-2.6	-2.6	-2.7	-1.9	5.6	-1.7	4.2	-3.4	-0.9	0.6	-2.0	-0.2	0.0	71.8
	T50N10	-8.8	7.8	6.6	-9.1	-1.1	-1.4	-1.1	-1.6	2.7	-1.4	3.6	-1.9	0.1	0.2	-1.5	0.1	-0.1	49.2
LN	T10N50	-17.7	7.9	6.5	-18.2	-5.7	-5.1	-5.9	-5.7	12.6	1.8	10.5	-0.3	2.1	-6.1	-5.2	2.9	1.5	115.6
	T20N25	-14.6	7.9	10.0	-13.4	-3.0	-2.5	-3.3	-3.3	7.2	-0.4	4.5	-0.3	-3.2	1.8	-3.3	-1.7	-2.1	82.5
	T25N20	-13.2	9.0	9.4	-12.1	-2.4	-2.1	-2.7	-1.9	5.4	-1.3	4.2	-1.6	-0.6	1.1	-3.8	-2.0	1.6	74.2
	T50N10	-9.4	7.6	6.9	-8.8	-1.5	-0.9	-1.0	-1.5	3.4	-1.4	3.0	-0.9	-0.9	0.0	-1.6	-1.4	0.7	50.9
CN	T10N50	-19.1	6.7	5.7	-18.4	-6.5	-6.7	-5.4	-5.1	13.8	2.4	14.2	-6.3	5.6	2.9	-3.7	2.3	3.2	127.9
	T20N25	-13.8	9.0	9.5	-13.8	-3.6	-3.8	-3.4	-2.8	7.0	-1.7	8.5	-3.1	5.2	4.9	-0.1	5.3	3.3	98.7
	T25N20	-12.9	9.3	9.1	-12.7	-2.8	-3.2	-2.1	-1.8	6.0	-1.9	6.4	-2.2	3.5	5.5	-1.3	2.9	0.3	83.8
	T50N10	-9.3	7.3	7.3	-9.2	-1.5	-1.2	-1.0	-1.6	3.4	-1.8	4.4	0.4	1.8	0.1	-1.4	0.2	0.8	52.6
Low Signal-To-Noise Ratio (Model M32)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	.41	-.14	.41	.20	.20	.20	.20	.20	.20	TAB
N	T10N50	-42.5	-16.2	-16.9	-41.6	-17.5	-16.8	-20.4	-15.4	93.2	39.8	95.4	-57.1	1.8	-5.0	-67.2	7.7	4.0	558.5
	T20N25	-22.5	2.2	3.0	-20.1	-9.8	-10.2	-11.9	-12.4	34.3	9.1	29.2	-24.5	-8.8	-0.8	-20.0	1.8	-0.5	220.9
	T25N20	-18.6	5.3	5.8	-16.2	-10.2	-10.2	-9.5	-8.5	26.4	2.1	20.6	-22.6	-4.2	2.1	-15.8	-0.9	0.2	179.2
	T50N10	-12.8	8.8	7.8	-12.9	-5.1	-5.7	-4.5	-6.0	11.8	-1.1	11.4	-13.7	0.4	0.1	-10.0	1.3	-0.1	113.4
LN	T10N50	-41.6	-16.1	-16.4	-42.5	0.1	-3.8	11.1	2.2	91.6	32.2	78.2	-28.8	-9.3	-38.6	-42.5	-14.1	-0.8	469.9
	T20N25	-24.4	1.4	3.1	-21.7	-8.9	0.4	-12.0	-9.9	35.7	8.6	35.0	-7.4	-13.8	1.4	-44.5	-18.5	-19.0	265.5
	T25N20	-19.6	4.5	5.7	-17.3	-8.6	-7.7	-6.4	-7.8	26.8	3.4	21.7	-11.9	-0.7	4.7	-36.7	-8.9	6.8	199.1
	T50N10	-13.2	7.5	8.1	-12.0	-3.5	-3.1	-0.3	-4.3	11.4	-0.5	9.3	-5.3	-7.5	1.1	-22.6	-18.3	-0.1	128.1
CN	T10N50	-44.8	-17.4	-18.7	-43.5	-6.8	-1.0	8.7	10.2	125.7	35.0	97.6	-94.0	14.6	-2.8	-54.1	-5.6	-1.7	581.9
	T20N25	-26.2	-2.3	-2.1	-25.9	-10.6	-10.0	-5.1	-4.1	61.6	12.7	54.5	-46.1	13.6	13.6	-29.4	9.0	5.7	332.6
	T25N20	-20.7	3.2	3.0	-19.4	-8.3	-9.7	-7.3	-5.2	37.7	3.7	37.4	-30.1	8.2	15.3	-28.6	5.8	-4.2	247.9
	T50N10	-12.6	7.7	6.6	-14.9	-4.1	-4.2	-1.7	-3.1	14.5	-0.3	19.9	-11.5	2.7	-2.1	-14.7	-3.4	0.0	123.9

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.11

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
High Signal-To-Noise Ratio (Model M13)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.10	0.10	0.10	0.10	0.10	0.10	TAB
N	T50N1	-8.9	4.2	2.4	-8.6	-0.6	-0.4	0.4	0.1	0.0	0.3	-0.3	-0.6	-0.1	-0.2	-0.3	-0.2	-0.2	27.9
	T100N1	-4.6	2.5	1.6	-4.3	-0.3	0.1	-0.1	0.2	-0.1	0.1	0.0	0.0	-0.1	-0.2	-0.3	-0.1	-0.2	14.8
	T200N1	-2.0	1.0	1.1	-2.4	0.0	-0.2	0.2	-0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	7.5
	T500N1	-0.9	0.5	0.4	-0.9	0.0	0.0	0.2	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	3.1
LN	T50N1	-8.5	4.4	2.8	-8.5	-0.5	-0.6	-0.5	-0.5	0.3	0.0	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	28.5
	T100N1	-4.4	2.8	1.2	-4.5	0.0	-0.1	-0.1	-0.2	0.2	-0.1	-0.2	-0.1	0.0	-0.3	-0.1	-0.2	-0.2	14.7
	T200N1	-2.1	0.8	1.2	-2.6	-0.2	-0.4	0.1	0.0	0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.0	8.2
	T500N1	-0.9	0.3	0.3	-0.9	-0.2	-0.2	0.1	0.1	0.1	0.0	-0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0	3.4
CN	T50N1	-10.4	4.4	3.4	-9.7	0.5	1.6	0.7	1.0	0.6	0.2	0.7	-0.5	-0.3	-0.4	-0.5	-0.3	-0.3	35.4
	T100N1	-5.2	2.8	2.4	-5.9	0.4	-0.1	0.3	0.2	0.7	0.1	0.4	-0.3	-0.1	-0.1	-0.6	-0.5	-0.4	20.4
	T200N1	-2.7	1.1	1.4	-2.6	0.0	0.2	0.2	-0.1	0.4	0.1	0.0	-0.1	-0.1	-0.3	-0.3	-0.1	0.0	9.7
	T500N1	-0.9	0.4	0.4	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	3.3
Medium Signal-To-Noise Ratio (Model M23)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.50	0.50	0.50	0.50	0.50	0.50	TAB
N	T50N1	-11.3	5.9	5.1	-12.0	1.8	2.4	3.5	2.7	2.1	0.5	1.7	-2.6	-1.7	-2.6	-1.7	-1.8	-2.1	61.4
	T100N1	-6.7	5.1	3.4	-7.2	0.4	1.0	1.1	0.0	0.7	0.1	1.0	-1.0	-0.6	-0.8	-1.4	-0.9	-1.3	32.7
	T200N1	-3.9	2.3	3.1	-4.4	-0.1	0.0	0.4	0.2	0.6	0.0	0.4	-0.8	-0.4	-0.4	-0.7	-0.7	-0.3	18.6
	T500N1	-1.6	0.9	1.2	-1.6	-0.1	0.1	0.4	0.2	0.3	0.1	0.1	-0.2	-0.2	-0.2	-0.3	-0.5	-0.3	8.3
LN	T50N1	-12.2	5.1	5.9	-11.1	1.0	0.3	2.4	2.9	2.5	0.4	1.7	-3.2	-2.2	-3.5	-1.8	-2.0	-2.5	60.7
	T100N1	-7.1	5.2	3.6	-8.1	-0.2	0.8	-0.2	-0.2	1.2	0.2	1.8	-1.7	-1.2	-0.5	-2.0	-1.7	-1.2	36.9
	T200N1	-3.8	2.3	3.0	-4.1	0.0	-0.4	0.1	-0.4	0.6	-0.1	0.7	-0.8	-0.3	-0.6	-1.1	-0.9	0.2	19.4
	T500N1	-1.6	1.0	1.0	-1.8	-0.1	-0.4	-0.1	0.3	0.4	0.0	0.2	-0.2	-0.3	0.0	-0.4	-0.4	-0.4	8.6
CN	T50N1	-13.5	5.9	3.3	-12.9	2.7	6.7	4.6	2.2	7.1	0.3	6.9	-7.1	-5.2	-5.0	-5.7	-5.8	-4.5	99.3
	T100N1	-8.2	6.1	3.8	-10.6	1.6	0.7	1.8	2.0	3.5	0.0	4.9	-2.3	-1.9	-1.5	-3.9	-2.7	-3.0	58.7
	T200N1	-4.7	2.7	3.4	-5.0	0.1	0.0	0.8	0.7	2.2	-0.3	1.6	-1.3	-1.2	-1.4	-2.1	-1.2	-0.7	29.3
	T500N1	-2.0	1.6	1.4	-2.3	-0.1	-0.1	0.0	0.1	0.8	-0.2	0.9	-0.4	-0.3	-0.6	-0.4	-0.2	-0.2	11.5
Low Signal-To-Noise Ratio (Model M33)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	2.00	2.00	2.00	2.00	2.00	2.00	TAB
N	T50N1	-15.6	8.1	4.7	-17.8	12.7	4.4	21.8	12.9	19.4	0.4	17.3	-25.4	-19.9	-17.7	-20.2	-16.8	-21.5	256.6
	T100N1	-11.7	6.4	4.8	-12.7	6.9	1.7	3.6	4.7	10.0	-0.1	11.8	-12.4	-8.7	-6.6	-13.5	-8.3	-9.4	133.2
	T200N1	-8.2	5.1	6.4	-8.3	0.8	1.7	1.9	1.0	4.9	-0.1	4.8	-6.4	-2.9	-3.3	-5.2	-3.8	-3.1	67.8
	T500N1	-4.4	3.9	3.6	-4.7	0.7	0.4	0.5	0.6	1.6	-0.2	2.0	-1.4	-1.5	-1.3	-2.4	-1.9	-1.6	32.7
LN	T50N1	-16.4	4.1	7.4	-12.9	8.6	17.2	11.6	15.2	16.0	0.0	10.1	-50.9	-20.4	-28.2	-29.5	-27.2	-31.3	307.1
	T100N1	-11.2	6.8	6.0	-12.4	4.2	-0.3	7.4	4.4	10.1	-0.3	10.2	-15.1	-21.8	-8.1	-20.1	-14.6	-15.8	169.0
	T200N1	-8.8	6.0	7.2	-8.1	1.6	1.9	1.7	0.6	3.9	0.0	4.4	-10.8	-3.6	-3.6	-9.1	-10.0	-3.0	84.3
	T500N1	-5.3	4.1	4.5	-4.8	1.0	0.3	0.7	1.1	1.7	0.0	1.7	-0.7	-3.6	-0.2	-3.0	-2.7	-2.5	38.1
CN	T50N1	-20.1	6.6	1.6	-21.3	13.4	24.9	24.3	19.8	38.8	-0.7	32.7	-54.7	-48.7	-49.0	-46.5	-49.8	-49.3	501.9
	T100N1	-13.7	9.9	2.1	-16.6	5.4	0.7	8.4	8.9	26.2	-3.9	28.5	-30.6	-24.4	-27.6	-37.5	-32.1	-31.2	307.9
	T200N1	-11.3	6.0	8.6	-11.5	2.4	3.8	7.2	6.2	15.1	-2.6	14.5	-17.1	-10.9	-14.3	-19.6	-11.6	-10.9	173.6
	T500N1	-6.1	5.0	4.6	-6.3	1.4	1.7	0.3	1.5	5.1	-0.5	5.5	-4.4	-3.0	-4.5	-3.6	-2.7	-2.5	58.6

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

TABLE 1.12

BIAS $\times 100$  OF NORMAL THEORY BASED ML ESTIMATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTINGS.

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
High Signal-To-Noise Ratio (Model M13)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.10	0.10	0.10	0.10	0.10	0.10	TAB
N	T10N50	-15.4	11.5	10.7	-15.4	-1.3	-1.0	-1.3	-1.0	1.6	-0.6	1.1	-0.2	0.1	-0.2	-0.5	0.2	0.1	62.0
	T20N25	-13.8	10.7	11.6	-13.4	-0.6	-0.6	-0.5	-0.3	1.1	-0.5	0.7	-0.2	-0.2	0.0	0.0	0.1	0.0	54.3
	T25N20	-13.3	10.4	10.6	-12.1	-0.5	-0.5	-0.4	-0.4	1.0	-0.7	0.7	-0.2	-0.1	0.1	0.0	0.0	0.0	51.0
	T50N10	-6.5	5.6	4.7	-6.3	-0.3	-0.4	-0.1	-0.2	0.3	-0.2	0.5	-0.2	0.0	0.0	-0.1	0.0	0.0	25.4
LN	T10N50	-15.5	11.7	10.8	-15.6	-1.1	-1.0	-1.3	-0.9	2.1	-0.6	1.3	0.0	0.2	-0.3	-0.4	0.2	0.1	63.1
	T20N25	-14.0	10.4	11.8	-13.6	-0.5	-0.5	-0.5	-0.7	1.4	-0.5	0.6	-0.1	-0.3	0.1	0.0	0.0	-0.1	54.9
	T25N20	-13.3	10.5	10.7	-12.4	-0.6	-0.6	-0.5	-0.3	1.2	-0.7	0.8	-0.2	0.0	0.1	-0.1	0.0	0.1	52.1
	T50N10	-6.6	5.7	4.7	-6.3	-0.3	-0.3	-0.1	-0.4	0.3	-0.2	0.5	-0.1	0.0	0.0	0.0	0.0	0.0	25.6
CN	T10N50	-16.0	11.3	10.5	-15.4	-1.1	-1.0	-1.1	-1.0	1.7	-0.6	2.5	-0.2	0.6	0.4	0.0	0.3	0.4	64.2
	T20N25	-13.5	10.9	11.5	-13.8	-0.8	-0.8	-0.6	-0.5	1.3	-1.0	1.9	-0.1	0.6	0.6	0.3	0.6	0.4	59.3
	T25N20	-12.9	10.9	10.5	-12.6	-0.3	-0.6	-0.3	-0.2	1.1	-0.8	1.5	0.0	0.4	0.6	0.2	0.3	0.0	53.4
	T50N10	-6.6	5.5	5.0	-6.3	-0.2	-0.3	-0.2	-0.3	0.5	-0.6	0.8	0.1	0.2	0.0	0.1	-0.1	0.0	26.9
Medium Signal-To-Noise Ratio (Model M23)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	0.50	0.50	0.50	0.50	0.50	0.50	TAB
N	T10N50	-18.6	8.8	7.9	-18.0	-6.1	-6.0	-6.5	-5.7	5.9	0.5	5.2	-2.3	0.0	-1.0	-3.5	0.7	0.4	97.0
	T20N25	-15.6	9.8	11.1	-14.6	-2.5	-2.7	-3.0	-2.8	3.1	-0.2	2.4	-1.4	-1.2	0.0	-0.9	0.4	-0.2	71.8
	T25N20	-14.7	10.7	10.8	-13.7	-2.3	-2.4	-2.5	-2.0	2.7	-0.8	2.2	-1.7	-0.5	0.2	-0.9	-0.1	0.0	68.2
	T50N10	-11.2	9.8	9.1	-11.2	-1.1	-1.3	-0.7	-1.2	1.6	-0.8	1.7	-1.2	0.0	0.3	-0.6	0.2	0.0	51.9
LN	T10N50	-18.6	8.8	7.3	-19.0	-5.8	-5.2	-6.1	-5.4	6.1	0.9	5.5	-0.7	1.1	-2.2	-3.2	1.3	0.6	97.9
	T20N25	-16.1	9.4	11.5	-14.4	-2.4	-2.2	-2.9	-3.1	3.6	-0.3	2.3	-0.4	-1.6	0.6	-1.3	-0.2	-1.1	73.4
	T25N20	-15.0	10.4	11.0	-13.6	-2.5	-2.3	-2.4	-2.0	3.0	-0.8	2.2	-1.0	-0.1	0.4	-1.5	-0.7	0.5	69.3
	T50N10	-11.8	9.8	9.4	-11.0	-1.7	-1.3	-0.9	-1.4	1.9	-0.9	1.7	-0.8	0.0	-0.3	-0.7	-0.2	0.2	54.1
CN	T10N50	-20.2	7.4	6.5	-19.7	-6.6	-6.1	-5.9	-5.1	7.0	1.3	7.4	-3.3	3.0	1.6	-1.7	1.3	1.9	105.8
	T20N25	-15.3	10.3	10.6	-15.2	-3.5	-3.5	-3.8	-2.7	3.7	-1.0	4.5	-1.3	2.8	2.4	-0.1	2.7	1.8	85.1
	T25N20	-14.5	10.7	10.6	-14.2	-2.2	-3.1	-2.2	-1.4	3.2	-1.0	3.3	-1.3	1.3	2.6	-0.7	1.4	0.1	73.7
	T50N10	-11.0	9.9	9.2	-11.7	-1.3	-1.5	-0.6	-1.7	1.8	-1.1	2.5	0.2	1.0	0.4	-0.4	0.0	0.9	55.3
Low Signal-To-Noise Ratio (Model M33)																			
True Values		.60	.30	.30	.60	.80	.80	.80	.80	0.20	-0.07	0.20	2.00	2.00	2.00	2.00	2.00	2.00	TAB
N	T10N50	-50.6	-22.6	-23.1	-49.8	-12.4	-14.5	-14.2	-10.7	52.5	23.7	51.7	-28.8	-0.4	-2.2	-32.6	2.9	1.6	394.5
	T20N25	-25.4	1.3	2.0	-24.0	-8.9	-9.5	-12.1	-12.2	18.8	6.1	17.4	-13.5	-4.3	0.6	-12.1	1.5	0.0	169.8
	T25N20	-20.7	6.3	6.1	-18.8	-10.1	-10.0	-10.2	-9.1	14.8	1.5	11.8	-12.3	-2.4	0.8	-9.0	-0.7	0.4	144.9
	T50N10	-14.5	9.5	9.7	-14.5	-5.7	-6.1	-3.5	-5.7	6.3	-0.6	5.7	-6.6	0.2	0.2	-4.6	0.3	0.0	93.6
LN	T10N50	-48.5	-21.3	-21.4	-49.2	4.5	-4.1	7.3	-4.4	46.5	20.2	46.0	-14.9	-4.1	-13.5	-23.4	-2.9	2.5	334.9
	T20N25	-27.7	-0.2	0.8	-25.5	-11.2	-7.2	-10.9	-11.4	24.0	6.3	21.0	-7.8	-3.2	3.8	-21.3	-5.9	-6.8	195.2
	T25N20	-21.7	4.9	6.4	-19.0	-10.5	-8.5	-8.9	-10.3	14.7	1.9	13.1	-8.5	0.1	1.4	-16.8	-4.5	4.4	155.5
	T50N10	-15.3	9.6	9.5	-14.6	-3.7	-4.0	-0.1	-5.4	6.5	-0.3	5.1	-3.3	-2.2	-0.7	-7.5	-7.1	2.1	97.0
CN	T10N50	-49.6	-21.2	-22.2	-49.0	2.7	2.6	19.7	15.0	62.8	20.2	45.7	-43.6	5.6	-1.1	-21.1	-6.7	-1.5	390.1
	T20N25	-28.1	-1.7	-1.7	-28.4	-10.6	-10.7	-7.6	-5.0	34.5	6.7	29.5	-25.8	8.1	7.2	-15.6	6.0	3.6	230.8
	T25N20	-23.4	2.9	3.3	-22.1	-6.3	-10.1	-7.5	-6.3	22.9	2.4	21.4	-16.6	2.8	7.5	-15.3	3.4	-1.4	175.5
	T50N10	-14.9	8.9	7.3	-15.8	-2.7	-2.0	-3.2	-6.6	7.5	0.4	10.9	-4.3	0.7	-1.8	-8.1	-1.3	1.1	97.4

Note: The entries in the table equal bias $\times 100$ . TAB stands for total absolute bias, that is,  $TAB = \sum_{i=1}^{17} |bias_i|$ .

## 1.2 Standard Error Estimates

### 1.2.1 Using The Stationary Initial Setting

TABLE 1.13

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	-8.1	-4.8	-6.9	-7.4	-3.6	-3.4	-7.3	-2.9	-4.8	-2.9	-5.1	-2.7	-6.3	-4.3	-3.5	-4.0	-5.7	
	T100N1	0.3	-4.5	-0.7	1.1	0.6	-6.9	-2.8	2.2	-5.4	0.9	-1.3	-3.0	-3.0	-3.8	-1.3	-0.4	-4.2	
	T200N1	-2.3	-1.6	-3.5	1.3	-1.5	-4.0	-1.7	-5.3	0.0	-3.1	3.5	-0.3	0.2	-4.3	2.0	-1.9	0.3	
	T500N1	2.6	-1.8	-2.3	-1.9	0.2	-3.2	-1.1	-4.9	1.5	0.3	-1.9	-3.8	0.3	3.6	0.4	-2.5	2.9	
LN	T50N1	-0.2	-3.0	-3.1	-5.7	-10.3	-5.4	-10.0	-5.3	-59.0	-6.2	-46.8	-39.0	-43.5	-45.6	-36.0	-39.3	-48.1	
	T100N1	-3.5	-4.0	-3.9	0.0	-3.4	-3.5	-4.2	-4.9	-54.9	2.7	-52.1	-38.9	-45.1	-43.8	-42.5	-48.3	-48.2	
	T200N1	-3.8	-4.9	-8.2	-3.8	0.8	-2.2	-4.3	-4.7	-52.7	8.7	-57.1	-33.4	-45.5	-47.5	-40.7	-45.1	-45.2	
	T500N1	2.0	0.5	1.4	-0.1	0.6	-0.1	2.1	0.1	-56.4	9.9	-56.6	-39.1	-43.2	-43.5	-37.3	-42.8	-44.0	
CN	T50N1	-14.5	-12.0	-14.3	-7.8	-35.8	-34.2	-30.9	-27.7	-50.1	-47.6	-44.9	-52.3	-56.7	-52.4	-48.7	-53.1	-52.5	
	T100N1	-3.3	-6.4	-4.9	-4.8	-22.8	-20.1	-20.4	-19.6	-46.4	-45.5	-46.0	-50.2	-52.5	-51.4	-51.1	-51.5	-52.2	
	T200N1	-8.3	-4.6	-4.6	-2.3	-17.7	-14.5	-14.7	-14.9	-49.0	-44.7	-48.1	-49.4	-56.1	-54.0	-52.9	-54.9	-54.8	
	T500N1	-4.5	-6.2	-0.4	-3.2	-13.7	-13.6	-14.5	-13.4	-45.9	-44.2	-48.4	-49.1	-54.4	-53.9	-49.9	-53.8	-55.0	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	-9.1	-5.8	-7.9	-8.3	-4.8	-4.5	-8.3	-4.1	-6.1	-4.4	-6.2	-5.3	-8.1	-6.2	-6.4	-5.9	-7.6	
	T100N1	0.0	-4.8	-1.1	0.8	0.2	-7.2	-3.2	1.8	-5.9	0.4	-1.7	-4.2	-3.9	-4.7	-2.5	-1.2	-5.0	
	T200N1	-2.4	-1.7	-3.7	1.1	-1.8	-4.2	-1.9	-5.5	-0.2	-3.4	3.3	-0.9	-0.3	-4.6	1.4	-2.3	-0.1	
	T500N1	2.6	-1.8	-2.4	-1.9	0.1	-3.2	-1.1	-4.9	1.4	0.2	-1.9	-4.0	0.2	3.5	0.2	-2.7	2.7	
LN	T50N1	-1.1	-4.4	-4.2	-6.5	-11.3	-6.7	-11.0	-6.5	-59.5	-7.7	-47.4	-41.1	-44.7	-46.8	-38.1	-40.7	-49.2	
	T100N1	-3.9	-4.4	-4.2	-0.3	-3.9	-3.9	-4.6	-5.3	-55.1	2.0	-52.3	-39.7	-45.6	-44.3	-43.2	-48.7	-48.7	
	T200N1	-3.9	-5.1	-8.4	-3.9	0.6	-2.3	-4.4	-4.8	-52.8	8.3	-57.2	-33.8	-45.8	-47.7	-41.0	-45.4	-45.4	
	T500N1	1.9	0.5	1.3	-0.2	0.6	-0.1	2.0	0.1	-56.4	9.8	-56.6	-39.3	-43.3	-43.5	-37.4	-42.9	-44.1	
CN	T50N1	-16.3	-13.6	-15.6	-10.1	-36.8	-35.5	-32.3	-29.1	-51.2	-49.1	-46.3	-54.0	-57.5	-53.5	-51.0	-54.4	-53.7	
	T100N1	-4.2	-7.0	-5.4	-5.6	-23.2	-20.7	-20.9	-20.2	-47.0	-46.2	-46.6	-51.0	-53.0	-51.9	-51.9	-52.1	-52.8	
	T200N1	-8.8	-4.8	-4.8	-2.7	-17.9	-14.8	-15.0	-15.2	-49.2	-45.1	-48.3	-49.8	-56.3	-54.2	-53.3	-55.1	-55.0	
	T500N1	-4.7	-6.3	-0.5	-3.3	-13.8	-13.7	-14.6	-13.5	-46.0	-44.4	-48.5	-49.3	-54.5	-53.9	-50.0	-53.9	-55.1	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																	
N	T50N1	-9.1	-6.0	-7.5	-9.9	-3.0	-2.7	-6.5	-3.9	-6.3	-2.5	-6.4	-2.2	-8.0	-5.4	-2.8	-5.1	-5.7	
	T100N1	-0.9	-5.1	-1.4	-0.4	0.5	-7.2	-3.0	2.2	-6.3	0.1	-3.0	-4.4	-3.4	-5.0	-1.9	-2.2	-5.0	
	T200N1	-2.9	-1.8	-3.9	0.6	-1.4	-4.3	-2.3	-5.5	-0.6	-3.3	3.0	-0.3	-0.3	-4.5	1.8	-2.9	-0.4	
	T500N1	2.3	-1.8	-2.5	-2.1	0.4	-2.9	-1.3	-5.1	1.1	0.4	-2.4	-3.8	-0.2	3.5	0.3	-2.8	2.7	
LN	T50N1	-1.2	-4.2	-5.4	-5.6	-9.7	-3.3	-8.8	-5.7	-38.5	-8.8	-22.7	-21.6	-20.9	-25.0	-19.2	-15.5	-26.4	
	T100N1	-2.2	-5.4	-4.3	0.1	-4.1	-4.1	-4.4	-5.0	-25.4	-1.2	-21.2	-17.7	-19.6	-14.8	-22.0	-21.7	-21.7	
	T200N1	-0.4	-6.0	-6.7	-2.6	0.8	-3.0	-5.4	-5.7	-15.4	4.8	-21.8	-9.3	-12.9	-16.3	-17.1	-14.7	-13.6	
	T500N1	6.1	1.3	2.5	3.3	0.5	-0.4	2.5	0.8	-12.7	5.9	-14.6	-11.6	-7.4	-5.7	-9.5	-6.1	-7.6	
CN	T50N1	-13.6	-9.7	-11.6	-5.5	-21.8	-18.2	-15.3	-12.7	-24.9	-19.8	-16.4	-28.1	-29.4	-25.1	-18.9	-25.3	-24.8	
	T100N1	-2.4	-6.0	-4.0	-3.6	-11.7	-8.4	-8.5	-7.9	-13.6	-13.5	-13.7	-18.5	-16.8	-13.9	-19.6	-17.0	-17.6	
	T200N1	-6.2	-3.7	-3.1	-0.7	-6.2	-2.5	-2.0	-3.4	-11.3	-5.3	-11.3	-8.6	-16.4	-13.6	-16.0	-13.5	-13.6	
	T500N1	-1.6	-4.3	1.7	0.1	-2.6	-0.8	-1.9	-0.8	-3.0	-1.5	-6.7	-4.3	-7.2	-6.2	-4.0	-5.2	-8.8	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	-20.9	-13.4	-16.5	-19.9	-12.4	-12.2	-16.1	-13.1	-13.9	-11.5	-15.7	-10.4	-17.2	-13.5	-12.4	-12.7	-12.6	
	T100N1	-10.8	-12.2	-7.8	-8.5	-6.9	-14.7	-10.5	-6.9	-10.5	-4.7	-9.6	-9.6	-9.3	-10.5	-8.1	-8.0	-11.4	
	T200N1	-9.2	-5.5	-8.4	-4.5	-7.3	-9.9	-7.1	-11.5	-5.4	-7.7	-1.4	-4.3	-2.9	-9.1	-2.0	-6.7	-4.1	
	T500N1	-1.6	-3.7	-5.6	-5.1	-3.1	-7.4	-4.6	-7.5	-1.7	-2.0	-4.9	-6.1	-2.3	1.2	-2.5	-5.0	0.1	
LN	T50N1	-15.4	-13.6	-13.4	-19.4	-17.4	-12.2	-18.4	-17.0	-43.1	-17.6	-28.0	-25.5	-25.1	-28.3	-24.4	-19.1	-29.9	
	T100N1	-16.4	-13.2	-11.6	-11.7	-10.4	-12.9	-12.0	-13.0	-28.1	-8.8	-24.7	-19.3	-21.7	-16.7	-23.5	-23.9	-23.7	
	T200N1	-13.1	-12.6	-12.7	-13.7	-5.3	-8.0	-12.3	-13.1	-17.3	-3.2	-23.9	-9.2	-12.9	-17.1	-16.5	-15.3	-13.8	
	T500N1	-4.5	-4.0	-3.5	-6.2	-3.6	-5.8	-2.7	-3.4	-13.7	-0.5	-15.0	-9.1	-6.4	-4.7	-6.8	-4.5	-6.5	
CN	T50N1	-25.0	-17.5	-20.1	-16.2	-28.0	-25.3	-21.9	-21.0	-31.5	-26.7	-23.3	-33.2	-34.8	-31.6	-24.0	-30.0	-30.8	
	T100N1	-15.0	-14.4	-12.5	-14.0	-20.8	-16.3	-15.6	-15.8	-18.3	-17.0	-17.7	-22.9	-21.5	-18.5	-23.8	-22.6	-20.9	
	T200N1	-14.0	-10.1	-10.2	-9.1	-13.4	-9.5	-7.2	-9.7	-13.8	-7.2	-13.7	-10.4	-19.1	-15.5	-18.5	-15.8	-15.4	
	T500N1	-8.2	-8.5	-2.6	-6.1	-7.3	-5.5	-6.8	-5.3	-4.1	-2.9	-7.4	-5.3	-8.3	-7.8	-4.6	-6.8	-10.1	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.14

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T10N50	0.2	0.0	5.7	-1.0	-1.1	2.3	3.3	0.1	-4.8	0.4	-0.3	-0.9	-0.6	-2.5	-0.3	3.0	1.2	
	T20N25	0.7	1.5	-1.0	-0.4	-6.7	-1.7	2.6	0.8	-8.1	0.3	7.9	-1.0	0.1	-1.0	-0.9	-2.4	0.5	
	T25N20	-2.5	1.9	-1.5	0.4	0.4	-3.5	-2.6	0.5	-1.7	0.5	5.3	-6.0	2.5	3.9	-2.5	-1.1	0.4	
	T50N10	-2.9	-4.7	-6.6	-6.3	-7.2	-8.7	-1.6	0.4	-14.4	0.0	-2.9	-0.8	-4.1	1.1	1.3	1.6	-0.1	
LN	T10N50	-22.3	-19.7	-2.3	-19.4	0.5	-3.9	-0.1	1.8	-64.5	-1.4	-52.5	-41.2	-44.1	-43.3	-36.4	-40.9	-44.8	
	T20N25	-9.9	-0.6	-0.3	-9.5	-3.3	-0.1	-3.6	-3.1	-59.5	4.0	-54.2	-41.6	-44.8	-43.9	-30.9	-42.9	-44.8	
	T25N20	-14.3	-7.4	-5.4	-11.4	-5.1	-3.9	-4.5	-3.5	-58.2	2.3	-54.2	-42.6	-45.0	-42.7	-35.4	-44.9	-45.8	
	T50N10	-7.4	-9.1	-4.3	-9.2	-3.0	-3.9	-2.8	-2.2	-57.1	2.6	-58.8	-39.0	-43.5	-41.6	-36.1	-42.9	-45.4	
CN	T10N50	-11.9	-4.6	-1.0	-6.7	-17.5	-12.7	-18.0	-16.9	-45.5	-43.8	-45.8	-51.5	-53.5	-52.3	-49.6	-52.1	-53.1	
	T20N25	-9.0	-5.7	-8.4	-10.7	-14.4	-16.8	-16.5	-16.8	-45.2	-45.4	-46.6	-51.8	-54.3	-51.5	-50.4	-53.5	-58.1	
	T25N20	-6.5	-1.3	-7.9	-7.7	-14.7	-13.2	-13.8	-12.7	-47.2	-45.7	-45.9	-52.5	-53.8	-52.5	-49.3	-54.4	-53.7	
	T50N10	-6.6	-3.0	-3.5	-6.1	-13.9	-10.9	-12.7	-17.1	-50.7	-46.2	-46.9	-50.9	-54.6	-51.7	-49.1	-54.4	-54.5	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T10N50	0.2	-0.1	5.8	-1.1	-1.2	2.3	3.2	0.0	-5.0	0.2	-0.4	-1.0	-0.7	-2.6	-0.7	2.7	0.9	
	T20N25	0.7	1.4	-1.1	-0.6	-6.8	-1.8	2.5	0.7	-8.2	0.1	7.7	-1.3	-0.1	-1.3	-1.2	-2.5	0.3	
	T25N20	-2.6	1.8	-1.5	0.3	0.3	-3.5	-2.7	0.4	-1.8	0.4	5.1	-6.2	2.3	3.7	-2.8	-1.3	0.2	
	T50N10	-3.0	-4.7	-6.6	-6.4	-7.2	-8.8	-1.7	0.3	-14.5	-0.2	-2.9	-1.0	-4.2	0.8	1.0	1.4	-0.3	
LN	T10N50	-22.0	-19.7	-2.2	-18.9	0.7	-3.5	0.1	2.0	-64.5	-1.4	-52.5	-41.3	-44.2	-43.3	-36.6	-41.1	-45.0	
	T20N25	-9.9	-0.8	-0.4	-9.5	-3.2	0.0	-3.5	-3.1	-59.6	3.9	-54.2	-41.7	-44.9	-44.0	-31.1	-43.0	-45.0	
	T25N20	-14.4	-7.4	-5.5	-11.4	-5.1	-3.9	-4.5	-3.5	-58.3	2.2	-54.2	-42.7	-45.1	-42.7	-35.6	-45.1	-45.9	
	T50N10	-7.5	-9.1	-4.4	-9.2	-2.9	-3.9	-2.9	-2.2	-57.2	2.5	-58.8	-39.2	-43.6	-41.7	-36.3	-43.0	-45.5	
CN	T10N50	-11.7	-4.8	-1.1	-6.5	-17.4	-12.4	-18.0	-16.8	-45.7	-44.0	-45.9	-51.5	-53.7	-52.3	-49.9	-52.3	-53.2	
	T20N25	-9.0	-5.9	-8.5	-10.9	-14.3	-16.7	-16.5	-16.9	-45.4	-45.5	-46.7	-51.9	-54.4	-51.6	-50.6	-53.6	-58.2	
	T25N20	-6.6	-1.5	-8.0	-7.8	-14.6	-13.2	-13.8	-12.7	-47.4	-45.8	-46.0	-52.6	-53.9	-52.6	-49.5	-54.6	-53.8	
	T50N10	-6.8	-3.0	-3.6	-6.2	-14.0	-11.0	-12.8	-17.2	-50.9	-46.3	-47.0	-51.0	-54.7	-51.8	-49.3	-54.5	-54.6	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																	
N	T10N50	-0.4	-0.5	5.8	-0.7	-1.1	2.0	3.3	0.0	-4.8	0.3	-0.5	0.2	-1.5	-2.3	-0.5	3.2	0.7	
	T20N25	0.4	0.9	-1.5	-0.3	-6.7	-1.5	2.6	0.6	-8.3	0.7	7.6	-0.7	-0.3	-2.0	-0.8	-3.2	0.1	
	T25N20	-2.8	1.6	-1.8	0.5	0.2	-3.5	-2.9	0.6	-1.9	0.6	5.0	-6.1	2.3	3.9	-2.2	-1.1	-0.4	
	T50N10	-3.3	-5.1	-7.0	-6.6	-7.2	-8.4	-1.4	0.5	-14.5	-0.4	-3.5	-0.7	-4.1	0.8	0.9	0.9	0.4	
LN	T10N50	-5.7	-11.0	3.0	-1.6	0.0	-4.1	-0.9	1.1	-19.1	0.9	-6.6	-9.1	-7.5	-8.7	-6.0	-3.2	-9.8	
	T20N25	1.4	2.0	0.9	2.0	-3.2	-0.3	-3.8	-3.3	-15.9	4.6	-9.9	-12.9	-8.3	-8.9	-3.4	-9.1	-8.9	
	T25N20	-4.5	-3.6	-3.1	-1.9	-5.6	-4.1	-5.1	-3.7	-16.8	2.1	-8.5	-15.2	-8.7	-5.6	-10.1	-8.1	-7.9	
	T50N10	-0.6	-7.5	-4.1	-2.9	-2.9	-3.8	-2.9	-2.4	-14.1	1.4	-17.2	-11.0	-8.8	-2.8	-11.5	-9.0	-8.7	
CN	T10N50	-3.9	-0.8	3.7	1.9	-4.0	-0.4	-3.6	-4.3	-3.2	-3.7	-2.4	-7.4	-3.4	0.1	-4.5	-0.1	-4.8	
	T20N25	-3.2	-3.0	-3.9	-3.4	0.2	-3.2	-2.4	-3.3	-1.6	-1.9	-1.1	-9.2	1.1	2.1	-3.5	-4.2	-12.8	
	T25N20	0.8	1.3	-2.7	-2.8	-1.3	1.8	0.5	0.4	-4.1	-3.5	-0.9	-9.3	-2.1	-0.3	-3.3	-4.6	-6.7	
	T50N10	-1.2	0.1	0.5	-0.7	-0.6	2.7	0.1	-5.6	-9.3	-5.1	-3.0	-5.7	-3.7	-1.8	-2.9	-6.2	-6.5	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T10N50	-1.7	-1.5	3.2	-1.1	-3.4	0.4	1.9	-1.0	-5.3	0.0	-0.9	-0.5	-1.6	-2.6	-1.4	3.6	-0.7	
	T20N25	-0.4	-0.8	-3.9	-1.6	-7.8	-3.0	2.0	1.0	-8.9	0.6	6.9	-1.3	-0.9	-2.4	-0.7	-4.3	0.1	
	T25N20	-4.1	0.6	-2.9	-0.6	-0.8	-4.5	-3.5	-0.1	-2.2	0.4	4.9	-6.2	1.8	3.1	-3.1	-1.3	-1.4	
	T50N10	-4.1	-5.7	-7.8	-7.8	-8.3	-9.6	-3.0	-0.9	-15.2	-1.3	-4.7	-1.6	-5.8	0.5	-0.9	0.3	-0.1	
LN	T10N50	-13.3	-14.3	-0.9	-10.8	-3.0	-6.4	-2.6	-0.1	-18.9	-2.3	-6.6	-6.2	-4.9	-5.6	-1.1	0.4	-7.8	
	T20N25	-7.1	-2.6	-3.3	-6.9	-4.4	-1.6	-5.5	-4.1	-16.1	0.7	-8.9	-9.8	-5.5	-6.6	1.1	-6.2	-6.2	
	T25N20	-12.4	-5.2	-7.6	-8.8	-6.6	-5.2	-4.9	-4.8	-16.1	-2.2	-7.1	-11.0	-5.7	-2.9	-6.4	-5.3	-5.8	
	T50N10	-8.8	-10.9	-7.7	-10.2	-4.9	-6.5	-5.3	-4.2	-13.9	-3.5	-16.7	-7.9	-6.9	-0.2	-9.2	-5.9	-5.7	
CN	T10N50	-6.2	-2.6	0.5	-1.2	-6.5	-2.8	-6.8	-7.0	-3.4	-3.0	-3.0	-6.5	-4.6	-1.0	-6.5	-1.2	-3.9	
	T20N25	-5.3	-5.0	-5.8	-7.8	-2.3	-5.4	-5.6	-6.4	-1.4	-1.6	-1.4	-7.7	0.4	0.9	-4.6	-4.2	-12.8	
	T25N20	-3.7	-0.6	-5.5	-5.7	-3.5	-0.7	-2.3	-2.1	-3.7	-3.4	-1.0	-8.0	-2.6	-1.6	-3.4	-5.0	-6.7	
	T50N10	-6.5	-1.6	-3.2	-5.6	-3.7	-0.8	-2.4	-8.4	-9.2	-5.2	-3.0	-4.7	-4.2	-2.0	-2.7	-5.8	-7.1	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbi_{i,j} = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.



TABLE 1.15

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-8.9	-3.3	-7.2	-3.2	-6.7	-7.6	-2.0	-4.1	-2.5	-0.6	-2.5	-1.4	-2.4	-6.2	-3.3	-6.3	-2.2	
	T100N1	-6.2	-9.9	-1.8	0.5	-6.0	-3.6	-4.1	-5.6	-7.1	3.5	2.1	-4.0	-3.2	-0.5	0.7	-0.7	-5.9	
	T200N1	1.5	-4.3	-2.7	-2.8	-4.3	-4.4	-5.2	0.0	1.3	-1.5	-1.4	-1.1	3.9	-6.2	2.0	1.3	-0.7	
	T500N1	-0.4	-1.6	1.9	-2.7	-1.6	0.8	-3.4	-0.7	-3.6	0.0	5.9	-1.4	2.5	3.3	0.7	-3.1	4.1	
LN	T50N1	-9.1	-10.3	-6.4	-11.9	-7.5	-7.0	-3.6	-5.2	-43.2	4.9	-40.9	-24.5	-29.3	-24.8	-21.8	-27.4	-26.4	
	T100N1	-5.0	-3.7	-0.9	-0.6	-6.1	-9.3	-8.3	-4.0	-39.2	1.2	-37.6	-19.9	-27.3	-25.5	-26.0	-32.9	-32.5	
	T200N1	-2.1	-6.9	-3.3	-3.9	-2.2	1.3	-1.3	1.3	-37.4	5.2	-40.4	-16.9	-22.4	-32.4	-21.9	-26.8	-26.5	
	T500N1	0.8	-2.7	-0.3	-2.9	-5.1	-0.6	3.3	-0.7	-41.0	0.7	-37.7	-24.1	-25.3	-24.7	-20.8	-27.6	-26.2	
CN	T50N1	-12.6	-4.8	-4.8	-4.2	-33.1	-24.2	-24.5	-22.7	-47.4	-45.1	-45.1	-51.0	-53.7	-51.8	-51.5	-50.6	-50.0	
	T100N1	-7.3	-5.9	-8.8	-6.4	-21.9	-21.4	-21.2	-18.2	-48.9	-45.8	-43.4	-51.8	-53.1	-49.9	-50.1	-51.2	-52.3	
	T200N1	-3.1	-0.3	-2.1	-3.6	-18.9	-13.2	-16.0	-17.6	-48.3	-45.1	-48.8	-51.1	-56.9	-52.5	-51.6	-54.1	-54.1	
	T500N1	-7.4	-6.6	-5.1	-2.1	-12.7	-10.8	-12.7	-14.5	-46.4	-44.1	-48.4	-50.1	-55.2	-54.0	-49.4	-54.6	-56.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-9.9	-4.4	-8.1	-4.1	-7.7	-9.0	-3.0	-5.0	-3.9	-2.3	-3.4	-4.7	-4.4	-8.5	-5.7	-8.1	-4.1	
	T100N1	-6.5	-10.3	-2.2	0.1	-6.4	-3.9	-4.6	-6.0	-7.6	2.9	1.7	-5.2	-4.1	-1.3	-0.6	-1.7	-6.7	
	T200N1	1.3	-4.5	-2.9	-3.0	-4.5	-4.6	-5.4	-0.2	1.0	-1.8	-1.6	-1.7	3.4	-6.6	1.4	0.9	-1.1	
	T500N1	-0.5	-1.6	1.8	-2.7	-1.7	0.8	-3.5	-0.8	-3.6	-0.1	5.8	-1.6	2.3	3.2	0.5	-3.2	3.9	
LN	T50N1	-10.1	-11.4	-7.7	-12.9	-8.4	-8.1	-4.6	-6.2	-43.8	-6.5	-41.6	-26.5	-30.5	-26.3	-24.1	-28.9	-28.0	
	T100N1	-5.3	-4.0	-1.3	-0.9	-6.5	-9.6	-8.7	-4.2	-39.6	0.6	-37.8	-20.9	-27.9	-26.1	-26.9	-33.5	-33.1	
	T200N1	-2.2	-7.1	-3.4	-4.0	-2.5	1.2	-1.5	1.1	-37.5	4.9	-40.5	-17.4	-22.8	-32.6	-22.4	-27.1	-26.8	
	T500N1	0.8	-2.8	-0.4	-2.9	-5.2	-0.6	3.2	-0.7	-41.1	0.6	-37.8	-24.3	-25.4	-24.8	-21.0	-27.7	-26.3	
CN	T50N1	-14.7	-6.6	-6.6	-5.9	-34.1	-25.5	-25.9	-23.9	-48.6	-46.4	-46.3	-52.8	-54.7	-53.0	-53.2	-52.0	-51.2	
	T100N1	-8.1	-6.4	-9.4	-7.1	-22.4	-22.0	-21.9	-18.6	-49.4	-46.4	-43.9	-52.6	-53.5	-50.5	-51.0	-51.8	-52.8	
	T200N1	-3.5	-0.5	-2.4	-4.0	-19.1	-13.4	-16.3	-17.8	-48.6	-45.5	-49.1	-51.6	-57.1	-52.7	-52.1	-54.4	-54.3	
	T500N1	-7.5	-6.7	-5.2	-2.3	-12.8	-10.9	-12.8	-14.6	-46.5	-44.3	-48.5	-50.3	-55.3	-54.1	-49.5	-54.7	-56.3	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	-10.5	-4.2	-7.0	-5.8	-6.2	-6.7	-1.7	-4.5	-3.0	-1.1	-5.2	-0.2	-3.4	-7.1	-3.6	-7.2	-3.3	
	T100N1	-7.6	-10.3	-2.4	-1.2	-6.8	-4.2	-4.0	-5.6	-8.3	2.4	0.8	-5.2	-4.1	-1.2	0.0	-1.9	-6.7	
	T200N1	0.7	-4.6	-3.6	-3.6	-4.6	-4.7	-5.1	-0.2	0.3	-1.6	-2.0	-1.6	3.5	-6.5	1.7	0.6	-1.9	
	T500N1	-0.7	-1.7	1.3	-3.2	-2.0	0.7	-3.5	-0.6	-4.1	-0.1	5.3	-1.7	2.2	3.1	0.5	-3.3	3.8	
LN	T50N1	-9.4	-11.2	-8.3	-13.0	-8.1	-6.3	-3.2	-4.1	-26.0	-6.5	-22.4	-14.2	-14.3	-9.6	-10.9	-13.0	-11.8	
	T100N1	-5.4	-4.0	-2.0	0.2	-7.1	-9.8	-8.5	-4.8	-17.0	-3.2	-14.8	-7.9	-10.2	-7.2	-12.6	-16.0	-15.1	
	T200N1	-0.9	-7.3	-3.0	-2.8	-3.0	0.9	-1.8	1.1	-8.4	2.5	-12.3	-2.3	-0.6	-12.5	-7.7	-6.1	-5.8	
	T500N1	2.9	-1.9	0.4	-1.5	-5.1	-0.5	3.5	-0.4	-9.3	-1.6	-5.0	-8.3	-2.0	0.0	-4.2	-4.9	-2.3	
CN	T50N1	-10.1	-1.2	-2.2	-4.7	-17.4	-8.1	-12.5	-10.4	-20.3	-15.7	-16.0	-24.5	-21.4	-23.8	-23.7	-20.9	-19.9	
	T100N1	-6.1	-5.0	-7.2	-5.5	-9.4	-9.1	-7.9	-5.8	-16.5	-13.4	-8.4	-19.7	-17.4	-11.7	-16.0	-14.9	-17.4	
	T200N1	-1.7	0.7	-1.3	-2.8	-6.3	-1.4	-3.5	-7.0	-9.4	-6.0	-12.5	-12.0	-17.8	-9.7	-13.5	-12.3	-11.2	
	T500N1	-4.8	-4.6	-3.0	0.8	-0.4	1.3	0.8	-1.8	-3.6	-1.9	-6.6	-6.4	-8.1	-6.2	-3.5	-6.8	-10.9	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-21.7	-11.3	-15.9	-18.2	-15.3	-13.3	-11.5	-13.5	-12.4	-9.8	-15.0	-7.8	-12.4	-14.8	-11.6	-14.8	-10.4	
	T100N1	-16.0	-16.9	-8.7	-10.4	-14.4	-12.4	-11.1	-14.2	-13.4	-2.3	-4.4	-11.0	-10.1	-6.1	-6.4	-7.6	-13.3	
	T200N1	-5.7	-8.7	-8.4	-8.2	-9.8	-9.8	-10.9	-5.9	-4.2	-5.1	-5.2	-6.5	-0.1	-10.6	-1.7	-3.5	-6.5	
	T500N1	-4.8	-4.5	-1.5	-5.5	-5.6	-2.1	-7.2	-4.2	-5.9	-2.4	3.1	-3.7	-0.2	1.5	-1.7	-5.9	1.1	
LN	T50N1	-21.1	-20.8	-15.4	-26.5	-18.2	-14.6	-11.9	-12.1	-31.4	-16.1	-28.3	-18.1	-20.0	-14.6	-17.9	-17.9	-18.6	
	T100N1	-15.5	-11.6	-8.2	-11.4	-13.5	-19.5	-16.3	-13.7	-21.3	-8.9	-19.7	-10.0	-13.5	-10.6	-15.3	-19.3	-18.8	
	T200N1	-9.0	-13.0	-8.5	-12.1	-8.8	-5.2	-8.0	-5.5	-11.0	-3.8	-14.5	-3.9	-0.9	-14.1	-8.5	-7.8	-6.9	
	T500N1	-4.4	-6.4	-4.5	-8.2	-9.3	-5.1	-0.3	-3.5	-10.4	-6.4	-6.5	-7.6	-1.7	0.0	-3.0	-4.3	-2.5	
CN	T50N1	-22.2	-13.3	-12.3	-18.5	-26.9	-16.3	-20.3	-20.3	-26.4	-21.9	-23.5	-30.5	-27.5	-28.7	-28.9	-26.7	-25.1	
	T100N1	-18.4	-14.5	-15.7	-16.1	-17.6	-17.5	-15.6	-13.2	-20.9	-16.7	-13.3	-23.3	-22.3	-17.5	-20.4	-20.0	-20.6	
	T200N1	-10.6	-5.3	-8.3	-11.4	-13.1	-8.1	-10.4	-13.2	-11.7	-8.9	-15.2	-13.8	-20.8	-11.3	-16.6	-15.4	-13.0	
	T500N1	-10.9	-8.6	-7.6	-4.9	-5.2	-4.1	-4.3	-6.3	-4.5	-3.3	-7.2	-7.1	-9.4	-7.7	-4.1	-8.3	-12.3	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.16

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-1.0	-0.8	2.9	-3.3	-2.1	0.9	1.3	0.2	-1.2	2.9	2.1	-2.4	0.2	-0.9	-3.4	-0.3	-1.3	
	T20N25	-0.9	-0.4	-0.2	-1.9	-2.2	-4.5	-2.1	-1.6	-11.7	2.4	8.7	2.1	1.4	1.1	1.2	-2.4	0.8	
	T25N20	-4.9	-3.4	-4.7	-6.0	-6.1	-5.1	3.9	-2.6	-5.7	-0.2	4.2	-2.2	2.6	1.5	-2.7	1.0	1.0	
	T50N10	-4.3	-3.4	-7.5	-3.7	-4.7	-2.2	-2.9	0.0	-4.0	-1.3	2.9	-1.6	-1.4	2.9	0.0	1.2	-2.0	
LN	T10N50	-14.1	-11.0	-4.4	-14.2	0.1	-2.1	2.1	-0.7	-48.2	-3.3	-34.6	-28.2	-25.7	-28.1	-20.3	-23.3	-24.0	
	T20N25	-11.2	-3.2	-3.2	-8.2	-6.7	-5.3	-4.5	-4.3	-43.0	-0.6	-36.8	-24.0	-29.9	-25.7	-17.0	-26.8	-27.0	
	T25N20	-7.1	-3.5	-4.5	-11.4	-3.8	-5.4	-3.0	-0.4	-42.5	5.2	-35.5	-25.9	-26.5	-25.3	-21.7	-26.5	-29.0	
	T50N10	-7.6	-8.7	-5.1	-7.3	-11.7	-6.7	-1.2	2.1	-41.9	0.8	-40.5	-24.1	-28.5	-24.8	-18.6	-26.3	-29.5	
CN	T10N50	-11.1	-4.7	-3.3	-13.4	-18.3	-14.8	-12.8	-14.0	-45.1	-44.1	-45.4	-53.0	-53.6	-52.8	-50.0	-53.8	-54.6	
	T20N25	-7.7	-4.7	-12.8	-8.7	-18.5	-18.0	-16.1	-15.3	-46.9	-46.4	-48.1	-53.1	-55.4	-53.0	-50.5	-54.1	-58.1	
	T25N20	-7.6	-3.0	-7.1	-11.5	-17.1	-15.3	-13.2	-12.3	-49.2	-46.8	-44.8	-52.3	-53.6	-52.6	-50.0	-55.4	-54.4	
	T50N10	-3.9	-1.2	-5.1	-4.0	-12.9	-14.0	-14.7	-12.3	-47.2	-45.7	-45.0	-51.3	-55.3	-52.3	-49.4	-54.0	-53.0	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-1.0	-0.9	3.0	-3.4	-2.1	1.0	1.1	0.1	-1.5	2.8	2.1	-2.4	0.1	-0.9	-3.8	-0.6	-1.5	
	T20N25	-1.0	-0.5	-0.2	-2.1	-2.3	-4.6	-2.1	-1.7	-11.9	2.2	8.6	1.8	1.2	0.8	0.9	-2.5	0.5	
	T25N20	-5.0	-3.4	-4.8	-6.1	-6.1	-5.1	3.8	-2.7	-5.9	-0.3	4.1	-2.4	2.4	1.3	-3.0	0.7	0.7	
	T50N10	-4.4	-3.4	-7.5	-3.8	-4.8	-2.3	-3.0	-0.1	-4.2	-1.4	2.9	-1.8	-1.6	2.7	-0.2	1.0	-2.1	
LN	T10N50	-13.9	-11.1	-4.3	-14.1	0.2	-1.9	2.2	-0.6	-48.3	-3.4	-34.6	-28.3	-25.8	-28.1	-20.6	-23.5	-24.2	
	T20N25	-11.3	-3.3	-3.2	-8.4	-6.8	-5.4	-4.5	-4.4	-43.1	-0.8	-36.9	-24.2	-30.0	-25.9	-17.3	-26.8	-27.2	
	T25N20	-7.3	-3.6	-4.6	-11.6	-3.8	-5.4	-3.1	-0.5	-42.6	5.1	-35.6	-26.1	-26.7	-25.4	-21.9	-26.7	-29.2	
	T50N10	-7.7	-8.7	-5.2	-7.4	-11.7	-6.8	-1.3	2.0	-42.0	0.6	-40.5	-24.3	-28.6	-25.0	-18.8	-26.5	-29.6	
CN	T10N50	-10.8	-4.9	-3.4	-13.4	-18.2	-14.5	-12.9	-13.8	-45.3	-44.3	-45.5	-53.0	-53.7	-52.8	-50.3	-54.0	-54.7	
	T20N25	-7.7	-4.9	-12.8	-8.9	-18.4	-17.9	-16.1	-15.3	-47.2	-46.5	-48.2	-53.2	-55.5	-53.1	-50.8	-54.2	-58.2	
	T25N20	-7.8	-3.2	-7.2	-11.6	-17.1	-15.3	-13.3	-12.3	-49.4	-47.0	-44.9	-52.4	-53.7	-52.7	-50.2	-55.6	-54.6	
	T50N10	-4.1	-1.2	-5.2	-4.1	-13.0	-14.1	-14.7	-12.4	-47.4	-45.8	-45.1	-51.4	-55.4	-52.4	-49.6	-54.1	-53.1	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-1.5	-1.4	2.9	-2.9	-2.1	0.7	1.5	0.2	-1.3	2.6	2.1	-1.5	-0.9	-1.1	-3.7	0.1	-1.9	
	T20N25	-1.3	-1.0	-0.8	-2.3	-2.3	-4.6	-2.1	-1.5	-11.8	2.8	8.2	2.4	1.2	0.1	1.3	-3.1	0.4	
	T25N20	-5.3	-3.8	-5.0	-6.1	-6.1	-5.4	3.7	-2.8	-6.0	-0.5	3.6	-2.4	2.9	1.6	-2.7	1.1	0.3	
	T50N10	-4.7	-4.0	-7.8	-4.0	-4.9	-2.4	-2.8	0.0	-4.4	-1.5	2.5	-1.6	-1.3	2.3	-0.4	0.5	-1.4	
LN	T10N50	-4.4	-5.7	-0.7	-3.1	0.4	-2.2	2.0	-0.8	-13.3	-1.8	1.1	-10.0	-1.5	-7.0	-1.9	1.3	-1.5	
	T20N25	-5.2	-2.6	-2.6	-1.5	-7.0	-5.3	-5.0	-4.5	-10.8	-1.1	-3.3	-6.6	-6.9	-3.0	-1.2	-5.4	-3.5	
	T25N20	-0.9	-1.2	-3.1	-4.8	-4.1	-5.5	-3.0	-0.6	-11.8	4.4	-1.2	-9.4	-2.1	-1.5	-6.7	-2.9	-5.5	
	T50N10	-3.3	-8.1	-4.5	-3.6	-11.8	-6.5	-1.1	1.8	-10.4	-0.4	-8.7	-7.7	-7.0	-0.1	-3.5	-4.9	-6.5	
CN	T10N50	-2.3	-0.3	1.6	-4.6	-4.5	-2.4	2.1	-0.6	-2.1	-4.5	-0.3	-9.5	-3.1	-1.1	-4.7	-2.8	-7.5	
	T20N25	-2.0	-1.7	-8.3	-2.0	-5.1	-5.6	-2.1	-1.5	-5.5	-4.0	-4.0	-11.0	-1.1	-1.5	-3.7	-5.3	-12.5	
	T25N20	0.2	-0.2	-1.2	-5.9	-3.8	-1.2	0.4	0.9	-8.4	-6.0	1.3	-8.8	-1.9	0.2	-4.3	-6.3	-8.3	
	T50N10	2.0	2.0	-1.3	1.4	0.5	-0.8	-2.6	-0.2	-3.2	-4.4	1.0	-6.3	-4.3	-3.0	-2.9	-5.3	-2.4	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-2.6	-2.4	0.3	-3.4	-4.2	-0.6	0.2	-0.5	-2.0	2.1	1.3	-2.0	-1.0	-1.0	-4.7	0.6	-2.8	
	T20N25	-1.9	-2.4	-2.7	-3.5	-3.7	-6.0	-3.1	-1.1	-12.3	2.2	7.5	1.9	0.9	-0.1	1.5	-3.9	0.2	
	T25N20	-6.5	-4.2	-6.0	-7.2	-6.6	-6.4	3.3	-2.9	-6.6	-1.0	3.5	-2.1	2.5	1.1	-3.8	0.5	-0.4	
	T50N10	-5.2	-4.8	-8.8	-5.9	-6.0	-4.0	-4.5	-1.8	-5.1	-2.5	1.2	-2.7	-3.2	1.9	-2.5	-0.2	-2.3	
LN	T10N50	-7.7	-7.8	-5.0	-7.8	-2.3	-4.2	0.1	-2.0	-13.5	-3.7	0.7	-8.6	0.4	-4.7	1.7	4.0	-0.7	
	T20N25	-8.4	-5.1	-5.4	-6.2	-7.9	-7.3	-6.1	-4.6	-11.5	-3.1	-2.5	-5.0	-4.9	-1.4	1.7	-3.7	-1.4	
	T25N20	-4.9	-2.0	-5.4	-7.5	-5.2	-6.2	-3.2	-1.7	-11.6	1.6	0.2	-6.4	0.0	0.3	-4.6	-0.9	-4.1	
	T50N10	-7.5	-10.2	-6.5	-7.2	-12.6	-7.9	-3.3	-0.2	-10.3	-3.6	-8.9	-6.2	-6.1	1.4	-2.6	-2.7	-4.7	
CN	T10N50	-5.0	-1.4	-1.9	-7.2	-7.1	-5.4	-1.3	-3.1	-2.2	-3.7	-0.9	-8.6	-4.4	-2.3	-6.7	-3.9	-6.7	
	T20N25	-3.2	-4.0	-9.6	-7.2	-6.5	-7.6	-5.0	-4.0	-5.0	-3.8	-4.4	-9.4	-1.6	-2.6	-5.1	-5.4	-12.3	
	T25N20	-4.2	-1.8	-3.7	-8.9	-6.0	-3.6	-2.2	-1.7	-8.3	-6.1	1.1	-7.8	-2.3	-1.0	-4.4	-6.7	-8.2	
	T50N10	-3.0	0.0	-4.5	-3.4	-2.8	-4.7	-5.5	-3.3	-3.6	-4.3	0.9	-5.4	-4.8	-3.0	-2.6	-4.6	-3.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.17

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	-4.1	-5.4	-3.4	-9.7	-8.5	-11.0	0.4	-2.1	-4.9	-2.5	-1.1	-4.6	-0.2	-3.9	-2.7	0.9	-1.0	
	T100N1	-4.9	-6.1	-1.3	0.5	-6.7	-9.2	-3.8	-4.3	-10.8	3.1	0.3	-5.1	-4.9	-2.4	3.4	-3.7	-1.9	
	T200N1	-5.4	-1.7	-1.5	-0.5	-1.8	0.9	-2.8	1.9	4.5	1.1	2.9	-1.8	3.3	-8.6	3.7	0.0	-3.0	
	T500N1	-0.7	1.1	-0.5	-3.8	4.5	-2.5	-3.7	-1.3	-0.2	-0.2	0.1	-1.1	1.9	3.8	3.9	-4.1	3.1	
LN	T50N1	-6.5	-4.9	-9.5	-10.7	-7.7	-9.7	-8.8	-2.2	-28.9	-6.7	-22.8	-13.1	-19.0	-16.3	-15.7	-15.6	-19.9	
	T100N1	-3.2	-2.6	2.4	-0.5	-2.1	-1.7	-2.3	-4.2	-28.8	3.7	-24.1	-13.5	-19.0	-19.8	-15.2	-21.8	-22.6	
	T200N1	-1.1	-2.8	-0.9	1.4	1.0	-3.5	1.0	1.0	-22.3	3.5	-25.5	-10.0	-14.1	-19.0	-14.0	-17.9	-16.7	
	T500N1	2.7	-1.5	3.7	0.2	-12.0	-7.2	-1.1	-3.6	-41.6	0.8	-24.5	-16.1	-13.6	-14.7	-12.8	-16.1	-14.1	
CN	T50N1	-12.3	-11.2	-9.5	-9.8	-34.1	-31.9	-29.2	-28.1	-46.4	-44.7	-46.5	-49.6	-54.5	-54.2	-52.5	-50.9	-54.4	
	T100N1	-6.2	-2.8	-10.7	-6.5	-21.0	-21.0	-22.7	-19.1	-47.6	-45.8	-48.4	-51.1	-52.2	-49.4	-48.9	-51.8	-51.6	
	T200N1	-7.0	-4.8	-5.2	-4.2	-14.3	-13.3	-15.4	-16.4	-46.1	-43.9	-48.9	-50.2	-56.6	-54.4	-52.3	-55.7	-55.6	
	T500N1	-7.6	-2.4	-3.5	-0.3	-15.4	-12.5	-9.5	-14.0	-46.7	-43.5	-48.3	-49.6	-54.3	-54.2	-50.5	-54.4	-56.1	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	-5.3	-6.4	-4.4	-10.5	-9.6	-12.2	-1.0	-3.1	-6.0	-4.0	-2.2	-7.4	-2.3	-6.1	-5.5	-1.2	-2.9	
	T100N1	-5.4	-6.5	-1.8	0.3	-7.1	-9.5	-4.2	-4.7	-11.4	2.4	-0.1	-6.4	-5.9	-3.3	2.2	-4.5	-2.8	
	T200N1	-5.5	-1.9	-1.7	-0.7	-2.0	0.7	-3.0	1.8	4.3	0.8	2.6	-2.5	2.8	-8.9	3.1	-0.4	-3.3	
	T500N1	-0.8	1.0	-0.6	-3.8	4.4	-2.6	-3.8	-1.4	-0.2	-0.3	-0.1	-1.3	1.8	3.6	3.6	-4.2	3.0	
LN	T50N1	-7.9	-5.9	-10.9	-11.5	-8.6	-11.0	-9.8	-3.0	-29.9	-8.3	-23.8	-15.8	-20.7	-18.1	-18.1	-17.5	-21.5	
	T100N1	-3.6	-3.1	2.0	-1.0	-2.5	-2.1	-2.8	-4.5	-29.1	3.0	-24.5	-14.7	-19.8	-20.5	-16.3	-22.5	-23.3	
	T200N1	-1.2	-3.0	-1.0	1.3	0.8	-3.7	0.9	0.8	-22.4	3.2	-25.7	-10.6	-14.4	-19.3	-14.5	-18.2	-17.1	
	T500N1	2.6	-1.6	3.7	0.2	-12.1	-7.3	-1.1	-3.6	-41.7	0.6	-24.6	-16.3	-13.7	-14.8	-13.0	-16.2	-14.2	
CN	T50N1	-14.2	-12.7	-10.9	-11.7	-35.4	-33.5	-30.2	-29.1	-47.5	-46.0	-47.6	-51.4	-55.5	-55.4	-54.0	-52.0	-55.3	
	T100N1	-7.1	-3.5	-11.2	-7.3	-21.6	-21.6	-23.4	-19.5	-48.3	-46.5	-49.0	-52.0	-52.7	-50.0	-49.7	-52.5	-52.2	
	T200N1	-7.4	-5.0	-5.4	-4.6	-14.6	-13.5	-15.7	-16.6	-46.3	-44.2	-49.2	-50.6	-56.9	-54.7	-52.8	-56.0	-55.8	
	T500N1	-7.7	-2.5	-3.6	-0.5	-15.5	-12.6	-9.6	-14.1	-46.8	-43.7	-48.4	-49.8	-54.4	-54.2	-50.7	-54.5	-56.2	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	-5.5	-6.4	-3.6	-11.6	-8.4	-9.9	0.6	-2.2	-6.6	-3.1	-2.7	-4.1	-0.1	-4.3	-2.5	0.1	-1.7	
	T100N1	-5.9	-6.3	-1.9	-1.2	-6.6	-8.8	-4.0	-5.0	-11.4	2.0	-1.0	-5.6	-5.6	-3.5	2.9	-5.3	-2.7	
	T200N1	-6.2	-2.1	-1.5	-1.1	-1.7	0.6	-3.1	1.7	4.0	1.1	2.0	-1.5	2.8	-9.1	3.0	-1.0	-4.1	
	T500N1	-1.0	0.9	-0.8	-4.1	4.2	-2.8	-3.8	-1.3	-0.7	-0.1	-0.4	-1.3	1.3	3.5	3.5	-4.1	3.0	
LN	T50N1	-7.1	-6.0	-10.8	-11.5	-7.8	-9.0	-8.2	-1.8	-17.4	-8.9	-9.3	-4.8	-10.6	-7.0	-10.5	-7.5	-11.2	
	T100N1	-3.9	-2.9	2.5	-0.5	-3.1	-2.2	-2.4	-4.4	-13.8	1.1	-8.6	-6.5	-9.9	-8.6	-7.2	-11.7	-11.3	
	T200N1	-0.7	-3.6	-0.9	1.1	0.6	-3.4	0.9	0.5	-1.7	1.8	-4.0	-0.9	0.1	-6.1	-6.5	-5.3	-3.5	
	T500N1	3.8	-1.4	4.3	0.7	-12.0	-7.4	-1.1	-3.8	-23.7	-0.4	-2.6	-6.6	0.9	0.4	-3.0	-1.4	0.8	
CN	T50N1	-11.1	-7.5	-8.2	-9.8	-18.4	-15.3	-16.6	-14.5	-18.9	-16.1	-18.8	-23.9	-26.4	-28.0	-26.8	-20.5	-28.4	
	T100N1	-5.3	-1.6	-9.5	-6.4	-7.2	-7.4	-8.4	-7.0	-14.8	-14.2	-16.4	-17.0	-13.8	-9.5	-14.9	-15.2	-13.4	
	T200N1	-5.0	-3.8	-4.0	-2.3	-0.7	-0.8	-2.2	-4.6	-6.0	-3.6	-12.4	-9.4	-15.7	-13.3	-15.4	-13.9	-14.1	
	T500N1	-4.4	-0.2	-1.2	3.1	-3.6	-0.2	4.5	-0.9	-5.0	-0.9	-6.4	-5.2	-6.3	-6.4	-5.2	-6.3	-10.1	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	-16.9	-14.1	-12.3	-22.9	-17.0	-18.6	-8.8	-11.6	-14.8	-11.9	-11.2	-11.3	-9.4	-12.3	-11.6	-9.6	-9.0	
	T100N1	-14.0	-12.8	-8.3	-11.1	-15.1	-16.3	-11.9	-14.0	-17.1	-3.2	-6.7	-11.0	-10.8	-8.1	-4.9	-11.4	-9.4	
	T200N1	-11.9	-5.8	-6.8	-6.0	-6.6	-4.7	-9.5	-5.0	-1.2	-3.1	-1.4	-6.2	-0.3	-13.4	-0.5	-5.9	-8.3	
	T500N1	-4.6	-1.9	-3.9	-6.6	0.6	-5.8	-7.0	-4.2	-2.6	-2.6	-2.4	-3.1	-0.7	1.7	0.9	-6.4	0.0	
LN	T50N1	-18.1	-14.8	-18.4	-24.0	-16.9	-17.5	-18.2	-13.2	-23.8	-17.1	-16.2	-11.0	-17.6	-14.1	-18.3	-13.0	-17.9	
	T100N1	-12.8	-10.5	-3.6	-10.9	-11.1	-9.6	-10.0	-12.4	-18.3	-4.5	-13.1	-11.0	-13.9	-12.4	-11.1	-16.8	-15.7	
	T200N1	-9.1	-7.4	-6.2	-6.8	-5.8	-8.9	-5.0	-6.1	-5.7	-4.2	-7.1	-2.9	-1.5	-8.9	-7.6	-7.9	-6.1	
	T500N1	-1.5	-4.6	1.2	-4.7	-14.8	-10.9	-3.5	-6.4	-25.2	-3.6	-3.3	-7.0	0.6	0.0	-3.2	-1.5	-0.4	
CN	T50N1	-22.6	-16.9	-19.7	-21.1	-25.0	-22.9	-23.9	-23.2	-24.4	-21.2	-25.3	-28.8	-31.8	-33.6	-32.6	-25.8	-33.2	
	T100N1	-17.2	-10.9	-17.3	-17.2	-15.8	-15.6	-17.1	-15.2	-19.5	-18.3	-20.8	-20.5	-18.6	-14.6	-18.9	-20.2	-17.0	
	T200N1	-13.7	-8.7	-10.8	-9.5	-7.2	-6.1	-9.1	-10.9	-9.1	-6.8	-14.6	-11.0	-18.5	-14.2	-17.8	-16.2	-16.6	
	T500N1	-10.8	-4.2	-5.9	-3.4	-8.0	-4.9	-1.1	-6.2	-5.7	-2.6	-6.9	-6.0	-7.8	-8.0	-5.9	-8.0	-11.5	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.18

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T10N50	-0.3	-2.6	0.6	-6.9	4.2	3.7	2.8	4.9	1.8	2.9	-1.9	0.8	-3.1	-1.7	3.6	1.5	0.5	
	T20N25	-1.8	2.0	-0.2	0.3	-1.3	4.6	-3.2	1.1	-0.7	0.8	-0.8	0.0	-1.7	1.8	0.9	-1.1	4.4	
	T25N20	-0.8	1.6	-2.3	-3.2	1.4	-2.0	-2.3	-1.7	0.0	-1.1	-0.9	0.4	4.4	1.0	-7.1	-5.3	2.6	
	T50N10	-5.4	-3.1	-5.0	-6.7	-5.1	-3.4	-1.1	-0.1	2.2	-1.1	-2.3	-0.6	-2.9	3.1	-0.2	-2.9	0.3	
LN	T10N50	-13.8	-7.3	3.2	-10.9	0.8	2.3	1.4	3.0	-29.6	2.3	-25.6	-14.4	-15.8	-19.0	-9.1	-12.6	-13.6	
	T20N25	-3.7	2.5	-2.7	-6.8	-2.7	5.2	-2.3	-2.0	-27.4	3.1	-25.1	-14.0	-18.3	-16.2	-7.1	-20.2	-16.1	
	T25N20	-5.1	0.4	-3.0	-8.4	-7.6	-7.3	-4.9	0.6	-29.9	0.8	-23.3	-17.3	-17.7	-15.4	-15.0	-18.3	-18.8	
	T50N10	-5.5	0.1	-3.1	-3.1	-1.5	-3.8	-5.1	-2.6	-27.1	3.3	-31.1	-13.8	-17.4	-11.7	-13.4	-17.1	-18.5	
CN	T10N50	-8.7	-2.7	-3.6	-10.7	-21.0	-15.8	-13.9	-14.8	-46.5	-43.0	-47.6	-53.5	-52.7	-52.8	-50.2	-52.4	-53.8	
	T20N25	-9.7	-4.3	-9.6	-13.3	-17.3	-14.0	-16.5	-14.8	-45.0	-46.7	-46.1	-53.5	-54.6	-51.3	-50.0	-52.8	-58.2	
	T25N20	-9.4	-8.7	-10.2	-9.7	-16.1	-14.4	-13.8	-15.7	-45.7	-47.2	-45.1	-51.7	-53.2	-52.6	-49.5	-55.1	-54.3	
	T50N10	-8.8	-6.6	-4.4	-7.4	-15.5	-13.7	-13.2	-12.4	-46.9	-43.5	-46.7	-51.4	-54.7	-51.3	-49.8	-54.6	-53.5	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T10N50	-0.2	-2.7	0.6	-7.1	4.2	3.7	2.6	4.8	1.5	2.6	-2.0	0.7	-3.2	-1.7	3.2	1.3	0.3	
	T20N25	-1.9	1.8	-0.2	0.0	-1.4	4.5	-3.3	1.0	-0.8	0.6	-1.0	-0.3	-1.9	1.6	0.6	-1.2	4.2	
	T25N20	-1.0	1.5	-2.4	-3.3	1.3	-2.0	-2.4	-1.8	-0.2	-1.2	-1.0	0.2	4.2	0.9	-7.4	-5.5	2.3	
	T50N10	-5.5	-3.2	-5.0	-6.8	-5.1	-3.5	-1.2	-0.2	2.1	-1.2	-2.3	-0.9	-3.0	2.9	-0.5	-3.1	0.1	
LN	T10N50	-13.7	-7.3	3.2	-10.8	0.9	2.4	1.3	3.0	-29.7	2.1	-25.6	-14.5	-15.8	-19.0	-9.5	-12.8	-13.8	
	T20N25	-3.8	2.4	-2.7	-7.1	-2.8	5.1	-2.4	-2.2	-27.5	2.9	-25.2	-14.2	-18.5	-16.4	-7.4	-20.3	-16.3	
	T25N20	-5.2	0.4	-3.1	-8.5	-7.6	-7.3	-5.1	0.5	-30.0	0.7	-23.4	-17.5	-17.9	-15.5	-15.2	-18.6	-19.0	
	T50N10	-5.5	0.1	-3.1	-3.2	-1.6	-3.9	-5.2	-2.6	-27.2	3.2	-31.2	-14.0	-17.5	-11.9	-13.7	-17.3	-18.6	
CN	T10N50	-8.4	-2.8	-3.8	-10.5	-20.8	-15.5	-13.8	-14.6	-46.6	-43.2	-47.6	-53.5	-52.8	-52.8	-50.5	-52.6	-53.8	
	T20N25	-9.7	-4.6	-9.7	-13.5	-17.2	-13.9	-16.5	-14.8	-45.3	-46.9	-46.3	-53.5	-54.7	-51.4	-50.3	-52.9	-58.2	
	T25N20	-9.6	-8.8	-10.3	-9.8	-16.0	-14.4	-13.9	-15.7	-45.9	-47.4	-45.2	-51.9	-53.3	-52.7	-49.7	-55.2	-54.4	
	T50N10	-8.9	-6.7	-4.5	-7.5	-15.6	-13.8	-13.3	-12.5	-47.0	-43.7	-46.8	-51.6	-54.8	-51.3	-50.0	-54.7	-53.7	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T10N50	-1.0	-3.1	0.5	-6.4	4.2	3.3	2.8	4.6	2.0	3.1	-2.1	1.8	-4.0	-1.6	3.4	1.9	-0.1	
	T20N25	-1.9	1.3	-0.8	-0.1	-1.2	4.4	-3.6	1.2	-0.9	1.1	-1.2	0.3	-1.9	0.9	1.1	-1.8	4.0	
	T25N20	-1.1	1.2	-2.5	-3.6	1.4	-2.0	-2.2	-1.8	-0.3	-1.4	-1.3	0.1	4.4	1.1	-6.8	-5.1	2.0	
	T50N10	-5.7	-3.8	-5.3	-7.1	-5.4	-3.3	-1.3	-0.1	1.7	-1.0	-2.6	-0.6	-3.0	2.3	-0.7	-3.6	0.6	
LN	T10N50	-8.1	-4.1	5.9	-3.4	1.3	2.5	1.1	2.7	-2.7	2.7	-1.4	-1.6	-0.9	-5.8	2.0	3.2	-0.1	
	T20N25	-0.2	3.0	-2.7	-2.6	-2.8	5.2	-2.8	-2.1	-3.3	2.7	-2.6	-2.7	-3.8	-2.8	2.7	-7.7	-1.4	
	T25N20	-1.5	1.6	-2.6	-4.5	-7.8	-7.4	-4.8	0.7	-7.1	0.0	0.4	-7.1	-2.2	-0.8	-6.1	-3.8	-4.4	
	T50N10	-3.4	0.5	-2.9	-1.1	-2.1	-3.9	-4.8	-2.8	-4.8	2.2	-10.1	-4.1	-3.9	3.2	-4.6	-3.8	-3.6	
CN	T10N50	0.0	2.4	1.0	-2.6	-7.9	-3.7	1.0	-1.7	-4.5	-2.6	-4.9	-10.8	-0.9	-0.9	-5.1	-0.8	-5.8	
	T20N25	-3.4	-1.4	-4.9	-6.6	-2.8	0.3	-2.0	-0.3	-1.5	-4.2	-0.3	-11.6	0.9	3.0	-2.8	-2.9	-11.9	
	T25N20	-1.7	-6.4	-5.2	-4.9	-2.7	0.1	0.0	-3.4	-1.7	-6.3	0.9	-7.7	-1.2	0.5	-2.9	-6.0	-7.4	
	T50N10	-2.0	-3.5	0.1	-1.7	-1.8	-0.8	-1.1	0.1	-1.8	-0.2	-1.7	-6.8	-3.6	-0.9	-3.1	-5.8	-4.8	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T10N50	-2.1	-3.6	-2.3	-6.7	2.6	1.5	1.6	4.5	1.4	3.0	-2.5	0.8	-4.2	-1.8	2.7	2.4	-1.4	
	T20N25	-3.0	-0.2	-2.8	-1.1	-2.3	3.4	-4.1	1.7	-1.9	0.7	-2.0	-0.2	-2.7	0.5	1.1	-2.8	3.9	
	T25N20	-2.4	0.6	-3.3	-5.1	0.6	-2.8	-2.7	-2.1	-0.8	-2.0	-1.7	-0.1	4.0	0.3	-8.0	-5.4	0.9	
	T50N10	-6.7	-5.1	-6.1	-8.1	-6.3	-4.4	-2.9	-1.4	1.0	-2.5	-3.8	-1.6	-4.5	2.0	-2.7	-4.0	-0.1	
LN	T10N50	-9.6	-5.1	2.6	-6.1	-1.0	0.6	-0.5	1.9	-3.4	1.3	-1.8	-1.0	0.4	-4.4	4.7	5.5	-0.1	
	T20N25	-3.0	0.9	-5.2	-5.5	-4.2	3.7	-4.3	-2.4	-4.0	1.3	-2.4	-2.2	-2.6	-1.7	4.4	-6.5	0.2	
	T25N20	-4.6	1.0	-4.7	-6.5	-8.5	-8.2	-4.8	-0.1	-7.1	-1.6	0.9	-5.1	-0.5	0.3	-5.0	-2.6	-3.7	
	T50N10	-5.9	-0.9	-4.5	-3.6	-3.5	-5.0	-6.4	-4.3	-4.9	-0.1	-10.2	-3.5	-4.0	4.4	-4.7	-2.3	-2.5	
CN	T10N50	-2.2	0.9	-2.2	-5.3	-10.4	-6.7	-2.7	-4.6	-4.9	-2.0	-5.6	-10.0	-1.9	-2.1	-7.3	-1.8	-4.9	
	T20N25	-5.1	-3.2	-6.9	-11.1	-4.9	-2.0	-5.5	-3.6	-1.0	-4.0	-0.7	-10.2	0.0	2.0	-4.0	-3.2	-11.8	
	T25N20	-5.9	-8.3	-7.7	-7.5	-4.6	-2.9	-3.0	-5.6	-1.4	-6.4	0.6	-6.5	-1.5	-0.9	-2.9	-6.5	-7.4	
	T50N10	-7.3	-5.4	-3.8	-6.1	-4.5	-3.5	-4.9	-2.9	-1.6	-0.7	-2.2	-6.0	-4.5	-0.6	-3.0	-5.2	-5.6	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $r\text{bias}_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.19

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-10.1	-4.7	-9.1	-9.1	-16.7	-11.2	-12.9	-5.5	-6.8	-1.4	-12.8	-9.6	-6.5	-5.1	-9.3	-7.1	-5.9	
	T100N1	-6.6	-5.6	-2.9	-1.9	-5.1	-10.6	-8.6	-8.5	-6.7	1.2	-0.6	-6.8	-4.4	-5.6	-0.8	-5.6	-2.3	
	T200N1	-0.6	-3.0	-3.3	-3.0	0.1	-2.4	-3.0	-4.0	-3.9	-0.5	-0.9	0.4	3.6	-6.2	1.4	3.0	-4.9	
	T500N1	-2.4	2.9	1.1	0.2	0.7	-3.2	-2.1	-0.9	-1.5	-5.6	-0.6	-1.6	1.9	8.0	-0.3	-3.7	2.2	
LN	T50N1	-14.9	-16.5	-27.4	-16.0	-34.6	-24.9	-19.4	-13.5	-35.7	-9.9	-36.3	-69.4	-64.4	-61.3	-64.5	-74.4	-70.5	
	T100N1	-6.0	-8.8	-10.6	-9.9	-20.1	-12.1	-26.5	-32.2	-29.0	-2.9	-32.7	-69.9	-71.4	-73.2	-72.9	-71.4	-77.2	
	T200N1	-8.9	-6.2	-4.5	-5.8	-2.8	-3.0	-6.5	-6.4	-34.1	-3.3	-34.5	-70.0	-76.7	-75.6	-77.5	-75.3	-74.2	
	T500N1	-1.5	1.6	-1.1	-1.5	4.6	-1.0	-5.7	-5.5	-34.6	3.8	-30.8	-73.0	-73.9	-74.9	-70.4	-71.8	-73.2	
CN	T50N1	-24.3	-21.5	-33.4	-20.6	-47.8	-47.9	-43.3	-38.0	-38.8	-39.5	-35.0	-47.3	-48.7	-48.3	-46.8	-53.5	-50.6	
	T100N1	-20.3	-21.8	-24.0	-24.4	-32.0	-28.2	-40.0	-37.8	-36.8	-37.4	-38.7	-48.1	-52.7	-50.9	-51.7	-51.5	-50.9	
	T200N1	-20.2	-12.7	-16.4	-18.2	-25.9	-23.7	-27.4	-25.4	-36.8	-37.4	-39.0	-50.2	-55.8	-55.1	-52.2	-54.4	-54.5	
	T500N1	-16.6	-14.8	-9.4	-13.8	-21.7	-14.8	-16.9	-16.6	-34.4	-35.6	-37.2	-50.6	-56.4	-54.6	-51.7	-55.2	-55.7	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-16.1	-11.0	-16.0	-14.3	-22.1	-17.0	-18.0	-10.4	-13.9	-7.1	-18.0	-15.5	-10.8	-9.1	-14.4	-10.5	-9.3	
	T100N1	-9.2	-8.3	-5.8	-5.3	-7.7	-12.5	-11.1	-10.9	-9.7	-1.9	-3.9	-9.5	-6.0	-7.1	-3.4	-7.5	-4.1	
	T200N1	-1.4	-4.0	-4.3	-3.8	-0.9	-3.4	-3.8	-4.9	-4.8	-1.6	-1.8	-0.8	2.9	-6.8	0.4	2.3	-5.5	
	T500N1	-2.6	2.6	0.8	0.0	0.3	-3.5	-2.4	-1.2	-1.9	-6.0	-1.0	-2.0	1.6	7.8	-0.7	-3.9	2.0	
LN	T50N1	-20.3	-21.4	-33.5	-20.5	-37.4	-29.2	-23.3	-17.6	-39.5	-14.4	-40.1	-70.9	-65.7	-63.0	-66.3	-75.2	-71.6	
	T100N1	-8.9	-11.5	-13.7	-12.4	-22.0	-13.8	-28.3	-33.8	-31.3	-5.3	-34.4	-70.6	-71.9	-73.7	-73.4	-71.9	-77.5	
	T200N1	-9.5	-7.3	-5.4	-6.8	-3.8	-3.5	-7.2	-7.2	-34.8	-4.4	-35.2	-70.3	-76.9	-75.8	-77.7	-75.5	-74.4	
	T500N1	-1.8	1.2	-1.4	-1.8	4.4	-1.3	-6.0	-5.8	-34.8	3.4	-31.0	-73.1	-73.9	-74.9	-70.6	-71.9	-73.3	
CN	T50N1	-30.3	-27.3	-39.1	-26.4	-51.3	-52.7	-48.3	-43.5	-43.6	-44.0	-40.2	-51.2	-51.3	-51.1	-50.9	-55.9	-53.1	
	T100N1	-25.7	-25.2	-27.3	-28.1	-35.8	-31.5	-43.2	-41.8	-41.5	-41.1	-41.8	-51.2	-54.6	-52.6	-53.9	-53.0	-52.7	
	T200N1	-21.9	-14.1	-17.8	-20.1	-27.6	-25.3	-29.2	-27.1	-37.7	-39.1	-40.7	-51.3	-56.5	-55.7	-53.4	-55.0	-55.2	
	T500N1	-17.5	-15.3	-10.0	-14.6	-22.3	-15.4	-17.5	-17.3	-35.2	-36.4	-37.9	-51.0	-56.7	-54.9	-52.2	-55.4	-55.9	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	12.1	18.4	13.4	9.7	-0.5	5.3	1.5	7.9	15.1	14.6	2.4	5.6	3.0	2.6	1.9	-1.3	2.3	
	T100N1	-1.2	0.5	3.5	6.0	0.4	-6.5	-2.9	-2.2	-0.8	7.3	6.3	-3.2	-3.5	-4.4	3.3	-3.1	-0.4	
	T200N1	0.7	-1.0	-1.2	-1.5	2.5	-0.2	-1.1	-2.3	-2.1	0.9	0.7	1.5	4.0	-6.1	2.0	3.0	-5.0	
	T500N1	-2.0	3.6	1.9	0.4	1.2	-2.6	-1.5	-0.4	-1.0	-5.1	0.1	-1.2	1.6	8.1	0.1	-3.7	2.2	
LN	T50N1	3.8	-1.8	-9.0	2.6	-26.5	-12.0	-5.2	-1.5	-13.8	0.1	-15.6	-42.3	-30.7	-27.5	-35.2	-46.9	-41.1	
	T100N1	6.8	0.0	-0.3	2.3	-13.6	-7.3	-22.9	-27.7	-9.1	0.1	-12.8	-37.2	-37.0	-36.7	-41.2	-34.2	-45.8	
	T200N1	0.4	-0.2	1.9	3.4	2.1	0.0	-3.5	-2.5	-14.0	1.0	-13.7	-32.7	-36.3	-35.0	-48.0	-36.9	-31.5	
	T500N1	10.1	8.4	6.2	9.9	8.3	4.1	-0.1	-0.7	-12.3	8.3	-8.3	-29.4	-24.4	-24.0	-24.5	-17.4	-21.5	
CN	T50N1	-1.3	4.8	-6.2	0.0	-13.9	-11.1	-9.7	3.5	-1.8	-0.8	0.9	-16.7	-15.6	-19.4	-16.2	-26.4	-21.9	
	T100N1	5.3	-1.2	-1.8	-6.0	-0.3	1.1	-8.5	-1.8	3.7	1.1	-5.1	-11.4	-16.1	-12.7	-18.4	-16.0	-14.8	
	T200N1	-7.2	0.2	-3.4	-4.8	-3.7	-2.9	-4.8	-3.4	-3.9	-2.2	-8.5	-10.8	-16.0	-15.3	-16.3	-13.1	-12.9	
	T500N1	-4.7	-4.6	2.0	-1.4	-4.8	4.6	1.4	2.1	-2.8	-0.3	-6.0	-7.9	-11.4	-8.3	-8.1	-8.9	-10.1	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	3.5	12.3	7.1	1.6	-5.7	-3.2	-5.3	-1.9	8.5	6.6	-4.9	-0.2	-4.3	-6.3	-6.0	-7.1	-5.6	
	T100N1	-8.5	-5.5	-1.9	-0.8	-7.4	-14.4	-9.1	-8.5	-6.7	2.9	-0.4	-10.1	-8.9	-8.7	-3.4	-8.8	-7.2	
	T200N1	-4.2	-4.8	-5.7	-6.1	-3.2	-5.3	-7.5	-8.4	-5.4	-2.1	-2.7	-2.7	1.2	-9.6	-2.0	-1.9	-8.8	
	T500N1	-6.1	1.8	-1.6	-1.5	-3.1	-6.0	-4.7	-4.0	-4.0	-7.7	-2.3	-3.8	-0.4	5.7	-2.4	-5.9	-0.9	
LN	T50N1	-6.4	-9.4	-18.0	-10.1	-30.2	-16.3	-13.5	-4.9	-18.5	-8.6	-19.4	-43.9	-34.5	-30.8	-37.6	-49.1	-43.3	
	T100N1	-6.1	-8.9	-8.3	-11.0	-19.0	-13.0	-28.3	-33.7	-11.2	-9.2	-15.6	-37.3	-37.9	-37.6	-41.2	-35.5	-46.9	
	T200N1	-11.8	-7.3	-6.0	-9.0	-5.7	-7.1	-11.1	-9.7	-14.6	-7.8	-14.5	-31.3	-35.8	-34.7	-46.1	-36.7	-30.7	
	T500N1	-6.2	-0.8	-3.7	-4.7	0.5	-4.1	-7.9	-8.5	-12.2	-3.0	-8.4	-25.4	-22.7	-22.0	-19.8	-14.8	-19.1	
CN	T50N1	-9.0	0.1	-11.1	-5.5	-19.3	-19.8	-16.0	-1.5	-9.5	-7.0	-5.1	-23.0	-22.4	-25.8	-21.4	-31.9	-26.9	
	T100N1	-0.1	-5.1	-7.5	-8.6	-7.4	-5.5	-15.3	-8.1	-0.7	-2.7	-8.5	-14.1	-20.3	-16.5	-22.4	-19.9	-17.9	
	T200N1	-10.3	-2.6	-6.1	-8.2	-11.4	-11.1	-10.3	-9.5	-6.0	-4.9	-9.2	-11.8	-18.0	-16.4	-17.7	-14.9	-14.5	
	T500N1	-6.4	-6.0	0.5	-3.7	-10.8	-1.5	-4.7	-4.0	-2.9	-1.6	-6.4	-6.7	-11.6	-8.9	-7.0	-9.5	-10.5	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.20

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T10N50	-1.4	-2.3	1.8	-1.7	0.8	4.2	-0.7	-1.0	-8.6	0.7	0.2	-1.3	-2.0	0.3	-0.7	1.4	2.2	
	T20N25	-5.7	0.3	-1.6	-1.1	-4.2	0.1	0.8	-6.1	-1.9	-6.9	-1.2	-11.5	-8.0	2.3	-0.9	0.4	1.0	
	T25N20	-6.6	0.2	-0.8	-1.4	-2.7	-1.1	1.2	-2.2	-7.0	-1.3	3.2	-1.6	0.3	1.8	0.9	0.7	-1.2	
	T50N10	-5.4	0.0	-5.1	-3.0	-1.7	-0.2	0.7	2.2	-5.8	3.9	0.4	-0.1	-0.8	1.7	3.0	-2.7	-0.6	
LN	T10N50	-13.0	-7.4	-4.4	-9.8	-4.1	-7.4	-0.7	-1.8	-40.8	0.4	-28.7	-74.1	-73.3	-72.2	-70.1	-69.3	-78.3	
	T20N25	-6.5	-8.1	-3.5	-7.9	-0.8	-4.5	-1.4	-2.5	-36.4	2.7	-35.1	-71.7	-74.5	-73.7	-63.2	-69.6	-74.0	
	T25N20	-5.2	-1.7	-1.2	-4.5	-4.7	-3.2	-2.0	-3.0	-31.5	4.4	-30.5	-73.1	-72.9	-74.9	-65.9	-74.1	-77.3	
	T50N10	-5.3	-6.8	-3.7	-3.5	-6.3	-4.7	-3.4	0.1	-38.3	0.3	-31.6	-71.9	-74.1	-73.8	-68.4	-71.4	-75.0	
CN	T10N50	-18.2	-13.4	-13.0	-14.7	-19.3	-16.5	-18.8	-17.2	-38.3	-37.9	-35.1	-52.0	-52.2	-52.0	-48.5	-51.6	-53.2	
	T20N25	-18.8	-16.0	-17.5	-19.6	-16.3	-17.9	-23.6	-22.0	-37.4	-38.6	-35.9	-50.7	-54.7	-52.4	-50.1	-53.5	-58.0	
	T25N20	-18.7	-10.3	-16.5	-14.0	-16.2	-17.2	-18.8	-17.9	-34.8	-32.7	-34.7	-51.2	-54.3	-52.5	-50.6	-55.0	-53.8	
	T50N10	-16.3	-15.6	-12.5	-15.3	-19.8	-21.7	-15.0	-17.3	-37.1	-36.7	-35.0	-51.3	-54.9	-51.7	-49.8	-53.5	-54.9	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T10N50	-1.8	-2.7	1.7	-2.2	0.6	4.4	-1.1	-1.2	-9.8	-0.1	-0.3	-1.7	-2.2	0.1	-1.2	1.1	1.7	
	T20N25	-6.3	-0.7	-2.1	-2.2	-4.5	-0.3	0.4	-6.5	-2.5	-7.6	-2.2	-11.9	-8.4	1.9	-1.5	0.1	0.6	
	T25N20	-7.2	-0.3	-1.3	-1.6	-3.0	-1.3	0.7	-2.7	-7.7	-1.7	2.7	-2.1	0.0	1.5	0.4	0.2	-1.7	
	T50N10	-5.9	-0.3	-5.7	-3.3	-2.0	-0.7	0.2	1.8	-6.3	3.5	0.3	-0.6	-1.1	1.3	2.6	-3.1	-0.8	
LN	T10N50	-13.1	-7.5	-4.4	-9.7	-4.1	-7.2	-0.8	-1.6	-41.0	0.0	-28.9	-74.2	-73.4	-72.3	-70.3	-69.4	-78.3	
	T20N25	-7.0	-8.5	-3.9	-8.1	-1.1	-4.8	-1.4	-2.9	-36.7	2.3	-35.3	-71.8	-74.6	-73.7	-63.3	-69.7	-74.1	
	T25N20	-5.5	-2.0	-1.6	-4.7	-4.9	-3.3	-2.4	-3.1	-31.8	4.1	-30.7	-73.2	-73.0	-75.0	-66.1	-74.3	-77.3	
	T50N10	-5.7	-7.2	-4.2	-3.9	-6.6	-5.1	-3.8	-0.1	-38.5	-0.1	-31.8	-72.0	-74.2	-73.9	-68.5	-71.5	-75.1	
CN	T10N50	-18.9	-14.2	-13.3	-15.8	-19.7	-16.4	-19.5	-17.6	-39.5	-39.0	-35.9	-52.3	-52.5	-52.2	-49.1	-51.9	-53.5	
	T20N25	-19.5	-16.9	-17.9	-20.9	-16.7	-18.4	-24.2	-22.7	-38.4	-39.5	-36.9	-51.2	-55.1	-52.8	-50.6	-53.7	-58.3	
	T25N20	-19.4	-10.9	-16.9	-14.8	-16.6	-17.7	-19.6	-18.5	-35.6	-33.4	-35.1	-51.7	-54.6	-52.7	-51.0	-55.4	-54.1	
	T50N10	-16.8	-16.1	-13.0	-15.9	-20.6	-22.4	-15.7	-18.2	-37.6	-37.3	-35.5	-51.7	-55.2	-52.0	-50.2	-53.8	-55.2	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T10N50	-0.7	-1.6	2.3	-0.5	1.4	4.0	0.1	-0.8	-7.3	1.9	1.1	-0.1	-2.0	0.3	0.3	1.7	1.9	
	T20N25	-5.2	1.5	-0.9	0.4	-3.6	0.9	1.4	-5.1	-1.2	-6.0	0.1	-10.7	-7.9	1.7	0.0	-0.3	1.0	
	T25N20	-5.9	1.0	0.1	-1.1	-2.1	-0.6	1.9	-1.2	-6.1	-1.0	3.5	-0.8	0.8	2.2	1.5	0.9	-1.7	
	T50N10	-5.1	0.4	-4.4	-2.5	-1.2	0.6	1.3	3.0	-5.2	4.5	0.5	0.5	-0.7	1.1	2.9	-3.1	0.0	
LN	T10N50	3.7	4.4	5.3	7.3	2.4	-2.5	4.0	-0.1	-13.2	7.1	-4.7	-25.3	-21.3	-22.0	-19.1	-13.4	-32.3	
	T20N25	6.9	-0.7	4.6	6.1	3.9	1.1	2.8	2.2	-13.5	8.6	-12.3	-24.0	-23.2	-24.7	-14.6	-18.7	-24.2	
	T25N20	7.6	5.4	5.9	8.3	-1.7	1.0	1.7	0.4	-8.6	10.5	-6.5	-28.7	-20.2	-26.9	-19.9	-22.8	-29.8	
	T50N10	6.9	0.7	2.8	8.2	-1.7	0.3	-0.5	3.4	-17.4	5.5	-8.6	-25.4	-26.1	-21.8	-25.8	-20.8	-23.3	
CN	T10N50	-3.3	-0.6	-0.1	0.3	2.0	2.0	3.7	2.9	-6.5	-4.3	-0.7	-8.9	-1.7	0.4	-3.9	-0.7	-5.7	
	T20N25	-5.6	-3.9	-4.8	-4.4	5.1	2.5	-2.9	-1.2	-5.7	-3.5	-2.4	-8.8	-1.5	-1.5	-4.4	-3.9	-12.6	
	T25N20	-5.4	0.5	-4.6	-1.1	3.2	4.1	1.5	0.8	-2.2	4.7	-2.8	-8.0	-3.8	-0.9	-7.5	-6.1	-7.8	
	T50N10	-3.3	-4.2	-0.9	-2.4	0.3	-3.3	3.2	1.5	-6.2	-1.7	-1.9	-7.1	-5.7	-2.9	-4.9	-5.7	-7.0	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T10N50	-0.9	-2.6	0.8	-1.1	0.2	2.4	-1.5	-1.5	-7.9	0.4	0.7	-0.9	-2.5	1.1	-0.5	2.0	1.0	
	T20N25	-5.3	0.7	-2.0	-0.7	-5.0	0.2	0.7	-5.0	-2.2	-6.5	-0.6	-10.7	-7.8	1.7	0.0	-0.6	1.0	
	T25N20	-6.5	0.3	-0.6	-2.5	-2.7	-1.2	1.8	-2.0	-6.4	-1.4	2.6	-0.7	0.4	1.8	0.6	0.8	-2.3	
	T50N10	-5.5	-0.1	-4.7	-3.6	-2.3	-0.5	-0.5	1.0	-5.8	3.6	-0.9	0.1	-2.3	0.7	0.9	-3.6	-0.6	
LN	T10N50	-6.1	-2.9	-3.1	-4.2	-5.1	-7.8	-1.5	-3.5	-12.1	-0.3	-3.6	-21.5	-18.2	-17.8	-13.5	-9.2	-29.9	
	T20N25	-3.9	-7.7	-3.9	-5.6	-0.6	-4.3	-2.2	-1.6	-12.4	0.9	-10.5	-19.5	-20.1	-21.6	-8.3	-14.9	-21.3	
	T25N20	-3.4	0.0	-1.2	-1.6	-5.6	-3.3	-1.4	-3.5	-6.6	2.3	-4.0	-23.7	-16.7	-23.8	-14.2	-19.6	-27.3	
	T50N10	-6.3	-7.2	-4.8	-5.4	-6.9	-5.3	-4.7	-2.1	-16.1	-3.0	-7.0	-20.6	-23.1	-19.1	-21.3	-17.1	-19.9	
CN	T10N50	-1.8	-0.5	-0.4	1.4	-2.1	-2.7	-2.3	-2.1	-5.5	-3.4	-0.9	-6.7	-2.1	-0.1	-3.9	-0.9	-3.9	
	T20N25	-3.3	-3.6	-4.4	-4.1	1.3	-1.0	-8.6	-6.2	-4.1	-3.1	-1.8	-5.6	-1.7	-1.4	-3.6	-3.2	-11.4	
	T25N20	-4.5	0.8	-5.3	-0.3	-0.3	0.2	-2.8	-3.9	-0.3	5.0	-1.5	-5.3	-3.3	-0.7	-6.0	-5.4	-7.0	
	T50N10	-4.5	-4.7	-1.6	-1.9	-4.7	-8.2	-1.2	-2.9	-5.1	-1.4	-0.7	-4.9	-5.5	-1.9	-3.3	-4.7	-6.6	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.21

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	-11.0	-16.6	-8.0	-6.3	-21.6	-18.4	-24.6	-13.4	-1.5	-2.7	-6.5	-1.5	-4.5	-2.9	-7.2	-4.9	-5.9
	T100N1	-8.6	-12.8	-7.9	-7.4	-7.9	-7.3	-7.2	-11.3	-6.3	-1.3	-7.4	-5.6	-2.7	-3.8	-2.7	-7.4	-7.0
	T200N1	-5.1	-5.5	-5.2	-3.9	0.3	-3.5	-1.9	-4.5	-0.4	-4.4	-1.2	-5.3	1.0	-6.4	2.0	3.2	-0.1
	T500N1	2.5	0.6	-2.5	0.4	-4.4	-2.1	-5.1	2.2	-9.3	0.1	3.3	-2.0	-0.1	5.4	1.0	-4.5	1.9
LN	T50N1	-10.3	-8.0	-13.6	-11.8	-11.8	-15.1	-27.2	-8.1	-31.6	-8.7	-19.3	-58.4	-61.7	-61.4	-50.8	-56.3	-61.9
	T100N1	-8.9	-11.2	-9.8	-6.5	-10.3	-6.1	-5.3	-14.1	-23.9	-3.8	-15.8	-54.2	-59.6	-61.0	-61.9	-60.4	-61.5
	T200N1	-5.8	-5.1	-6.3	-4.0	-0.5	-7.4	-1.9	-1.5	-19.0	1.8	-14.3	-51.8	-63.3	-62.4	-56.9	-61.3	-61.2
	T500N1	-2.3	-1.0	-0.5	0.8	-1.9	-1.5	1.0	-2.9	-16.7	-0.6	-17.0	-58.8	-60.3	-60.8	-56.2	-58.8	-59.6
CN	T50N1	-25.8	-24.5	-35.6	-19.0	-38.5	-31.7	-36.8	-42.8	-45.3	-43.0	-36.9	-43.4	-49.3	-54.0	-47.6	-51.8	-47.7
	T100N1	-17.8	-19.7	-23.6	-25.5	-34.3	-27.7	-38.6	-41.4	-41.0	-36.8	-38.1	-49.4	-50.5	-51.0	-51.3	-52.3	-53.0
	T200N1	-17.2	-19.7	-17.9	-18.5	-20.8	-18.6	-24.2	-23.3	-38.1	-35.9	-36.9	-49.2	-55.9	-53.9	-52.3	-54.7	-53.5
	T500N1	-11.8	-16.0	-11.8	-16.6	-13.0	-19.3	-18.9	-18.1	-35.3	-35.4	-35.3	-50.7	-56.0	-55.1	-51.7	-55.6	-55.8
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	-16.5	-22.0	-13.6	-11.2	-26.1	-23.3	-29.0	-18.9	-9.5	-8.2	-10.9	-8.9	-8.4	-7.0	-11.8	-8.8	-9.8
	T100N1	-11.0	-15.1	-10.6	-10.2	-10.1	-9.2	-9.5	-13.5	-9.3	-4.0	-10.6	-8.1	-4.2	-5.2	-5.4	-9.1	-8.7
	T200N1	-5.8	-6.5	-6.3	-4.9	-0.7	-4.4	-2.7	-5.3	-1.4	-5.4	-2.3	-6.3	0.4	-7.0	1.0	2.5	-0.7
	T500N1	2.3	0.3	-2.7	0.2	-4.7	-2.4	-5.4	1.9	-9.6	-0.2	3.0	-2.3	-0.4	5.2	0.6	-4.7	1.6
LN	T50N1	-16.8	-14.3	-19.6	-16.5	-17.4	-21.3	-32.0	-12.9	-36.0	-13.7	-23.9	-60.9	-63.1	-63.0	-53.3	-58.2	-63.3
	T100N1	-11.2	-13.5	-12.0	-8.6	-12.3	-8.1	-6.8	-16.0	-25.9	-6.3	-17.9	-55.3	-60.2	-61.5	-62.7	-61.0	-62.1
	T200N1	-6.2	-6.0	-7.0	-4.9	-1.4	-8.2	-2.8	-2.2	-19.6	0.8	-15.3	-52.3	-63.5	-62.6	-57.3	-61.5	-61.4
	T500N1	-2.5	-1.4	-0.8	0.6	-2.1	-1.7	0.7	-3.2	-17.0	-0.9	-17.3	-58.9	-60.4	-60.9	-56.3	-58.9	-59.7
CN	T50N1	-31.1	-30.6	-40.2	-25.6	-44.2	-39.3	-40.5	-47.0	-49.4	-47.4	-42.2	-47.6	-52.0	-56.6	-51.9	-54.4	-50.3
	T100N1	-22.3	-22.4	-26.9	-28.6	-37.7	-31.7	-41.4	-44.3	-44.9	-40.4	-41.1	-52.0	-52.1	-52.6	-53.4	-53.7	-54.4
	T200N1	-19.2	-21.1	-19.4	-20.5	-22.7	-20.4	-26.3	-25.0	-39.9	-37.6	-38.5	-50.5	-56.5	-54.6	-53.5	-55.4	-54.2
	T500N1	-12.5	-16.6	-12.3	-17.3	-13.7	-19.8	-19.6	-18.7	-36.1	-36.2	-36.0	-51.1	-56.3	-55.3	-52.1	-55.8	-56.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																		
N	T50N1	5.7	-1.5	7.3	7.8	-9.1	-3.1	-12.6	3.6	23.2	9.5	5.6	18.0	4.4	5.0	1.9	1.2	2.9
	T100N1	-2.0	-6.9	-1.3	0.1	-3.0	-2.9	-1.2	-5.5	0.1	4.1	-0.5	-1.4	-1.9	-2.8	2.1	-6.2	-4.8
	T200N1	-3.8	-3.5	-2.9	-2.6	2.3	-1.7	-0.1	-3.0	1.3	-2.8	0.8	-4.6	1.2	-6.1	2.4	2.9	-0.3
	T500N1	2.6	1.1	-1.9	0.6	-4.0	-1.7	-4.5	2.8	-8.7	0.7	3.9	-1.8	-0.4	5.4	1.4	-4.5	2.0
LN	T50N1	11.8	12.3	4.5	5.3	8.5	7.4	-12.7	7.3	-12.0	2.1	1.5	-30.8	-35.3	-33.7	-23.3	-27.7	-33.2
	T100N1	-0.4	-4.0	-3.0	1.4	-3.7	0.2	-0.3	-8.1	-11.4	-0.7	-2.2	-24.1	-28.0	-27.0	-33.8	-26.7	-28.4
	T200N1	0.0	-0.7	-2.4	2.7	2.6	-5.1	1.5	1.5	-5.9	4.8	-0.2	-16.0	-23.6	-23.6	-23.6	-23.6	-21.7
	T500N1	3.6	2.7	3.3	6.9	0.4	1.1	4.6	0.4	-4.1	1.7	-3.8	-20.4	-14.8	-13.1	-15.5	-10.8	-12.3
CN	T50N1	-3.7	5.5	-9.3	5.5	6.6	22.1	-0.7	-7.4	-15.1	-8.3	2.6	-11.1	-15.4	-22.9	-14.3	-21.5	-18.1
	T100N1	3.9	1.6	-0.8	-8.4	-2.3	8.7	-7.8	-12.4	-6.4	1.1	-3.1	-13.3	-12.4	-13.1	-18.1	-17.3	-18.0
	T200N1	-3.2	-7.3	-5.1	-4.9	2.9	4.3	-0.4	-1.1	-6.4	0.4	-5.9	-9.5	-16.6	-14.7	-16.3	-13.4	-11.8
	T500N1	1.1	-5.5	-1.1	-4.4	6.1	-2.1	-0.7	0.1	-3.4	0.9	-2.8	-8.0	-10.3	-9.3	-8.2	-9.5	-10.8
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	-3.2	-8.9	0.4	-2.6	-17.4	-9.5	-18.5	-4.4	11.3	2.4	-2.8	7.8	-6.5	-4.3	-7.5	-7.8	-6.8
	T100N1	-9.5	-12.5	-5.5	-6.7	-11.3	-10.7	-7.6	-12.6	-5.1	-1.6	-6.9	-7.6	-7.2	-8.0	-3.7	-11.6	-10.3
	T200N1	-9.0	-6.6	-6.5	-5.8	-4.0	-6.8	-5.5	-8.4	-2.9	-5.3	-2.6	-8.8	-1.8	-10.0	-2.2	-0.8	-4.0
	T500N1	-0.5	-1.2	-4.5	-2.4	-7.6	-5.4	-8.0	-0.6	-10.4	-1.1	1.0	-3.5	-2.2	3.4	-1.8	-7.5	-0.4
LN	T50N1	-0.8	4.0	-4.0	-6.4	-1.4	-1.0	-20.3	-1.4	-18.4	-7.0	-5.5	-35.0	-39.2	-36.3	-28.8	-31.2	-36.0
	T100N1	-9.9	-11.1	-10.1	-7.7	-10.6	-7.4	-6.4	-14.8	-8.0	-6.4	-8.0	-24.7	-30.0	-28.0	-34.0	-27.8	-29.8
	T200N1	-10.0	-7.0	-9.5	-6.6	-3.5	-11.4	-6.0	-6.0	-7.7	-2.1	-2.2	-14.3	-22.8	-23.3	-21.5	-23.3	-21.1
	T500N1	-5.0	-2.5	-2.5	-1.8	-5.3	-4.3	-2.0	-5.5	-4.6	-4.7	-4.6	-16.5	-12.9	-11.1	-11.4	-8.2	-10.3
CN	T50N1	-11.6	-1.7	-15.7	-2.3	-2.3	12.4	-7.4	-12.8	-20.0	-13.8	-2.7	-17.3	-21.5	-28.5	-19.1	-26.7	-24.0
	T100N1	-2.5	-3.0	-5.2	-12.1	-10.8	2.5	-15.3	-18.3	-10.9	-1.9	-7.0	-17.1	-17.2	-16.8	-20.9	-21.7	-21.0
	T200N1	-6.8	-9.7	-8.0	-7.1	-5.9	-3.3	-6.1	-7.4	-8.5	-2.5	-7.1	-10.5	-18.9	-16.0	-17.5	-15.3	-13.3
	T500N1	-0.3	-7.2	-2.5	-6.2	-0.9	-8.3	-7.3	-6.0	-2.9	0.0	-3.3	-6.6	-10.6	-9.8	-7.3	-10.1	-11.1

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.22

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	-1.9	-1.7	-0.5	-2.8	2.4	0.8	-2.2	-2.4	-6.9	-1.3	-4.7	-2.5	-2.6	-0.1	0.3	1.2	-0.3
	T20N25	-1.6	-3.0	3.4	-4.9	-1.0	0.6	-1.2	-2.9	-2.7	6.5	-0.5	-2.2	2.4	1.8	0.0	-3.3	0.2
	T25N20	-0.8	3.3	-0.7	0.8	-0.4	-1.1	1.7	3.1	0.6	-0.6	1.2	-2.0	1.8	2.9	3.4	0.7	0.4
	T50N10	-1.9	-3.6	-0.9	-3.5	-6.5	-5.2	-2.7	-1.0	-1.8	-3.5	-1.8	-0.9	-5.2	3.6	1.7	-3.0	-0.6
LN	T10N50	-3.4	-1.3	-1.2	-7.9	-3.1	-1.3	-2.5	0.3	-24.0	0.5	-15.6	-59.8	-59.7	-58.6	-55.3	-57.1	-61.2
	T20N25	-1.9	-4.3	1.1	-5.2	1.7	-0.1	1.1	-5.3	-18.8	-3.6	-18.4	-59.6	-61.8	-59.8	-47.1	-57.7	-60.2
	T25N20	-1.6	-2.5	-0.3	-4.1	-6.2	-1.9	-2.5	-3.5	-22.5	2.1	-18.5	-57.5	-61.0	-61.1	-52.6	-61.5	-64.0
	T50N10	-0.5	-5.0	-4.3	1.8	-4.0	-0.9	-1.1	-1.9	-20.5	-2.8	-15.5	-58.1	-60.4	-60.6	-55.3	-58.4	-62.8
CN	T10N50	-17.7	-13.8	-9.0	-18.1	-22.5	-16.5	-19.5	-17.3	-37.4	-35.9	-35.3	-51.7	-51.9	-52.9	-47.4	-50.6	-53.2
	T20N25	-20.3	-13.4	-18.2	-18.2	-16.6	-21.4	-20.2	-18.1	-36.0	-38.3	-35.2	-54.1	-54.7	-51.5	-50.8	-53.3	-58.3
	T25N20	-18.9	-15.1	-14.0	-14.5	-15.1	-16.2	-21.5	-15.6	-33.3	-35.2	-35.0	-51.0	-54.3	-52.3	-49.5	-55.3	-55.2
	T50N10	-14.6	-9.8	-14.6	-14.9	-19.8	-19.7	-14.4	-16.0	-42.0	-36.7	-37.1	-50.9	-55.3	-51.1	-50.2	-54.4	-54.9
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	-2.3	-2.1	-0.5	-3.2	2.1	1.1	-2.7	-2.9	-8.0	-2.1	-5.3	-2.9	-2.8	-0.3	-0.3	0.8	-0.8
	T20N25	-2.1	-4.1	3.0	-6.1	-1.2	0.2	-1.5	-3.4	-3.2	5.8	-1.6	-2.5	2.0	1.4	-0.6	-3.6	-0.3
	T25N20	-1.7	2.8	-1.3	0.7	-0.7	-1.4	1.2	2.6	-0.2	-1.0	0.9	-2.5	1.4	2.6	3.0	0.2	-0.1
	T50N10	-2.5	-3.9	-1.5	-3.7	-7.0	-5.6	-3.0	-1.4	-2.5	-4.0	-2.0	-1.5	-5.6	3.2	1.4	-3.2	-0.8
LN	T10N50	-3.6	-1.6	-1.3	-8.3	-3.3	-1.0	-2.6	0.2	-24.5	-0.1	-16.0	-60.0	-59.8	-58.7	-55.5	-57.2	-61.4
	T20N25	-2.6	-5.0	0.5	-5.8	1.3	-0.5	0.9	-5.8	-19.3	-4.1	-18.9	-59.8	-62.0	-59.9	-47.4	-57.9	-60.4
	T25N20	-2.1	-2.8	-0.7	-4.4	-6.5	-2.1	-2.9	-3.8	-23.0	1.7	-18.7	-57.7	-61.1	-61.2	-52.8	-61.7	-64.2
	T50N10	-1.0	-5.4	-4.8	1.5	-4.4	-1.3	-1.5	-2.2	-20.8	-3.1	-15.7	-58.3	-60.5	-60.7	-55.5	-58.6	-62.9
CN	T10N50	-18.3	-14.5	-9.2	-19.2	-22.8	-16.4	-20.2	-17.6	-38.4	-36.9	-36.2	-52.0	-52.3	-53.0	-48.0	-50.9	-53.5
	T20N25	-21.0	-14.4	-18.7	-19.5	-17.2	-21.9	-20.9	-18.7	-37.0	-39.1	-36.0	-54.6	-55.1	-51.9	-51.4	-53.6	-58.5
	T25N20	-19.8	-15.6	-14.7	-15.1	-15.6	-16.9	-22.3	-16.3	-34.2	-36.0	-35.5	-51.5	-54.6	-52.6	-50.0	-55.6	-55.5
	T50N10	-15.4	-10.3	-15.2	-15.4	-20.5	-20.4	-15.1	-16.9	-42.6	-37.4	-37.5	-51.4	-55.6	-51.4	-50.6	-54.7	-55.2
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T10N50	-1.3	-1.1	-0.1	-1.6	3.2	0.5	-1.0	-1.9	-5.7	0.2	-3.6	-1.1	-2.6	0.0	1.5	1.5	-0.7
	T20N25	-0.9	-1.8	3.9	-3.7	-0.4	1.3	-0.6	-2.3	-1.6	7.6	0.6	-1.3	2.1	1.2	0.7	-3.8	-0.1
	T25N20	0.3	3.7	0.2	1.1	0.2	-0.5	2.7	4.1	1.6	-0.2	1.8	-1.3	2.1	3.1	4.1	0.8	-0.1
	T50N10	-1.4	-3.2	0.0	-3.4	-5.4	-4.2	-2.0	-0.3	-0.5	-2.6	-1.3	0.4	-4.6	3.6	1.7	-3.5	0.3
LN	T10N50	6.5	5.7	4.7	2.0	1.1	1.5	0.4	2.0	-7.1	4.8	-0.3	-16.6	-12.3	-13.6	-11.1	-8.6	-16.8
	T20N25	6.2	0.1	5.8	2.7	4.7	3.6	3.1	-2.0	-4.2	-0.7	-3.6	-19.1	-16.5	-14.4	-5.3	-13.7	-13.3
	T25N20	5.9	1.9	4.1	3.6	-4.3	1.0	-0.1	-1.1	-9.3	5.2	-4.4	-15.9	-14.3	-16.9	-13.9	-15.6	-18.6
	T50N10	6.1	-1.4	-1.0	8.6	-0.8	2.0	0.8	-0.3	-7.7	-0.4	-2.4	-17.7	-16.2	-12.8	-18.5	-13.8	-17.2
CN	T10N50	-2.6	-1.2	4.4	-3.8	-2.1	2.4	3.8	4.0	-5.5	-1.7	-2.1	-9.2	-0.9	-2.0	-1.5	0.7	-5.9
	T20N25	-6.8	-1.0	-5.3	-3.5	5.0	-2.1	1.1	2.2	-4.2	-3.4	-1.9	-14.5	-0.5	1.1	-6.2	-4.0	-13.1
	T25N20	-5.3	-4.6	-1.5	-1.7	4.8	5.4	-2.2	4.1	-0.1	0.7	-3.6	-7.6	-4.0	-0.4	-4.9	-6.9	-10.3
	T50N10	-0.9	2.1	-3.7	-1.9	-0.3	-1.2	4.1	2.3	-12.7	-1.5	-5.6	-6.0	-6.3	-0.8	-5.8	-7.8	-6.7
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	-2.0	-2.1	-2.1	-2.1	1.8	-1.1	-3.0	-2.2	-6.2	-1.0	-4.3	-1.6	-3.3	1.0	0.8	1.8	-1.6
	T20N25	-1.3	-2.8	2.8	-5.0	-1.4	0.1	-1.5	-2.2	-2.5	6.9	-0.4	-1.7	2.5	1.1	0.9	-4.4	-0.1
	T25N20	0.0	3.4	-0.1	0.2	-0.3	-0.9	2.2	3.8	1.3	-0.5	1.0	-1.1	1.5	2.6	3.6	0.9	-1.2
	T50N10	-2.1	-4.0	-0.3	-4.9	-6.3	-5.2	-3.3	-1.9	-1.5	-3.5	-2.9	-0.3	-5.8	3.1	-0.6	-3.8	0.0
LN	T10N50	1.0	0.9	-0.8	-4.0	-3.6	-1.8	-2.9	0.1	-7.0	0.3	-0.1	-12.5	-8.8	-9.2	-4.8	-4.1	-13.9
	T20N25	0.4	-4.0	0.8	-3.4	1.5	0.0	0.4	-3.6	-4.4	-4.7	-3.2	-14.6	-13.1	-11.1	1.1	-9.9	-9.9
	T25N20	0.1	-1.1	0.3	-1.6	-6.2	-1.6	-2.2	-3.6	-8.5	0.8	-3.2	-10.6	-10.6	-13.3	-8.4	-12.3	-15.7
	T50N10	-0.8	-6.0	-5.1	1.3	-4.1	-2.2	-1.9	-2.7	-7.0	-4.9	-1.5	-13.0	-13.1	-10.0	-14.3	-10.0	-13.9
CN	T10N50	-0.9	-0.8	3.6	-2.7	-6.5	-2.5	-1.9	-1.5	-4.4	-0.5	-2.4	-7.2	-1.4	-2.4	-1.5	0.8	-4.4
	T20N25	-4.9	-1.2	-4.8	-3.5	0.7	-5.5	-4.6	-2.4	-2.8	-3.0	-1.5	-11.7	-0.8	1.1	-5.5	-3.4	-12.1
	T25N20	-4.6	-4.2	-1.4	-1.2	1.4	1.2	-6.5	-0.5	1.5	1.0	-2.2	-4.6	-3.9	-0.4	-3.2	-6.4	-9.3
	T50N10	-2.0	1.7	-4.5	-1.1	-4.7	-5.3	-1.2	-2.5	-11.6	-1.4	-4.3	-3.4	-6.0	0.3	-4.0	-6.5	-6.1

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.



TABLE 1.23

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	-8.7	-7.0	-9.5	-6.8	-7.5	-16.1	-16.2	-13.3	-9.5	-3.3	-8.9	-4.1	-3.7	-1.6	-8.9	-4.5	-5.2	
	T100N1	-4.1	-15.6	-0.1	-12.1	-9.0	-8.5	-8.4	-4.9	-6.0	0.3	-2.8	-7.4	-2.4	-3.9	-3.9	-3.2	-2.9	
	T200N1	-4.2	-4.2	-5.8	-4.9	-7.6	-4.3	-8.5	-5.7	-2.5	-4.1	-2.1	-5.0	1.4	-6.4	-3.4	-1.1	-5.3	
	T500N1	1.8	-3.8	1.2	-3.7	-1.3	-2.6	-1.5	-2.6	-5.4	-2.3	1.7	-4.4	2.5	4.6	3.3	-1.7	2.5	
LN	T50N1	-5.6	-18.6	-11.7	-13.4	-4.9	-8.8	-9.2	-15.0	-14.8	-2.3	-15.8	-44.2	-49.1	-44.9	-38.4	-46.2	-46.3	
	T100N1	-4.1	-10.0	-5.7	-13.0	-12.1	-11.7	-9.8	-16.3	-18.8	-2.8	-18.5	-41.9	-47.2	-47.5	-51.0	-51.6	-49.8	
	T200N1	-8.1	-6.5	-5.6	-6.9	-6.2	-0.1	-5.2	-4.2	-16.7	5.0	-13.2	-40.0	-49.0	-50.8	-43.6	-47.6	-47.8	
	T500N1	-5.9	-3.8	-4.1	-2.7	-4.4	-2.9	0.3	-4.6	-10.9	-3.4	-7.5	-43.6	-47.2	-46.4	-42.2	-45.3	-47.7	
CN	T50N1	-17.0	-12.0	-16.7	-17.1	-36.0	-37.0	-31.6	-29.0	-37.6	-39.4	-37.9	-45.6	-49.9	-49.7	-48.5	-46.0	-51.4	
	T100N1	-22.0	-24.4	-23.6	-22.7	-34.0	-35.4	-39.5	-35.9	-39.8	-40.7	-38.8	-50.6	-51.7	-50.0	-49.7	-52.7	-51.1	
	T200N1	-20.1	-14.1	-17.3	-18.3	-27.9	-22.4	-33.3	-30.9	-39.6	-35.5	-38.6	-50.7	-55.0	-55.4	-51.1	-53.9	-53.7	
	T500N1	-11.2	-14.7	-10.2	-13.4	-14.3	-16.5	-17.5	-19.5	-36.4	-35.5	-38.5	-49.9	-55.6	-53.8	-51.6	-55.6	-55.4	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	-13.8	-13.8	-16.0	-12.0	-12.6	-21.5	-21.4	-17.7	-15.6	-8.7	-13.8	-10.3	-7.2	-5.8	-14.1	-8.4	-8.7	
	T100N1	-6.7	-17.6	-3.1	-14.4	-11.0	-10.5	-10.4	-6.8	-8.8	-2.4	-5.4	-9.8	-4.1	-5.3	-6.0	-4.9	-4.4	
	T200N1	-4.9	-5.3	-6.8	-5.9	-8.5	-5.2	-9.4	-6.6	-3.5	-5.1	-3.1	-6.2	0.7	-7.0	-4.4	-1.8	-5.9	
	T500N1	1.5	-4.0	0.8	-3.7	-1.7	-2.9	-1.8	-2.9	-5.7	-2.7	1.4	-4.8	2.2	4.3	2.9	-1.9	2.2	
LN	T50N1	-10.9	-23.4	-17.3	-17.8	-9.6	-12.7	-14.5	-19.5	-20.1	-7.6	-20.9	-47.3	-50.8	-46.8	-42.0	-48.4	-48.5	
	T100N1	-6.2	-12.7	-8.4	-15.8	-14.1	-13.6	-11.9	-18.0	-21.1	-5.5	-20.8	-43.4	-48.1	-48.4	-52.1	-52.4	-50.6	
	T200N1	-8.7	-7.7	-6.4	-8.4	-7.2	-0.9	-6.0	-4.9	-17.4	3.7	-14.6	-40.7	-49.3	-51.1	-44.2	-47.9	-48.1	
	T500N1	-6.2	-4.2	-4.4	-2.8	-4.8	-3.1	0.0	-4.9	-11.2	-3.8	-7.8	-43.8	-47.3	-46.5	-42.4	-45.4	-47.8	
CN	T50N1	-23.3	-17.5	-22.2	-22.2	-40.0	-41.4	-36.9	-34.3	-43.0	-44.5	-42.7	-49.9	-52.7	-52.6	-52.6	-48.9	-53.6	
	T100N1	-26.6	-27.4	-27.1	-26.4	-37.2	-38.6	-42.6	-39.2	-43.2	-44.1	-42.0	-52.9	-53.3	-51.6	-52.1	-54.0	-52.7	
	T200N1	-22.2	-16.0	-18.9	-20.3	-29.8	-24.2	-35.2	-32.5	-41.4	-37.5	-40.3	-52.0	-55.6	-56.1	-52.4	-54.6	-54.4	
	T500N1	-11.8	-15.3	-10.7	-14.3	-14.9	-17.1	-18.2	-20.1	-37.2	-36.3	-39.2	-50.3	-55.9	-54.1	-52.0	-55.8	-55.6	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	7.3	16.5	11.9	13.7	6.5	3.5	0.2	1.7	10.3	9.6	6.7	12.7	4.5	8.6	6.0	3.0	2.9	
	T100N1	2.3	-10.8	6.9	-7.5	-4.7	-3.5	-4.0	-0.1	0.2	5.5	2.1	-3.4	-1.2	-2.3	-1.1	-2.0	-2.3	
	T200N1	-2.9	-2.4	-3.9	-3.5	-5.6	-2.4	-6.9	-3.7	-0.8	-2.7	-0.1	-4.3	2.0	-5.9	-2.9	-1.2	-5.2	
	T500N1	2.1	-3.3	1.9	-3.3	-0.7	-2.0	-1.0	-2.0	-4.8	-1.8	2.1	-4.0	2.5	4.7	3.6	-1.6	2.4	
LN	T50N1	11.1	-5.3	4.1	0.8	7.3	3.1	4.9	-1.4	4.5	8.2	1.1	-19.8	-23.8	-19.6	-14.0	-19.4	-20.4	
	T100N1	4.3	-1.6	2.9	-4.2	-6.8	-7.0	-3.3	-10.7	-8.2	3.1	-8.0	-16.0	-19.1	-17.4	-26.5	-24.0	-20.7	
	T200N1	-4.6	-3.4	-2.5	-2.1	-2.9	1.7	-2.2	-1.6	-8.8	8.0	-4.5	-11.2	-14.0	-17.6	-15.3	-13.5	-13.1	
	T500N1	-2.3	-1.5	-1.8	0.6	-2.7	-1.2	2.3	-3.0	-2.7	-1.5	0.6	-10.6	-8.8	-4.8	-8.7	-4.6	-9.1	
CN	T50N1	13.0	15.5	15.9	3.9	-1.9	-1.0	3.2	11.3	5.1	2.2	-2.2	-10.1	-16.5	-16.0	-13.2	-13.9	-23.8	
	T100N1	0.8	-6.1	-2.3	-3.2	-5.6	-7.0	-7.6	-3.0	-4.8	-3.4	-3.9	-14.9	-13.8	-10.0	-14.6	-16.4	-14.0	
	T200N1	-5.8	0.2	-2.1	-3.7	-5.0	0.5	-10.2	-8.9	-8.2	2.4	-7.7	-11.1	-14.7	-15.8	-14.4	-12.2	-10.9	
	T500N1	1.8	-4.2	1.0	-0.6	3.3	1.3	1.3	-1.3	-5.3	0.3	-7.5	-6.4	-9.0	-6.5	-8.0	-9.1	-9.8	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	0.0	9.9	9.0	7.2	-3.3	-5.0	-7.4	-4.2	5.2	2.0	-1.1	7.2	-5.6	2.3	-3.4	-5.3	-5.1	
	T100N1	-4.5	-16.0	1.3	-14.0	-11.5	-11.7	-11.4	-8.3	-3.9	-0.3	-3.5	-9.1	-6.8	-7.8	-6.7	-8.5	-8.1	
	T200N1	-7.7	-5.7	-7.8	-7.4	-11.2	-7.9	-11.8	-8.6	-4.3	-7.0	-3.6	-8.7	-1.1	-10.4	-7.0	-5.6	-9.2	
	T500N1	-1.0	-5.9	-0.8	-6.1	-4.1	-5.0	-4.6	-5.8	-6.6	-4.0	-0.4	-5.4	0.0	2.7	1.0	-4.0	-0.5	
LN	T50N1	0.3	-11.8	-4.3	-9.2	-2.9	-5.4	-2.8	-9.5	-4.2	-2.2	-5.5	-24.2	-29.0	-23.9	-19.7	-24.1	-24.4	
	T100N1	-5.2	-7.7	-4.4	-12.8	-12.3	-13.2	-10.2	-17.5	-12.6	-2.4	-13.1	-16.7	-21.5	-19.4	-27.2	-26.0	-22.7	
	T200N1	-12.2	-7.8	-8.0	-9.9	-9.3	-3.9	-9.6	-7.9	-10.8	1.0	-6.9	-10.7	-13.5	-17.8	-13.5	-14.5	-13.7	
	T500N1	-8.7	-5.6	-6.6	-5.8	-8.3	-6.2	-2.5	-8.8	-4.8	-5.6	-0.6	-7.5	-7.2	-3.0	-5.2	-2.3	-7.3	
CN	T50N1	5.8	10.3	9.8	-3.0	-8.3	-7.3	-2.3	4.7	-3.1	-4.5	-8.1	-18.6	-21.7	-22.4	-18.9	-20.0	-29.5	
	T100N1	-3.9	-9.9	-6.5	-5.8	-13.2	-15.0	-13.9	-9.1	-8.1	-5.9	-6.3	-17.8	-18.2	-14.4	-17.6	-21.2	-16.7	
	T200N1	-9.5	-3.4	-6.1	-7.4	-12.6	-5.3	-16.2	-13.6	-10.0	-0.3	-9.2	-11.7	-17.0	-16.4	-15.9	-14.0	-12.2	
	T500N1	-0.2	-6.1	0.0	-2.7	-3.1	-4.8	-5.2	-7.0	-5.3	-1.0	-8.3	-4.9	-9.5	-7.1	-6.9	-9.6	-10.3	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.24

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	0.8	-3.3	0.7	-3.0	-3.5	-1.1	3.1	3.1	-8.0	-1.6	0.2	-5.2	0.7	-0.6	2.8	2.3	-0.5
	T20N25	-3.0	-1.5	-2.7	-2.2	-4.0	5.2	-0.1	-2.7	-2.1	-1.8	2.4	-1.2	-0.5	3.1	-0.4	-0.7	-1.3
	T25N20	0.4	-0.1	-1.8	-0.3	-6.3	-1.6	0.9	0.4	-5.2	1.1	0.5	-2.3	0.2	2.1	-2.5	1.0	1.5
	T50N10	-1.8	-8.0	-2.3	-2.7	-0.2	-0.1	-3.7	-0.6	-0.2	-3.0	-0.9	-5.8	-3.7	5.5	-1.2	-0.8	0.2
LN	T10N50	-8.8	-2.5	0.5	-4.7	-5.9	-1.8	1.6	-0.2	-12.0	0.3	-11.3	-47.7	-46.1	-46.6	-43.1	-44.9	-46.6
	T20N25	-1.3	-0.2	0.4	-1.3	-0.1	-2.8	-4.9	-4.8	-14.2	-1.3	-11.4	-47.3	-48.0	-47.5	-35.1	-44.8	-47.6
	T25N20	-4.0	-0.5	1.0	-4.2	-0.3	-7.1	-2.2	3.8	-13.9	-7.5	-7.7	-49.4	-50.3	-45.2	-39.9	-48.1	-49.4
	T50N10	-4.2	-4.6	-5.0	-1.3	-3.2	-7.3	-4.5	-4.9	-12.7	-0.3	-9.9	-45.6	-47.6	-45.1	-41.6	-46.8	-47.7
CN	T10N50	-18.3	-16.8	-12.0	-20.0	-22.9	-17.8	-20.2	-16.2	-36.6	-32.4	-37.1	-51.3	-51.8	-50.6	-47.8	-52.1	-53.4
	T20N25	-15.6	-13.0	-15.8	-14.8	-22.4	-23.7	-19.1	-14.9	-37.0	-36.5	-34.1	-52.9	-54.7	-51.6	-48.8	-52.7	-57.6
	T25N20	-14.7	-10.3	-14.7	-13.5	-17.9	-18.0	-18.5	-16.0	-35.4	-35.8	-35.3	-51.0	-53.2	-51.8	-49.1	-55.0	-53.8
	T50N10	-17.2	-16.9	-15.6	-15.1	-15.2	-15.9	-14.3	-15.8	-33.5	-36.2	-37.7	-52.0	-54.1	-49.0	-49.7	-53.3	-55.6
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	0.3	-3.6	0.6	-3.3	-3.6	-0.9	2.6	2.8	-9.1	-2.3	-0.4	-5.5	0.6	-0.7	2.2	1.9	-1.0
	T20N25	-3.4	-2.5	-3.0	-3.3	-4.2	4.7	-0.4	-3.2	-2.6	-2.4	1.5	-1.6	-0.8	2.6	-0.9	-0.9	-1.7
	T25N20	-0.3	-0.4	-2.3	-0.4	-6.7	-1.8	0.3	-0.2	6.0	0.8	0.2	-2.8	-0.1	1.8	-3.0	0.5	1.0
	T50N10	-2.0	-8.3	-2.6	-2.9	-0.5	-0.5	-4.1	-1.0	-0.7	-3.4	-1.1	-6.3	-4.0	5.2	-1.5	-1.1	0.0
LN	T10N50	-8.9	-2.7	0.5	-5.1	-6.1	-1.7	1.3	-0.3	-12.7	-0.2	-12.0	-47.9	-46.2	-46.8	-43.4	-45.0	-46.8
	T20N25	-2.0	-1.1	-0.1	-2.1	-0.5	-3.2	-5.2	-5.4	-14.8	-2.0	-12.0	-47.6	-48.2	-47.7	-35.4	-45.0	-47.8
	T25N20	-4.7	-0.9	0.4	-4.5	-0.7	-7.4	-2.7	3.3	-14.5	-7.8	-8.0	-49.7	-50.5	-45.4	-40.1	-48.4	-49.6
	T50N10	-4.8	-4.9	-5.6	-1.3	-3.6	-7.8	-4.9	-5.3	-13.2	-0.7	-9.9	-45.9	-47.8	-45.3	-41.8	-46.9	-47.8
CN	T10N50	-19.1	-17.7	-12.2	-21.2	-23.2	-17.7	-21.1	-16.5	-37.9	-33.6	-38.0	-51.7	-52.1	-50.8	-48.5	-52.5	-53.7
	T20N25	-16.3	-14.0	-16.2	-16.3	-22.9	-24.1	-19.9	-15.6	-38.1	-37.5	-35.1	-53.4	-55.0	-52.0	-49.4	-53.0	-57.9
	T25N20	-15.7	-11.0	-15.4	-14.4	-18.4	-18.6	-19.3	-16.6	-36.3	-36.6	-35.9	-51.5	-53.5	-52.1	-49.5	-55.3	-54.1
	T50N10	-17.8	-17.4	-16.2	-15.7	-15.8	-16.7	-15.1	-16.6	-34.1	-36.9	-38.2	-52.4	-54.4	-49.3	-50.2	-53.6	-55.9
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T10N50	1.5	-2.6	1.3	-2.1	-2.9	-1.4	3.9	3.4	-6.6	-0.8	1.4	-4.1	0.4	-0.6	3.9	2.4	-0.7
	T20N25	-2.2	-0.5	-2.2	-0.7	-3.4	6.2	0.2	-1.8	-1.2	-1.0	3.7	-0.3	-0.6	2.4	0.5	-1.4	-1.5
	T25N20	1.2	0.4	-1.1	0.2	-5.9	-1.1	1.5	1.1	-4.2	1.3	0.8	-1.6	0.4	2.6	-2.0	1.0	0.9
	T50N10	-1.5	-7.3	-1.7	-2.3	0.4	0.6	-3.5	0.3	0.6	-2.6	-0.5	-5.3	-3.7	5.0	-1.3	-1.3	0.7
LN	T10N50	-3.7	1.5	4.2	1.4	-3.5	-0.8	4.0	1.6	-1.4	3.1	-2.2	-11.8	-5.1	-9.1	-8.4	-4.3	-7.7
	T20N25	3.4	3.1	3.3	4.2	2.5	0.5	-3.1	-2.7	-5.1	1.0	-1.6	-13.6	-8.2	-9.7	-2.2	-7.4	-9.5
	T25N20	0.5	2.4	3.8	0.4	1.1	-5.9	-0.5	5.9	-5.4	-5.7	1.1	-18.4	-11.7	-4.9	-8.7	-9.1	-9.8
	T50N10	-0.3	-2.3	-2.5	2.2	-1.1	-4.9	-2.6	-3.0	-4.2	1.5	-2.6	-12.9	-10.6	-3.2	-11.6	-10.0	-7.8
CN	T10N50	-3.2	-4.6	1.4	-5.2	-3.1	-0.3	2.6	4.3	-4.1	3.6	-4.2	-8.6	-0.3	3.6	-2.1	-0.6	-6.5
	T20N25	-1.5	0.2	-2.3	1.6	-1.3	-5.7	3.5	7.2	-5.1	-0.3	0.2	-11.9	-0.4	0.6	-2.1	-3.1	-11.4
	T25N20	-0.6	0.2	-2.2	-0.7	0.4	2.6	2.3	3.5	-3.1	-0.1	-3.8	-8.1	-1.3	1.0	-4.8	-5.4	-7.0
	T50N10	-4.2	-6.2	-4.9	-2.2	4.0	3.5	4.6	2.7	0.0	-0.8	-5.6	-8.2	-3.5	3.2	-4.2	-4.6	-7.8
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	0.6	-3.7	-0.7	-2.6	-4.1	-2.7	1.9	2.6	-6.8	-1.8	0.8	-4.6	0.1	0.1	3.1	2.9	-1.5
	T20N25	-2.3	-1.1	-3.3	-2.1	-4.7	5.2	-0.8	-1.9	-2.1	-1.7	2.9	-0.4	-0.6	2.5	0.5	-2.1	-1.5
	T25N20	0.6	0.0	-1.4	-1.0	-6.5	-1.4	1.0	0.2	-4.6	0.7	-0.1	-1.5	0.4	2.0	-2.6	1.1	0.1
	T50N10	-1.7	-7.8	-2.3	-2.7	-0.2	-0.9	-5.6	-1.1	-0.4	-3.0	-2.1	-6.1	-5.1	4.3	-3.3	-1.6	0.6
LN	T10N50	-7.0	-1.7	0.0	-2.2	-7.0	-2.9	0.9	0.0	-1.9	-0.6	-1.9	-8.1	-2.1	-5.0	-2.6	-0.2	-5.0
	T20N25	0.2	0.9	-0.5	-0.1	0.4	-1.9	-5.1	-3.5	-5.3	-1.3	-1.5	-9.6	-4.9	-6.8	3.4	-3.8	-6.2
	T25N20	-2.7	0.4	1.2	-3.2	0.2	-7.8	-1.7	3.9	-5.3	-8.4	2.2	-13.8	-8.2	-1.4	-3.6	-6.0	-7.1
	T50N10	-3.8	-5.0	-4.4	-1.9	-3.2	-7.4	-5.1	-5.7	-3.9	-1.4	-2.6	-8.8	-7.9	-0.5	-8.1	-6.4	-4.2
CN	T10N50	-1.4	-4.6	0.5	-4.4	-6.9	-5.1	-3.3	-1.0	-2.8	4.7	-4.4	-6.2	-0.7	3.1	-2.3	-0.8	-4.7
	T20N25	0.8	0.7	-1.3	2.1	-5.2	-8.5	-2.0	2.1	-4.0	0.1	0.8	-9.0	-0.6	0.6	-1.4	-2.7	-10.5
	T25N20	0.8	0.5	-2.1	0.5	-2.6	-1.1	-2.2	-1.0	-1.5	0.2	-1.8	-5.5	-1.0	0.8	-2.9	-4.8	-6.0
	T50N10	-4.7	-5.8	-4.9	-1.9	0.0	-1.1	-0.2	-1.3	2.0	-0.2	-4.1	-5.4	-3.4	4.0	-2.5	-3.7	-7.3

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.25

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-22.3	-16.4	-11.0	-11.3	-15.1	-23.4	-4.0	-12.9	-11.4	-9.4	-13.4	-2.1	0.2	1.0	-8.9	-2.0	-4.9	
	T100N1	-23.9	-13.5	-13.9	-15.2	-25.0	-26.4	-29.6	-28.1	-21.4	-4.5	-21.4	-8.7	-8.2	-8.3	-4.0	-11.6	-8.9	
	T200N1	-15.1	-17.3	-13.9	-18.3	-12.4	-32.2	-23.7	-18.6	-22.2	-1.8	-20.3	-7.1	0.7	-12.4	-4.4	-2.8	-4.0	
	T500N1	-9.2	-8.6	-11.1	-11.3	-6.3	-7.0	-7.1	-7.1	-11.0	-5.3	-4.5	-3.0	2.9	5.1	-0.7	-2.6	1.3	
LN	T50N1	-19.4	-26.0	-9.8	-21.2	-30.8	-5.3	-31.4	-20.9	-54.3	-9.4	-15.9	-68.3	-81.2	-72.9	-78.1	-76.5	-69.7	
	T100N1	-21.1	-12.6	-20.0	-17.1	-16.5	-11.2	-20.7	-32.2	-36.6	-16.6	-38.8	-80.0	-75.9	-79.5	-78.9	-79.5	-75.2	
	T200N1	-19.0	-26.0	-16.3	-24.3	-18.1	-9.1	-16.1	-15.4	-32.9	-0.1	-28.6	-82.5	-83.4	-85.4	-79.3	-82.8	-83.9	
	T500N1	-16.8	-15.9	-17.3	-15.0	-24.4	-29.6	-42.6	-36.4	-34.0	-3.0	-33.6	-86.2	-86.6	-87.7	-85.9	-85.5	-85.4	
CN	T50N1	-25.1	-25.0	-29.7	-31.0	-31.2	-30.9	-32.4	-38.8	-33.4	-45.0	-30.6	-36.1	-54.2	-36.7	-40.5	-33.7	-47.3	
	T100N1	-36.4	-25.9	-29.0	-33.1	-44.9	-35.9	-47.6	-43.4	-44.5	-45.3	-41.1	-47.0	-50.1	-48.9	-46.9	-48.5	-46.1	
	T200N1	-36.2	-25.5	-34.3	-34.7	-39.0	-33.6	-49.9	-47.6	-44.8	-45.3	-50.7	-48.9	-53.7	-52.1	-50.0	-52.7	-53.1	
	T500N1	-35.4	-32.3	-33.3	-35.1	-34.5	-24.2	-36.9	-50.6	-40.0	-42.6	-44.1	-51.6	-55.7	-54.3	-52.9	-55.7	-56.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-27.7	-25.4	-21.9	-20.8	-25.7	-33.3	-19.6	-19.3	-19.4	-17.3	-21.4	-8.7	-5.7	-5.6	-15.0	-13.7	-9.8	
	T100N1	-30.2	-22.5	-23.1	-23.3	-31.4	-32.5	-36.8	-36.6	-29.0	-12.4	-30.2	-14.3	-12.4	-11.7	-10.3	-15.8	-13.9	
	T200N1	-20.1	-22.4	-20.6	-23.0	-17.1	-36.8	-27.9	-23.6	-27.7	-7.0	-24.6	-10.8	-1.2	-14.8	-7.3	-5.0	-6.3	
	T500N1	-11.1	-11.4	-13.4	-13.8	-7.8	-8.4	-8.6	-8.8	-13.2	-7.6	-7.2	-4.2	2.2	4.5	-1.9	-3.3	0.6	
LN	T50N1	-24.1	-32.0	-20.5	-25.0	-34.6	-12.7	-38.3	-26.4	-60.0	-14.3	-24.3	-71.1	-81.7	-74.0	-79.2	-77.2	-70.3	
	T100N1	-27.4	-20.1	-27.5	-24.2	-22.8	-15.8	-24.9	-35.1	-41.2	-21.7	-45.7	-80.7	-76.6	-80.0	-80.2	-80.0	-75.8	
	T200N1	-23.0	-30.6	-21.1	-28.3	-22.7	-12.6	-20.3	-19.2	-36.8	-4.4	-32.0	-83.0	-83.7	-85.6	-79.8	-83.1	-84.2	
	T500N1	-18.9	-18.9	-19.5	-18.2	-25.5	-30.7	-43.7	-37.3	-35.5	-5.0	-35.2	-86.3	-86.7	-87.8	-86.1	-85.6	-85.5	
CN	T50N1	-31.8	-34.1	-37.3	-39.9	-39.8	-40.1	-40.2	-43.7	-41.1	-51.4	-39.5	-41.8	-56.6	-41.5	-46.9	-40.8	-51.0	
	T100N1	-43.2	-34.1	-37.0	-41.8	-50.4	-43.1	-52.3	-49.8	-51.0	-51.7	-48.2	-51.5	-53.0	-51.8	-51.3	-52.0	-49.9	
	T200N1	-43.8	-33.7	-41.5	-41.9	-44.5	-40.1	-55.0	-53.6	-51.5	-51.0	-55.8	-52.7	-55.6	-54.5	-53.6	-55.0	-55.4	
	T500N1	-40.1	-36.7	-37.6	-39.8	-38.3	-27.9	-39.8	-53.4	-43.3	-45.7	-47.2	-52.9	-56.5	-55.2	-54.1	-56.4	-56.9	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	9.2	21.3	35.7	52.4	24.2	17.0	101.9	20.3	22.4	20.7	26.2	21.9	18.2	20.6	14.4	73.1	20.1	
	T100N1	6.1	20.9	29.5	26.5	-0.1	-4.6	-4.8	5.5	9.3	25.8	16.3	11.9	7.7	4.2	23.6	4.2	10.9	
	T200N1	14.6	2.9	16.6	5.0	2.0	-17.9	-11.4	-4.0	3.2	15.1	-2.5	6.7	7.5	-3.3	5.7	4.0	4.1	
	T500N1	-0.8	0.6	-2.7	-2.1	-2.4	-3.3	-3.2	-2.9	-4.4	1.4	3.3	-0.6	4.1	6.5	2.0	-1.3	2.7	
LN	T50N1	5.7	-0.9	29.4	2.9	-13.8	27.7	-10.1	5.5	-16.9	6.3	18.5	-32.0	-48.1	-37.9	-43.2	-41.6	-34.1	
	T100N1	7.5	16.8	16.8	14.9	2.4	6.1	-1.5	-19.1	-8.4	1.1	-5.0	-43.5	-31.0	-39.6	-39.9	-43.5	-29.8	
	T200N1	4.0	-7.5	7.5	-3.6	0.6	7.5	3.1	2.0	-7.8	12.2	-5.1	-40.7	-37.4	-44.1	-32.1	-37.4	-40.5	
	T500N1	-2.3	-1.4	-2.2	2.0	-13.4	-18.8	-30.2	-24.5	-18.3	4.6	-16.5	-40.0	-37.4	-39.0	-40.0	-31.7	-33.0	
CN	T50N1	-0.8	34.3	7.0	-1.6	36.6	45.2	27.7	14.1	10.3	0.1	16.3	-5.4	-23.7	-1.1	-2.0	6.9	-15.1	
	T100N1	-0.5	21.3	20.1	7.0	1.5	21.5	-1.6	8.9	4.8	10.1	12.0	-6.1	-11.6	-11.1	-6.0	-7.8	-6.4	
	T200N1	11.0	28.2	17.0	10.8	8.3	18.7	0.1	6.4	11.3	13.4	-7.4	3.1	-9.9	-7.4	-4.9	-5.1	-4.8	
	T500N1	2.0	2.4	2.9	1.6	-1.4	9.9	-7.6	-25.3	3.4	4.7	-4.0	-4.4	-7.5	-5.2	-6.3	-7.6	-8.8	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-2.1	9.2	27.7	45.8	11.9	-1.8	103.9	11.5	15.4	10.7	18.7	15.2	14.6	7.4	6.8	74.6	14.0	
	T100N1	3.2	17.7	31.5	24.4	-2.0	-6.7	-4.5	6.6	7.1	23.6	15.3	8.3	2.4	0.8	21.2	0.2	7.9	
	T200N1	11.3	-0.4	15.0	1.8	-1.0	-20.7	-12.6	-5.6	2.0	13.4	-5.0	4.0	4.1	-7.0	2.0	-0.2	0.0	
	T500N1	-2.3	-0.6	-4.2	-3.5	-5.6	-6.1	-5.7	-4.6	-6.2	-0.3	1.5	-2.2	1.8	4.7	-0.1	-3.4	0.3	
LN	T50N1	-3.2	-6.1	21.3	-8.0	-17.2	18.6	-17.2	0.2	-21.4	-1.2	11.5	-35.8	-49.8	-42.5	-47.0	-43.7	-38.2	
	T100N1	-1.2	9.0	10.3	4.2	-1.2	0.6	-8.2	-24.9	-12.6	-6.4	-10.0	-44.4	-33.8	-41.4	-41.1	-45.6	-31.8	
	T200N1	-4.2	-14.0	1.2	-12.0	-3.7	1.7	-3.4	-1.8	-8.8	6.4	-7.5	-40.4	-37.8	-44.4	-30.9	-38.0	-40.3	
	T500N1	-10.2	-6.7	-9.0	-6.3	-18.7	-24.5	-35.5	-30.0	-20.8	-2.1	-18.9	-38.4	-36.9	-38.6	-38.2	-30.5	-32.1	
CN	T50N1	-6.4	35.9	-0.6	-8.5	39.2	31.6	31.7	11.5	-1.1	-4.4	8.0	-12.9	-29.7	-11.7	-6.9	2.1	-22.7	
	T100N1	-2.4	19.9	17.3	6.0	-3.0	20.8	-8.1	3.9	1.3	7.2	7.9	-9.9	-16.3	-15.3	-11.1	-10.9	-8.4	
	T200N1	11.3	27.0	15.4	10.6	3.2	14.2	1.1	3.4	12.4	11.8	-8.3	3.7	-11.0	-7.6	-6.0	-6.5	-6.2	
	T500N1	6.1	5.2	5.2	5.9	-4.6	5.1	-11.6	-27.5	3.2	4.6	-3.5	-3.8	-7.5	-5.9	-5.3	-7.9	-9.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.26

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-11.5	-6.1	-6.4	-7.9	-8.5	-0.1	-0.2	-1.8	-10.8	-2.7	-8.1	-3.6	-1.1	-4.5	0.5	-2.2	-0.1	
	T20N25	-13.5	-8.2	-9.7	-6.9	-3.4	-1.3	-8.3	-5.4	-6.2	-1.3	-6.4	-2.1	-0.9	1.6	-1.4	-3.8	2.3	
	T25N20	-11.4	-2.6	-7.2	-2.4	-6.6	-1.8	-7.0	-9.3	-7.9	-2.6	1.4	-3.7	4.0	-0.6	-4.8	-0.1	-1.6	
	T50N10	-8.2	-7.8	-6.3	-6.3	-5.6	-4.6	-6.7	-2.0	-5.9	-3.3	-1.0	-2.5	0.5	1.7	0.0	-3.5	-2.4	
LN	T10N50	-20.2	-16.8	-12.2	-27.8	-34.9	-38.2	-13.9	-10.2	-47.9	-4.0	-24.4	-86.1	-85.5	-84.2	-84.0	-83.2	-88.5	
	T20N25	-16.3	-17.5	-13.6	-19.2	-17.7	-28.7	-16.1	-41.2	-21.7	-6.0	-40.7	-86.5	-86.3	-84.5	-80.4	-82.3	-86.9	
	T25N20	-11.1	-16.2	-10.5	-20.5	-12.4	-8.8	-10.5	-9.1	-22.7	-4.9	-28.4	-85.8	-85.6	-86.8	-80.5	-85.4	-89.8	
	T50N10	-22.4	-16.9	-15.4	-15.1	-32.6	-26.8	-18.3	-9.5	-18.6	-6.0	-16.3	-86.1	-85.8	-87.0	-83.5	-84.4	-86.4	
CN	T10N50	-37.6	-27.3	-28.3	-33.5	-32.1	-36.0	-31.9	-39.0	-47.9	-42.4	-44.5	-52.6	-53.1	-52.7	-50.1	-52.7	-54.2	
	T20N25	-38.3	-35.7	-34.0	-39.0	-27.4	-39.1	-32.5	-40.9	-46.9	-45.3	-46.4	-51.2	-54.8	-52.6	-51.1	-54.3	-58.7	
	T25N20	-38.5	-27.7	-38.5	-31.6	-26.4	-25.2	-32.1	-32.5	-42.2	-40.1	-39.8	-51.8	-52.8	-53.1	-51.7	-55.4	-55.3	
	T50N10	-34.3	-33.8	-30.3	-36.1	-41.7	-46.3	-30.3	-31.7	-46.4	-40.5	-41.4	-53.0	-55.6	-51.1	-50.9	-54.0	-55.5	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-16.0	-9.1	-9.7	-10.8	-9.7	-1.0	-2.1	-3.5	-15.2	-5.9	-11.3	-5.1	-1.7	-5.3	-1.0	-2.9	-1.3	
	T20N25	-18.3	-13.1	-14.1	-12.1	-5.1	-3.0	-10.4	-7.8	-9.8	-5.2	-10.7	-3.5	-1.9	0.6	-3.0	-4.7	1.2	
	T25N20	-15.7	-5.8	-11.3	-5.5	-8.4	-3.8	-9.1	-11.3	-11.7	-5.3	-1.1	-5.3	3.1	-1.5	-5.9	-1.1	-2.7	
	T50N10	-12.2	-10.5	-10.4	-8.7	-7.4	-6.5	-8.4	-3.9	-8.8	-5.8	-2.8	-3.8	-0.3	1.0	-1.0	-4.2	-3.0	
LN	T10N50	-24.5	-19.4	-15.8	-30.7	-36.8	-40.1	-16.4	-11.7	-50.7	-7.0	-27.4	-86.4	-85.6	-84.5	-84.4	-83.3	-88.6	
	T20N25	-20.0	-20.7	-16.9	-22.0	-19.6	-31.1	-17.7	-42.9	-24.0	-8.4	-42.3	-86.7	-86.5	-84.8	-80.6	-82.5	-87.1	
	T25N20	-15.2	-18.6	-14.1	-22.6	-13.9	-10.0	-12.6	-10.7	-25.0	-7.2	-29.8	-86.0	-85.7	-86.9	-80.7	-85.5	-89.8	
	T50N10	-24.8	-19.2	-18.2	-17.2	-34.5	-28.4	-20.2	-11.1	-20.1	-7.6	-18.0	-86.2	-85.9	-87.1	-83.6	-84.5	-86.5	
CN	T10N50	-43.2	-31.8	-33.1	-38.5	-36.1	-38.9	-35.8	-42.1	-52.1	-46.2	-48.4	-54.2	-54.2	-53.6	-52.1	-53.5	-55.1	
	T20N25	-41.2	-40.7	-37.2	-44.1	-31.1	-42.3	-36.4	-44.2	-51.0	-49.0	-50.5	-53.3	-55.8	-53.6	-53.0	-55.1	-59.6	
	T25N20	-43.0	-32.7	-42.9	-36.6	-30.4	-29.0	-36.7	-36.2	-46.2	-43.9	-43.1	-53.5	-53.8	-53.9	-53.2	-56.4	-56.3	
	T50N10	-38.0	-36.9	-34.2	-39.3	-45.1	-49.5	-34.3	-35.8	-49.9	-43.9	-44.4	-54.6	-56.4	-52.1	-52.3	-54.9	-56.2	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	0.3	3.3	3.5	2.1	-4.2	3.6	5.3	3.2	-1.4	4.8	0.3	0.6	0.7	-2.7	4.4	-0.7	1.4	
	T20N25	-1.0	4.1	2.2	6.8	1.5	3.4	-3.5	0.3	3.6	8.2	3.8	2.1	0.7	3.0	2.6	-2.7	4.2	
	T25N20	1.5	7.4	5.5	8.8	-2.4	2.7	-1.6	-3.7	2.8	5.0	10.4	1.3	6.2	1.9	-1.5	1.9	0.0	
	T50N10	4.6	1.3	5.6	2.9	-1.2	0.4	-2.7	2.8	2.2	3.1	6.1	1.1	2.0	2.9	2.3	-2.5	-0.4	
LN	T10N50	14.9	9.6	13.0	1.5	-7.8	-11.6	8.8	9.8	-0.8	25.1	-1.2	-30.6	-30.5	-30.7	-26.7	-24.3	-45.1	
	T20N25	3.4	-0.4	5.4	1.2	-4.7	-7.4	-3.9	-28.9	-3.4	2.2	-21.9	-39.3	-34.1	-32.5	-25.6	-25.6	-38.8	
	T25N20	9.5	-2.3	6.7	-4.1	-1.3	2.2	2.1	4.9	-7.8	4.1	-9.3	-35.4	-31.7	-41.0	-26.6	-32.0	-47.4	
	T50N10	-7.3	-3.2	-0.7	-0.1	-16.6	-12.1	-7.4	-0.9	-4.5	-0.7	-3.3	-37.8	-36.8	-36.8	-36.7	-31.9	-33.3	
CN	T10N50	-1.4	8.4	8.4	0.6	6.2	-2.8	4.8	-8.3	-7.5	4.6	-2.1	-6.7	-1.9	0.8	-2.0	-1.4	-6.4	
	T20N25	-6.9	-0.7	-1.5	-3.7	10.3	-8.1	2.9	-10.6	-4.5	1.0	-3.8	-3.2	1.0	0.2	-0.9	-2.9	-12.5	
	T25N20	-3.9	11.7	-4.3	9.4	8.6	10.7	5.3	0.3	3.0	10.1	4.9	-3.0	0.9	-0.7	-4.0	-3.6	-7.9	
	T50N10	-0.5	-2.2	3.4	-4.0	-11.1	-17.6	3.8	1.5	-4.4	8.4	0.9	-3.7	-4.8	1.3	-2.4	-4.9	-6.4	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	0.7	2.9	3.4	1.8	-5.0	2.8	3.4	3.0	-1.5	3.4	-0.1	-0.2	0.1	-1.4	4.1	-0.5	0.5	
	T20N25	-1.4	3.5	1.9	5.6	0.3	3.1	-3.3	1.3	3.1	7.3	2.9	2.0	1.1	3.1	2.6	-3.3	4.5	
	T25N20	1.9	7.3	6.1	8.6	-2.6	3.2	-1.2	-3.9	3.3	4.8	9.8	1.5	6.0	1.4	-1.7	2.6	-0.6	
	T50N10	5.3	1.2	6.6	2.6	-1.7	-0.4	-3.3	2.4	2.0	2.7	4.9	0.4	0.7	3.1	0.1	-2.5	-0.7	
LN	T10N50	7.9	3.4	5.7	-4.5	-13.3	-15.4	2.8	4.1	0.2	19.3	0.1	-30.3	-28.9	-28.4	-23.9	-22.2	-44.0	
	T20N25	-0.2	-4.4	0.7	-3.1	-9.1	-10.3	-9.6	-29.9	-3.9	-1.7	-22.1	-37.4	-32.7	-30.5	-22.2	-23.5	-37.7	
	T25N20	4.4	-4.8	3.0	-8.4	-4.1	-1.9	-2.9	-1.6	-8.2	0.2	-9.9	-33.4	-30.2	-39.6	-23.0	-30.7	-46.5	
	T50N10	-12.8	-8.7	-5.2	-6.7	-19.0	-17.2	-11.4	-5.4	-5.2	-5.4	-3.7	-35.8	-35.2	-35.7	-34.5	-30.1	-31.6	
CN	T10N50	3.5	11.8	11.6	4.0	4.1	-4.7	1.6	-10.9	-6.4	6.3	-1.8	-5.0	-2.0	0.7	-1.4	-1.3	-5.2	
	T20N25	-2.4	2.4	1.6	-0.2	8.2	-9.4	-0.5	-12.7	-3.8	1.8	-2.9	-1.0	0.6	0.3	0.1	-2.8	-11.8	
	T25N20	0.5	15.2	-2.2	13.9	6.7	7.7	3.1	-3.0	3.9	11.2	6.5	-1.1	1.0	-0.8	-2.4	-3.2	-7.2	
	T50N10	4.5	1.6	6.9	1.5	-12.6	-18.9	1.1	-1.5	-2.5	9.9	2.1	-1.5	-4.8	2.7	-1.0	-3.9	-6.2	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.27

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	-20.2	-1.2	-13.3	-14.3	-25.2	-20.4	-9.7	-4.3	-18.0	-2.4	-13.7	-11.8	-10.3	-1.3	-11.6	-4.3	-5.0	
	T100N1	-20.9	-11.4	-14.0	-12.8	-22.9	-20.3	-19.2	-18.2	-16.9	-4.5	-8.1	-3.8	-14.2	-3.2	-2.0	-9.0	-7.7	
	T200N1	-10.1	-16.9	-5.3	-17.6	-17.3	-18.3	-9.8	-22.0	-13.6	0.9	-19.0	-1.2	3.1	-7.3	-4.1	-0.9	-4.4	
	T500N1	-12.1	-8.7	-8.2	-11.8	-11.7	-8.1	-4.3	-1.0	-4.8	-7.2	-3.2	-2.9	2.2	5.2	1.8	-3.3	0.2	
LN	T50N1	-23.6	-4.7	-13.6	-29.9	-18.8	-22.8	-17.9	-16.5	-46.1	-4.5	-38.0	-59.4	-64.2	-72.3	-70.0	-73.1	-77.9	
	T100N1	-19.4	-14.0	-14.8	-18.6	-16.6	-18.0	-35.6	-30.8	-30.8	-6.2	-25.2	-71.6	-77.5	-75.4	-77.3	-77.3	-70.2	
	T200N1	-23.6	-21.1	-13.8	-21.8	-12.5	-20.4	-11.7	-11.8	-28.8	-10.3	-33.5	-72.0	-79.1	-79.8	-75.9	-78.5	-78.8	
	T500N1	-12.8	-19.1	-12.1	-15.2	-11.0	-6.8	-17.1	-17.2	-18.2	-3.1	-16.3	-80.1	-79.4	-81.3	-79.0	-78.9	-79.9	
CN	T50N1	-24.2	-15.6	-14.4	-24.8	-34.8	-35.5	-28.5	-34.6	-39.3	-45.4	-38.2	-35.2	-36.2	-36.4	-34.9	-37.4	-43.7	
	T100N1	-31.2	-18.8	-29.0	-33.0	-36.5	-37.5	-35.8	-38.6	-45.0	-46.1	-39.4	-47.9	-49.5	-49.4	-45.5	-48.3	-51.2	
	T200N1	-35.1	-26.3	-26.8	-35.1	-39.8	-39.5	-38.0	-36.6	-44.6	-46.1	-48.1	-49.6	-54.0	-53.4	-47.0	-52.8	-54.1	
	T500N1	-34.0	-37.4	-28.9	-35.8	-26.5	-23.2	-24.4	-27.3	-42.6	-42.8	-44.9	-51.0	-56.3	-54.5	-53.4	-56.5	-56.2	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	-25.7	-11.1	-23.1	-18.7	-32.4	-29.4	-18.3	-16.0	-28.2	-10.7	-21.9	-20.1	-14.2	-6.4	-18.0	-8.3	-10.2	
	T100N1	-27.3	-20.9	-23.3	-20.5	-30.4	-30.2	-26.4	-25.9	-26.9	-13.4	-18.3	-11.1	-17.7	-8.9	-9.0	-13.0	-11.9	
	T200N1	-15.7	-22.2	-11.7	-22.8	-24.3	-23.3	-14.0	-26.2	-18.7	-5.0	-25.2	-4.4	-0.4	-9.1	-8.0	-2.6	-6.2	
	T500N1	-15.5	-11.8	-11.5	-14.7	-13.1	-9.7	-5.8	-3.0	-7.9	-9.8	-5.9	-4.2	1.5	4.5	0.7	-3.9	-0.5	
LN	T50N1	-27.5	-13.2	-21.0	-36.0	-26.0	-26.7	-25.3	-21.1	-49.2	-13.5	-42.9	-61.3	-66.2	-73.3	-71.3	-74.0	-78.8	
	T100N1	-27.8	-21.8	-24.1	-26.2	-22.8	-25.5	-40.9	-37.6	-37.6	-13.7	-31.3	-73.3	-78.3	-76.6	-78.3	-78.4	-71.9	
	T200N1	-27.2	-26.3	-18.2	-26.5	-16.9	-24.7	-16.1	-15.7	-32.8	-14.7	-38.2	-73.1	-79.5	-80.2	-76.8	-78.9	-79.1	
	T500N1	-15.7	-21.5	-15.0	-17.5	-12.6	-8.2	-18.6	-18.7	-20.1	-5.3	-18.3	-80.3	-79.6	-81.4	-79.2	-79.1	-80.0	
CN	T50N1	-30.7	-24.3	-21.9	-29.6	-43.2	-42.9	-36.3	-41.1	-46.3	-51.6	-45.0	-41.8	-40.6	-43.1	-41.2	-43.2	-46.6	
	T100N1	-38.9	-28.2	-37.2	-40.8	-45.1	-44.2	-41.9	-44.8	-51.3	-52.1	-46.5	-52.2	-53.5	-52.2	-50.1	-51.1	-54.0	
	T200N1	-42.0	-34.0	-34.2	-41.3	-46.2	-45.3	-45.4	-43.3	-50.7	-51.9	-54.9	-53.0	-56.0	-55.7	-51.5	-55.1	-56.1	
	T500N1	-37.5	-40.5	-32.4	-39.2	-29.9	-26.7	-27.8	-30.9	-46.0	-46.2	-48.0	-52.5	-57.0	-55.3	-54.7	-57.2	-57.0	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	8.7	35.9	26.8	13.6	-3.1	5.0	20.5	30.6	20.5	24.7	12.5	16.5	3.5	11.2	8.3	7.4	9.3	
	T100N1	8.5	25.3	21.4	20.8	0.9	12.7	4.0	9.6	22.6	30.3	28.9	23.8	-2.7	15.3	22.5	4.1	6.7	
	T200N1	15.4	4.7	18.4	7.6	17.8	6.0	6.8	-8.7	3.9	20.3	3.8	8.1	24.1	-0.2	8.7	4.5	2.3	
	T500N1	-0.6	2.3	3.3	0.0	-7.4	-3.5	0.4	4.5	4.4	0.6	5.7	0.5	3.5	6.9	4.8	-1.8	2.2	
LN	T50N1	-5.8	21.2	14.4	-6.9	5.7	-8.2	2.8	1.1	-22.5	21.3	-12.1	-27.3	-27.7	-38.8	-37.4	-38.2	-52.3	
	T100N1	21.8	23.8	25.1	17.6	11.4	18.4	-14.1	3.5	6.0	24.4	5.7	-34.2	-40.9	-32.7	-44.1	-41.2	-23.2	
	T200N1	-3.4	2.5	8.9	3.5	4.7	0.3	8.9	10.5	-4.5	6.6	-6.5	-26.4	-34.6	-37.3	-33.9	-36.0	-34.7	
	T500N1	2.3	-8.1	2.4	-1.3	-1.0	3.0	-3.2	-5.6	-5.1	3.6	-1.9	-33.7	-26.7	-29.3	-29.6	-23.4	-27.3	
CN	T50N1	2.5	25.0	28.8	-1.2	10.6	12.8	29.1	11.5	6.3	5.5	10.7	3.2	-5.8	2.1	4.6	3.7	-17.1	
	T100N1	16.0	35.7	24.1	10.0	30.0	20.6	15.2	11.9	7.2	5.1	19.2	-1.4	-1.9	-7.3	1.0	-7.8	-11.0	
	T200N1	11.0	28.3	25.1	9.1	12.5	8.3	15.6	16.5	10.6	13.7	3.4	-1.4	-10.2	-8.8	2.6	-3.5	-6.4	
	T500N1	-0.6	-8.8	4.1	-3.8	4.2	9.6	6.6	3.7	-0.3	5.2	-5.0	-3.2	-9.0	-6.0	-6.6	-9.4	-8.8	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	-0.3	23.9	21.6	4.3	-8.1	-4.9	13.9	24.5	13.6	13.8	3.0	10.2	-2.4	3.3	-2.4	1.4	1.0	
	T100N1	4.5	21.6	19.8	17.9	-3.8	7.7	1.4	7.1	16.1	24.8	26.6	17.0	-8.7	10.1	19.2	-1.5	4.7	
	T200N1	12.8	2.2	15.2	5.2	15.2	4.3	3.6	-11.8	1.6	18.1	3.7	4.0	20.9	-3.3	6.4	0.8	-1.9	
	T500N1	-3.3	0.4	0.4	-2.0	-10.3	-6.4	-2.2	2.0	2.4	-1.5	3.2	-1.1	1.3	4.8	2.8	-3.8	-0.2	
LN	T50N1	-13.1	14.3	11.3	-11.6	-1.5	-12.6	-6.4	-4.4	-29.3	12.7	-13.4	-32.8	-32.7	-42.6	-40.4	-42.5	-54.2	
	T100N1	14.6	11.3	15.5	7.8	6.8	9.8	-19.0	-4.5	1.3	18.2	0.4	-35.2	-42.7	-35.5	-44.9	-43.3	-26.6	
	T200N1	-10.3	-3.5	3.1	-2.8	-0.3	-3.5	0.2	2.7	-8.9	1.2	-10.6	-26.0	-35.2	-37.9	-33.5	-36.7	-34.8	
	T500N1	-3.4	-11.7	-2.5	-6.6	-6.9	-3.6	-10.1	-12.0	-7.8	-0.3	-5.0	-31.9	-26.1	-28.5	-27.6	-22.1	-26.2	
CN	T50N1	-5.8	23.5	18.1	-7.9	7.8	10.8	19.6	3.3	-2.8	-4.8	1.9	-7.3	-15.4	-9.9	0.2	-5.8	-22.8	
	T100N1	14.1	33.7	21.4	9.5	23.2	12.7	11.7	7.0	2.3	1.7	14.7	-6.2	-6.3	-11.2	-3.0	-11.4	-15.7	
	T200N1	11.7	30.6	22.4	9.8	12.6	6.6	12.7	12.9	8.9	11.3	2.7	-2.2	-11.7	-9.4	1.9	-4.8	-7.6	
	T500N1	2.7	-6.7	6.1	-0.5	-0.8	4.1	1.8	-0.5	-0.1	4.8	-5.8	-2.3	-9.3	-6.8	-5.8	-9.9	-9.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.28

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-10.1	-8.6	-6.2	-9.6	-3.3	-2.5	0.7	-2.4	-10.9	-1.6	-8.5	-2.1	-1.5	-4.1	1.1	2.4	-0.2	
	T20N25	-13.3	-12.3	-14.8	-9.9	-2.3	-2.7	-2.3	-7.1	-7.8	-4.1	-6.6	-5.3	2.2	1.1	-0.9	-0.2	-1.0	
	T25N20	-8.5	-5.2	-3.7	-6.3	-3.9	-2.1	-2.6	-1.1	-7.7	-1.6	-5.8	-1.1	3.6	0.5	-3.2	-1.5	-1.5	
	T50N10	-11.7	-9.5	-11.0	-6.1	-7.0	-7.2	-3.4	-2.0	-8.6	-1.1	-2.8	-4.0	-2.6	3.0	-2.7	-3.0	-1.7	
LN	T10N50	-11.8	-9.9	-11.4	-12.9	-16.2	-15.1	-7.2	-5.5	-16.4	-2.3	-15.6	-79.6	-79.4	-78.5	-77.1	-76.5	-83.8	
	T20N25	-13.6	-14.8	-11.0	-12.2	-11.1	-18.8	-6.6	-11.1	-11.1	-1.3	-26.1	-78.8	-80.4	-81.1	-72.0	-75.9	-80.0	
	T25N20	-9.7	-7.6	-7.2	-10.9	-16.8	-6.6	-4.4	-9.8	-12.8	-1.9	-14.4	-79.8	-79.9	-82.0	-73.2	-80.9	-83.0	
	T50N10	-14.2	-10.5	-13.0	-4.2	-15.2	-14.6	-5.8	-2.0	-16.9	-1.3	-9.5	-78.9	-80.6	-81.4	-76.5	-78.0	-80.1	
CN	T10N50	-35.0	-33.0	-27.4	-37.9	-38.7	-36.5	-39.5	-37.1	-48.7	-40.4	-48.8	-52.7	-53.0	-52.2	-50.9	-52.1	-52.2	
	T20N25	-36.4	-32.4	-37.2	-36.7	-42.6	-43.5	-30.1	-29.5	-44.0	-39.6	-45.2	-52.0	-54.5	-53.6	-52.0	-54.3	-58.8	
	T25N20	-40.2	-29.6	-38.5	-32.7	-34.7	-26.0	-34.1	-31.4	-43.6	-43.8	-45.5	-51.3	-53.5	-53.3	-51.7	-56.3	-55.7	
	T50N10	-33.5	-30.0	-32.5	-33.6	-28.7	-37.5	-32.6	-32.4	-45.2	-41.2	-44.1	-53.9	-55.9	-52.3	-51.2	-54.1	-55.7	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-15.7	-12.2	-10.1	-13.1	-4.9	-3.1	-1.5	-4.1	-15.8	-5.3	-11.4	-3.8	-2.2	-4.9	-0.4	1.7	-1.4	
	T20N25	-18.0	-17.5	-18.6	-15.6	-4.1	-4.5	-4.3	-9.3	-11.2	-7.7	-10.8	-6.6	1.2	0.2	-2.4	-1.1	-2.0	
	T25N20	-13.4	-8.6	-7.9	-9.5	-5.8	-3.9	-4.7	-3.3	-11.2	-4.3	-8.3	-2.7	2.6	-0.4	-4.3	-2.5	-2.6	
	T50N10	-14.8	-12.5	-14.4	-9.2	-8.8	-9.1	-5.1	-4.1	-11.4	-3.7	-4.6	-5.3	-3.3	2.4	-3.7	-3.7	-2.4	
LN	T10N50	-15.9	-12.2	-14.4	-15.9	-18.1	-17.2	-9.7	-7.0	-19.6	-4.9	-19.0	-79.8	-79.6	-78.8	-77.6	-76.7	-84.0	
	T20N25	-17.5	-17.7	-14.7	-15.3	-13.2	-21.0	-8.3	-13.2	-13.6	-3.9	-28.4	-79.1	-80.6	-81.3	-72.3	-76.1	-80.2	
	T25N20	-13.5	-10.1	-11.0	-13.3	-18.6	-8.3	-6.8	-11.6	-15.8	-4.2	-16.4	-80.1	-80.1	-82.1	-73.5	-81.1	-83.2	
	T50N10	-17.3	-13.3	-16.5	-7.0	-17.3	-16.3	-7.8	-3.7	-18.9	-3.7	-11.2	-79.2	-80.8	-81.5	-76.7	-78.2	-80.2	
CN	T10N50	-40.8	-38.0	-32.1	-43.4	-42.6	-39.4	-43.9	-41.5	-53.9	-44.6	-52.7	-54.8	-54.0	-53.1	-53.1	-53.1	-53.3	
	T20N25	-40.4	-37.1	-41.5	-41.8	-46.0	-46.4	-35.1	-34.3	-48.0	-43.9	-49.2	-53.8	-55.6	-54.6	-53.9	-55.2	-59.8	
	T25N20	-43.9	-33.9	-42.1	-37.1	-38.8	-30.0	-37.8	-35.1	-46.8	-47.0	-48.7	-52.8	-54.7	-54.1	-53.3	-57.2	-56.6	
	T50N10	-36.8	-33.8	-36.3	-37.2	-32.7	-41.3	-36.5	-36.4	-48.0	-44.2	-47.4	-55.2	-56.7	-53.2	-52.9	-55.0	-56.6	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	4.2	2.7	6.1	3.2	1.9	0.8	6.8	2.3	-0.2	8.1	-0.1	2.6	0.5	-2.2	5.3	3.8	1.8	
	T20N25	-1.3	0.2	-4.5	4.0	2.4	2.5	3.0	-1.6	1.1	4.2	3.4	-1.5	3.9	2.3	2.7	0.8	0.8	
	T25N20	4.2	4.2	7.9	3.9	1.0	2.7	2.4	4.0	1.2	5.2	1.6	2.7	5.8	2.8	-0.4	-0.3	0.1	
	T50N10	-1.0	1.5	-0.4	5.4	-2.5	-2.7	0.8	3.2	-0.4	6.4	3.9	-0.1	-1.2	4.2	-0.4	-2.3	0.2	
LN	T10N50	10.1	6.4	5.8	6.1	2.4	6.3	9.2	6.8	4.3	7.4	-0.8	-25.5	-24.9	-26.6	-22.7	-18.4	-37.9	
	T20N25	3.3	-1.8	5.1	3.5	0.0	-4.9	4.3	0.4	3.3	6.3	-8.7	-27.1	-27.3	-31.6	-15.9	-21.2	-28.0	
	T25N20	6.6	6.0	7.6	5.4	-8.6	4.1	7.2	-0.3	1.0	6.4	1.0	-30.9	-26.3	-35.0	-20.3	-28.2	-33.9	
	T50N10	0.8	2.5	0.6	10.6	-2.6	-2.6	2.3	6.5	-5.3	5.4	0.1	-28.6	-31.8	-29.3	-28.9	-24.8	-26.1	
CN	T10N50	3.8	3.5	12.2	-1.9	-3.1	-4.1	1.0	2.7	-7.9	9.5	-8.1	-6.5	-2.0	2.1	-2.6	1.5	-1.3	
	T20N25	-1.3	4.6	1.3	2.1	-6.9	-11.8	13.2	11.5	-0.6	13.4	-0.7	-5.7	1.1	-1.8	-2.2	-2.8	-12.1	
	T25N20	-7.6	6.5	-7.0	4.1	2.4	11.7	-0.8	1.4	-2.5	2.5	-6.3	-3.0	1.1	0.0	-4.7	-6.3	-9.6	
	T50N10	2.1	8.2	2.6	4.0	8.3	-6.4	0.7	1.4	-6.4	6.0	-0.5	-7.7	-3.9	-1.4	-1.0	-4.9	-6.5	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	4.1	2.5	4.9	2.4	1.4	0.2	4.5	2.3	0.0	6.8	-0.4	1.8	-0.2	-0.8	4.8	4.1	0.8	
	T20N25	-1.6	0.0	-4.9	2.9	2.0	2.6	3.4	-1.3	0.8	3.7	2.7	-1.7	4.3	2.4	2.7	0.2	1.1	
	T25N20	4.7	3.9	8.1	2.7	1.1	3.0	2.1	3.3	1.4	5.2	1.1	2.9	5.5	2.2	-0.8	-0.1	-0.5	
	T50N10	-1.6	0.8	-0.9	4.2	-2.8	-3.0	0.0	2.7	-1.1	5.6	2.3	-0.9	-2.3	4.1	-2.5	-2.3	0.2	
LN	T10N50	6.6	2.4	1.5	2.0	-3.3	2.0	3.3	2.4	2.6	4.9	-1.4	-24.3	-23.0	-24.1	-19.3	-15.9	-36.7	
	T20N25	0.6	-4.4	1.9	0.5	-3.6	-10.0	0.2	-3.3	2.4	4.0	-9.8	-24.8	-25.7	-29.9	-12.1	-18.7	-26.6	
	T25N20	3.2	4.0	5.5	2.6	-10.5	1.7	3.8	-4.4	-0.1	3.6	0.9	-28.5	-24.5	-33.4	-16.5	-26.6	-32.7	
	T50N10	-3.0	-1.1	-2.2	6.2	-6.2	-7.6	-1.3	2.5	-6.6	3.0	-1.3	-26.0	-30.1	-28.0	-26.4	-22.7	-24.1	
CN	T10N50	9.4	7.4	15.2	2.2	-5.0	-6.5	-1.0	0.5	-6.1	11.2	-7.9	-4.7	-2.1	1.9	-2.1	1.4	0.0	
	T20N25	3.6	7.9	4.7	6.6	-9.0	-13.2	10.9	9.3	0.2	14.5	0.0	-3.7	0.9	-1.6	-1.4	-2.7	-11.2	
	T25N20	-3.4	10.5	-4.7	9.1	1.1	10.1	-2.9	-1.3	-1.3	3.4	-4.5	-1.0	1.2	-0.2	-2.7	-5.7	-9.0	
	T50N10	7.6	13.1	7.2	10.1	6.1	-8.2	-1.4	-0.7	-4.8	8.0	2.6	-5.6	-3.8	-0.1	1.4	-4.2	-5.7	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.29

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T50N1	-3.2	-3.9	-2.7	-25.6	-11.7	-8.6	-15.8	-8.3	-2.9	-4.6	-21.1	-4.7	-14.3	-9.6	-13.0	-7.3	-10.2
	T100N1	-15.4	-6.3	-4.4	-11.6	-12.5	-20.1	-4.9	-19.3	-9.0	-6.8	-20.5	-7.2	-3.3	-6.2	-8.5	-5.5	-6.2
	T200N1	-11.3	-20.4	-8.5	-20.1	-16.8	-12.7	-16.2	-11.4	-16.0	0.8	-13.7	-1.5	0.0	-6.1	-3.2	-3.8	-2.6
	T500N1	-11.5	-6.8	-10.5	-9.2	-5.4	-0.8	-6.6	-2.3	-5.0	-5.7	-9.2	-1.3	-0.6	4.6	0.4	-2.0	1.1
LN	T50N1	-16.6	-13.5	-8.4	-12.3	-22.2	-21.6	-9.6	-30.3	-23.0	-13.2	-33.3	-57.2	-62.6	-61.7	-57.6	-62.0	-69.7
	T100N1	-23.6	-13.4	-13.7	-20.9	-16.7	-12.1	-18.9	-20.6	-33.7	-11.3	-24.9	-61.8	-70.4	-69.9	-65.5	-72.6	-69.9
	T200N1	-18.9	-16.1	-16.7	-20.5	-20.9	-10.6	-15.9	-14.0	-23.3	-5.9	-24.4	-64.5	-72.9	-74.7	-68.9	-70.6	-72.3
	T500N1	-9.9	-11.9	-10.1	-10.2	-6.4	0.1	-8.4	-11.8	-10.4	-3.6	-11.6	-72.5	-72.2	-73.5	-69.5	-71.3	-71.9
CN	T50N1	-28.7	-16.3	-20.4	-21.4	-37.8	-37.5	-38.8	-41.1	-44.6	-49.7	-41.4	-37.3	-45.8	-43.1	-50.1	-42.2	-46.9
	T100N1	-33.2	-26.4	-21.6	-35.8	-37.0	-30.7	-35.6	-35.0	-44.9	-49.3	-43.9	-43.9	-51.4	-49.3	-47.8	-48.7	-47.7
	T200N1	-36.1	-27.4	-25.8	-34.7	-31.3	-31.3	-43.3	-35.0	-44.2	-45.1	-50.7	-48.1	-54.5	-52.4	-49.4	-54.7	-53.2
	T500N1	-34.3	-29.0	-29.8	-33.7	-24.1	-28.6	-20.7	-28.3	-43.2	-42.3	-43.3	-51.0	-55.7	-54.4	-53.2	-55.2	-55.9
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T50N1	-10.8	-14.8	-13.7	-31.9	-20.7	-20.9	-24.3	-17.2	-14.3	-14.0	-30.1	-12.6	-19.4	-16.3	-19.5	-15.0	-16.0
	T100N1	-21.1	-14.0	-13.3	-17.3	-20.3	-27.9	-13.0	-26.9	-18.4	-15.4	-28.2	-13.2	-7.8	-10.8	-14.2	-9.6	-10.0
	T200N1	-16.9	-25.4	-14.7	-23.7	-21.8	-17.7	-20.5	-15.4	-22.5	-4.7	-20.4	-5.4	-2.3	-8.5	-7.5	-6.0	-4.1
	T500N1	-13.9	-10.3	-13.1	-12.7	-7.1	-2.3	-8.0	-3.9	-7.6	-8.0	-11.5	-2.5	-1.2	3.9	-0.6	-2.7	0.4
LN	T50N1	-22.2	-22.1	-17.7	-19.8	-28.5	-28.4	-20.0	-33.8	-32.0	-19.9	-47.4	-61.0	-64.1	-63.2	-63.2	-63.9	-70.6
	T100N1	-27.9	-20.0	-20.3	-25.6	-24.8	-19.0	-27.1	-26.8	-39.8	-17.1	-32.8	-64.0	-71.7	-71.0	-67.6	-73.9	-71.0
	T200N1	-23.3	-22.7	-22.1	-26.6	-25.7	-14.6	-20.2	-17.7	-27.4	-12.1	-29.4	-65.6	-73.6	-75.2	-69.9	-71.2	-72.7
	T500N1	-12.7	-15.4	-12.7	-13.8	-8.0	-1.4	-9.8	-13.4	-12.7	-6.5	-14.6	-72.8	-72.4	-73.7	-69.9	-71.5	-72.1
CN	T50N1	-38.0	-24.9	-33.1	-31.3	-45.0	-44.5	-44.5	-48.1	-51.5	-54.6	-47.0	-44.4	-49.9	-46.9	-54.3	-46.9	-50.6
	T100N1	-39.6	-34.9	-29.1	-42.4	-43.1	-38.8	-42.9	-42.1	-52.6	-55.1	-50.6	-49.6	-53.8	-52.1	-52.7	-51.5	-51.1
	T200N1	-42.4	-34.6	-33.3	-41.8	-37.9	-39.7	-49.3	-42.4	-49.6	-51.1	-56.5	-51.2	-56.3	-55.7	-53.2	-56.8	-55.3
	T500N1	-38.1	-32.8	-33.8	-37.6	-27.3	-32.0	-24.8	-32.0	-46.5	-45.5	-46.6	-52.5	-56.5	-55.2	-54.5	-56.0	-56.7
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T50N1	35.2	40.9	36.7	7.2	21.5	31.7	18.9	24.0	39.6	30.4	15.7	18.8	1.2	8.5	12.3	16.7	8.5
	T100N1	13.1	22.9	31.5	18.3	12.8	7.9	26.3	7.7	31.2	23.9	13.5	16.1	11.2	11.7	14.5	8.3	6.3
	T200N1	11.9	0.0	14.3	-1.8	-1.9	4.5	-1.7	1.6	5.8	19.7	11.3	10.7	6.3	1.4	11.5	3.1	1.8
	T500N1	-1.8	4.2	-1.1	2.2	-1.1	3.4	-2.5	2.0	2.5	1.0	-2.2	1.4	0.5	6.0	3.0	-0.5	2.3
LN	T50N1	9.0	17.2	27.1	16.9	4.8	4.9	28.9	-16.6	30.6	8.9	11.9	-16.3	-27.4	-28.7	-17.6	-27.4	-38.2
	T100N1	-3.0	13.1	14.4	4.5	18.8	15.6	16.1	3.6	-0.2	9.9	8.0	-22.1	-33.8	-30.3	-25.0	-38.8	-30.7
	T200N1	5.8	8.6	8.2	3.8	-3.9	6.7	1.5	2.0	-0.6	15.4	0.6	-19.6	-28.2	-32.8	-27.0	-26.8	-27.8
	T500N1	5.4	4.0	3.7	7.1	2.2	9.0	2.3	-1.8	1.5	7.5	5.2	-26.1	-19.8	-20.6	-18.6	-16.2	-18.6
CN	T50N1	2.2	16.0	19.8	12.2	14.6	7.1	-1.6	-6.7	2.4	-8.2	-1.2	4.3	-15.8	-11.7	-22.2	-11.3	-20.9
	T100N1	4.1	24.3	24.5	-1.9	16.4	31.8	17.4	17.8	10.0	5.1	9.1	3.9	-15.6	-10.6	-6.1	-10.8	-7.0
	T200N1	12.4	30.0	35.7	18.5	22.8	54.0	7.5	26.8	6.9	16.0	-2.5	-1.3	-10.2	13.2	-2.5	-9.4	-6.8
	T500N1	2.7	6.2	8.9	3.3	7.1	1.4	14.0	3.6	-0.9	5.5	-1.5	-2.9	-7.4	-5.7	-6.5	-5.9	-8.2
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T50N1	28.5	35.0	26.3	-3.3	14.9	21.4	7.8	11.3	27.6	23.4	12.2	12.7	-5.7	-1.7	4.4	1.4	-2.6
	T100N1	7.2	20.6	25.3	12.5	6.8	3.2	20.1	2.4	25.5	17.5	10.9	11.4	5.3	6.4	10.2	2.0	0.3
	T200N1	7.9	-2.8	10.8	-5.0	-4.7	-0.1	-4.7	-3.4	2.3	16.0	12.5	5.8	4.1	-3.1	11.0	-1.0	-2.6
	T500N1	-3.8	3.0	-3.5	0.4	-3.5	0.7	-5.1	-1.0	0.8	-0.8	-4.4	-0.5	-1.7	4.3	0.8	-3.1	-0.1
LN	T50N1	-3.0	8.4	19.3	4.9	-6.0	-5.9	21.0	-19.5	7.9	-0.1	15.3	-27.7	-32.5	-33.6	-16.5	-30.6	-42.9
	T100N1	-10.8	6.1	4.7	-2.2	14.9	8.9	8.8	-3.1	-7.9	3.4	5.2	-25.1	-36.0	-32.7	-26.7	-40.5	-33.9
	T200N1	1.9	5.3	5.9	0.3	-7.8	2.6	-2.1	-2.1	-2.1	13.4	-1.8	-19.6	-29.0	-33.4	-26.0	-27.5	-28.1
	T500N1	1.4	-0.1	-0.3	2.7	-2.5	2.2	-2.8	-7.0	-1.0	3.8	2.5	-24.1	-19.0	-19.7	-16.4	-14.8	-17.5
CN	T50N1	-1.9	7.6	16.8	9.4	13.4	4.3	-9.9	-16.9	-2.6	-12.4	-7.1	-0.7	-20.8	-16.9	-26.5	-14.8	-26.9
	T100N1	0.5	23.0	20.2	-5.4	11.6	26.2	12.7	14.0	10.8	2.8	6.5	3.0	-19.0	-14.7	-9.7	-15.2	-10.4
	T200N1	9.7	25.1	31.2	15.3	17.6	37.3	1.9	19.7	4.4	13.9	-2.9	-2.8	-12.7	3.8	-3.3	-11.5	-8.0
	T500N1	8.5	10.6	13.4	9.0	3.8	-2.0	9.1	-1.1	0.3	5.9	-1.4	-1.1	-7.3	-6.5	-5.7	-6.4	-8.3

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.30

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-10.1	-4.2	-7.7	-6.3	-4.0	-1.0	-6.2	-2.8	-9.1	-1.8	-7.2	-2.1	0.6	-2.7	1.1	-0.4	-1.4	
	T20N25	-12.8	-9.8	-8.6	-11.0	-6.2	-1.0	-5.2	-3.3	-3.4	-3.2	-10.5	-3.7	0.9	0.3	-1.1	-1.4	-0.9	
	T25N20	-14.1	-7.9	-10.6	-5.3	-8.2	-1.2	-2.2	-0.6	-6.9	-3.2	-7.6	-2.4	1.1	0.7	-7.3	-1.6	-2.7	
	T50N10	-11.8	-10.1	-10.0	-4.3	-7.6	-4.4	-7.3	-6.0	-8.8	-4.9	-5.3	-2.7	0.7	1.2	-3.6	-4.7	-1.1	
LN	T10N50	-15.1	-7.6	-10.3	-10.9	-9.6	-10.5	-5.8	-5.2	-12.2	-3.2	-10.0	-73.3	-72.1	-71.2	-69.1	-68.3	-74.9	
	T20N25	-11.3	-18.6	-11.6	-15.4	-9.7	-14.4	-5.1	-3.7	-18.6	-0.4	-20.8	-72.9	-73.4	-72.2	-63.2	-67.8	-72.2	
	T25N20	-8.8	-6.6	-10.3	-9.6	-8.5	-6.5	-2.5	-7.8	-5.2	0.4	-7.7	-72.1	-71.7	-72.9	-65.2	-73.1	-75.6	
	T50N10	-12.0	-8.5	-8.8	-7.2	-3.5	-4.9	-9.4	-4.5	-7.2	-3.9	-7.5	-71.9	-72.2	-73.2	-68.3	-70.4	-73.3	
CN	T10N50	-39.3	-31.7	-33.7	-35.2	-42.2	-37.6	-38.2	-35.5	-47.5	-42.3	-45.5	-53.9	-51.5	-52.4	-49.5	-52.7	-51.7	
	T20N25	-34.4	-26.7	-32.0	-31.4	-35.1	-35.4	-34.5	-34.4	-44.2	-43.0	-42.8	-51.7	-54.6	-53.5	-49.6	-54.0	-58.0	
	T25N20	-34.0	-29.3	-29.9	-30.9	-27.1	-32.3	-27.6	-32.1	-41.6	-41.5	-41.7	-51.8	-53.5	-53.1	-51.5	-55.3	-55.0	
	T50N10	-33.8	-28.4	-31.1	-36.6	-33.5	-35.9	-28.1	-28.3	-42.0	-40.5	-42.6	-50.6	-54.8	-52.0	-52.3	-53.7	-54.8	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-14.7	-7.2	-10.7	-9.4	-5.4	-1.5	-8.0	-4.3	-13.8	-5.1	-10.4	-3.6	0.0	-3.6	-0.4	-1.1	-2.5	
	T20N25	-16.8	-14.4	-12.0	-15.5	-7.8	-3.0	-7.0	-5.7	-6.3	-6.4	-14.1	-4.8	-0.1	-0.7	-2.5	-2.3	-1.9	
	T25N20	-17.9	-11.1	-14.0	-8.2	-10.1	-3.2	-4.4	-2.9	-10.0	-6.2	-9.8	-3.9	0.2	-0.2	-8.4	-2.5	-3.8	
	T50N10	-14.2	-13.6	-12.9	-8.1	-9.3	-6.4	-9.0	-7.8	-11.3	-7.7	-7.5	-3.9	-0.1	0.5	-4.7	-5.5	-1.7	
LN	T10N50	-20.0	-10.9	-14.2	-14.9	-11.2	-11.9	-8.0	-6.6	-16.3	-6.3	-14.0	-73.7	-72.3	-71.7	-69.7	-68.6	-75.2	
	T20N25	-15.2	-21.7	-15.1	-18.6	-11.7	-16.2	-6.9	-6.1	-20.6	-3.1	-23.4	-73.3	-73.6	-72.4	-63.7	-68.1	-72.5	
	T25N20	-13.6	-9.5	-14.6	-12.6	-10.4	-8.3	-5.0	-10.1	-8.9	-2.6	-10.2	-72.5	-71.9	-73.1	-65.6	-73.5	-75.8	
	T50N10	-15.5	-11.5	-12.3	-9.9	-5.8	-6.8	-11.5	-6.3	-9.5	-6.4	-9.2	-72.2	-72.4	-73.4	-68.7	-70.6	-73.4	
CN	T10N50	-44.2	-36.8	-37.4	-41.0	-45.9	-40.3	-41.8	-39.3	-51.6	-46.5	-49.9	-55.4	-52.7	-53.3	-51.8	-53.6	-52.7	
	T20N25	-38.7	-32.4	-36.0	-37.3	-39.4	-39.1	-38.6	-38.5	-48.5	-46.9	-47.0	-53.6	-55.6	-54.5	-51.5	-54.8	-59.0	
	T25N20	-38.9	-33.4	-34.3	-35.1	-31.3	-36.6	-31.7	-36.0	-46.2	-45.2	-44.7	-53.7	-54.6	-54.1	-53.0	-56.3	-56.0	
	T50N10	-37.5	-32.6	-34.8	-40.6	-37.3	-39.5	-31.7	-32.2	-45.3	-43.8	-45.8	-52.1	-55.6	-52.9	-53.7	-54.7	-55.5	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	1.4	5.2	1.2	4.1	1.0	2.5	-1.0	1.6	1.0	5.8	1.6	2.5	2.4	-0.9	5.1	1.0	0.0	
	T20N25	-2.3	1.8	1.4	0.5	-2.0	3.9	-0.6	2.2	4.8	4.4	-1.5	-0.3	2.6	1.3	2.7	-0.4	0.6	
	T25N20	-3.4	1.8	-0.4	5.2	-3.4	4.0	2.6	5.1	1.1	4.8	-0.3	1.1	3.0	2.9	-4.8	-0.2	-1.4	
	T50N10	-3.3	1.0	-1.1	8.0	-3.3	0.0	-3.4	-1.7	-1.7	2.6	2.1	0.1	2.1	2.2	-1.5	-3.6	1.0	
LN	T10N50	4.9	8.4	7.3	7.3	3.8	2.0	7.2	4.6	5.4	7.7	5.2	-21.0	-18.6	-19.3	-16.5	-10.6	-26.4	
	T20N25	2.8	-6.1	2.2	-1.4	0.9	-2.6	3.4	7.5	-7.3	7.3	-5.9	-26.1	-21.4	-21.7	-9.9	-13.7	-20.2	
	T25N20	8.5	6.4	5.1	5.7	-1.1	2.7	6.8	1.5	9.4	10.2	6.3	-23.4	-17.0	-22.7	-15.1	-20.1	-24.2	
	T50N10	1.3	3.4	2.7	5.7	6.7	4.6	-2.0	2.7	3.3	2.5	1.5	-22.8	-21.7	-20.3	-22.1	-17.9	-19.5	
CN	T10N50	-3.9	5.1	0.1	1.5	-6.2	-4.9	-2.1	1.8	-5.3	7.6	-0.6	-8.7	3.0	2.1	0.5	-0.5	-0.6	
	T20N25	4.3	13.8	4.5	10.4	6.1	0.0	2.1	-0.8	0.1	6.3	0.4	-4.1	1.0	-1.4	1.0	-2.7	-10.4	
	T25N20	5.3	6.4	8.1	6.6	12.2	5.1	8.1	1.4	10.9	10.3	0.2	-0.4	0.5	1.4	-4.0	-3.9	-7.8	
	T50N10	-0.5	8.7	1.1	-2.3	-1.3	-3.9	2.5	4.3	1.4	8.5	0.2	0.7	-2.5	-1.4	-4.8	-3.7	-4.0	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	1.4	4.8	0.2	3.8	0.6	1.8	-2.9	1.1	1.0	4.5	1.0	1.7	1.6	0.3	4.8	1.3	-0.7	
	T20N25	-2.4	1.6	0.8	-0.4	-2.9	3.3	-0.8	2.7	4.5	4.0	-2.0	-0.4	2.9	1.3	3.0	-1.1	0.8	
	T25N20	-3.2	1.1	-0.2	4.4	-3.6	4.1	2.9	5.5	1.4	4.4	-0.9	1.4	2.8	2.3	-5.0	0.4	-2.0	
	T50N10	-2.6	1.2	-0.3	8.2	-3.1	-0.1	-4.5	-2.2	-1.9	2.3	1.3	-0.8	1.0	2.2	-3.0	-3.4	0.8	
LN	T10N50	2.6	5.4	3.8	4.3	-1.5	-1.0	3.1	2.2	3.8	5.2	4.5	-19.3	-16.5	-16.7	-12.6	-8.0	-24.8	
	T20N25	1.3	-7.6	0.5	-3.0	-2.0	-5.9	0.5	5.8	-8.4	5.3	-7.0	-23.7	-19.6	-19.9	-5.9	-11.1	-18.4	
	T25N20	5.4	4.8	2.9	3.7	-3.1	0.6	5.5	-1.6	7.8	8.1	5.3	-20.7	-15.0	-20.6	-11.2	-18.2	-22.7	
	T50N10	-1.2	0.1	0.7	2.1	3.4	0.3	-5.6	-1.4	2.0	0.0	-0.1	-20.1	-19.7	-18.7	-19.6	-15.4	-17.0	
CN	T10N50	0.4	7.8	2.6	4.9	-8.1	-7.0	-4.7	-1.2	-4.8	9.0	-0.8	-7.2	2.6	1.9	1.0	-0.5	0.7	
	T20N25	9.0	17.3	7.3	14.9	3.9	-1.8	-1.2	-3.3	1.0	7.2	1.2	-2.0	1.0	-1.1	1.9	-2.4	-9.9	
	T25N20	10.2	10.2	10.9	11.8	10.3	2.7	5.6	-1.7	11.1	11.3	2.1	1.3	0.7	1.1	-2.1	-3.4	-7.2	
	T50N10	3.0	11.2	3.5	1.4	-4.4	-7.6	-1.2	0.8	2.6	9.8	2.1	2.3	-2.5	-0.6	-3.6	-2.9	-3.7	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.



## 1.2.2 Using The Noninformative Initial Setting

TABLE 1.31

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-10.7	-3.1	-6.9	-9.6	-2.1	-3.2	-5.9	-1.5	-5.5	-4.6	-6.5	-2.6	-6.4	-3.6	-1.3	-3.8	-3.4	
	T100N1	-4.3	-5.3	-0.9	-0.7	-0.5	-6.0	-2.9	1.1	-4.3	0.7	-1.2	-1.8	-3.2	-3.2	-1.6	-0.1	-4.0	
	T200N1	-3.6	-2.1	-3.2	0.7	-1.5	-4.3	-3.5	-5.6	0.6	-2.9	4.3	-0.4	0.3	-4.6	0.9	-1.7	0.3	
	T500N1	2.3	-1.6	-2.2	-2.7	-0.4	-3.7	-1.0	-5.3	1.1	0.0	-2.1	-4.8	0.7	3.4	1.7	-1.9	2.2	
LN	T50N1	-3.4	-5.4	-0.3	-9.9	-7.7	-5.4	-8.4	-5.4	-58.2	-3.6	-47.8	-38.1	-42.8	-44.6	-35.4	-38.8	-46.4	
	T100N1	-4.8	-3.7	-1.4	-2.2	-4.3	-4.1	-5.2	-5.8	-54.0	4.2	-51.9	-38.2	-44.1	-43.1	-43.7	-48.8	-47.7	
	T200N1	-3.8	-5.5	-7.9	-5.3	-1.2	-2.8	-3.7	-5.4	-53.4	7.5	-58.9	-33.6	-45.4	-47.3	-39.9	-44.2	-45.4	
	T500N1	0.9	0.2	0.4	-0.1	0.1	0.2	2.1	-0.6	-56.1	11.0	-56.3	-39.6	-42.7	-43.1	-37.0	-42.9	-43.8	
CN	T50N1	-14.3	-9.3	-11.9	-6.7	-31.3	-31.7	-27.7	-27.7	-48.5	-48.4	-44.9	-52.5	-56.1	-52.1	-49.7	-52.7	-51.7	
	T100N1	-4.4	-7.3	-6.6	-6.1	-21.2	-17.4	-20.8	-19.6	-47.1	-45.7	-45.6	-50.1	-52.6	-51.3	-50.8	-51.5	-51.8	
	T200N1	-8.0	-3.4	-5.6	0.2	-18.2	-15.8	-14.9	-15.3	-48.5	-43.3	-48.7	-48.4	-55.7	-54.2	-53.5	-53.9	-53.6	
	T500N1	-5.2	-6.2	-1.1	-3.6	-14.7	-13.8	-14.2	-13.3	-45.6	-44.3	-48.8	-49.1	-54.8	-53.7	-49.6	-54.0	-55.4	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-20.0	-10.6	-14.0	-18.1	-18.4	-19.2	-21.9	-18.5	-9.1	-6.5	-9.8	-6.4	-8.9	-6.4	-5.2	-6.5	-6.2	
	T100N1	-10.4	-9.9	-5.6	-7.0	-9.8	-14.7	-12.1	-8.4	-6.1	-0.2	-3.0	-3.6	-4.5	-4.5	-3.4	-1.4	-5.2	
	T200N1	-6.9	-4.8	-5.9	-2.9	-6.3	-9.0	-8.2	-10.2	-0.3	-3.3	3.3	-1.3	-0.4	-5.2	-0.1	-2.4	-0.4	
	T500N1	0.8	-2.7	-3.3	-4.0	-2.3	-5.6	-3.0	-7.1	0.7	-0.1	-2.5	-5.1	0.4	3.1	1.3	-2.1	1.9	
LN	T50N1	-15.7	-15.0	-10.9	-20.4	-26.0	-24.2	-27.5	-24.9	-59.9	-5.8	-49.9	-41.0	-44.5	-46.3	-38.8	-41.2	-48.2	
	T100N1	-11.6	-9.2	-6.9	-9.1	-14.3	-14.2	-15.3	-15.9	-54.9	3.2	-52.9	-39.5	-44.9	-43.9	-44.8	-49.5	-48.4	
	T200N1	-7.4	-8.3	-10.8	-8.9	-6.3	-7.8	-8.9	-10.4	-53.8	7.0	-59.3	-34.3	-45.8	-47.7	-40.4	-44.6	-45.8	
	T500N1	-0.6	-1.0	-0.9	-1.6	-2.0	-1.9	0.0	-2.7	-56.2	10.8	-56.5	-39.8	-42.9	-43.3	-37.2	-43.1	-44.0	
CN	T50N1	-24.6	-17.9	-19.7	-17.4	-44.4	-45.0	-41.9	-42.0	-50.9	-50.0	-47.4	-54.7	-57.4	-53.7	-52.4	-54.5	-53.4	
	T100N1	-11.3	-12.3	-11.6	-12.8	-29.3	-26.0	-29.0	-27.9	-48.4	-46.5	-46.9	-51.3	-53.3	-52.1	-51.9	-52.3	-52.6	
	T200N1	-11.6	-6.4	-8.4	-3.8	-23.0	-20.6	-19.9	-20.2	-49.1	-43.8	-49.5	-49.2	-56.2	-54.7	-54.3	-54.4	-53.9	
	T500N1	-6.6	-7.3	-2.3	-5.1	-16.4	-15.6	-15.9	-15.1	-45.9	-44.5	-49.0	-49.4	-55.0	-53.9	-49.9	-54.1	-55.6	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	-9.0	-4.0	-6.9	-9.4	-2.0	-2.2	-5.9	-2.6	-7.2	-4.5	-7.9	-2.4	-7.8	-4.1	-1.2	-5.3	-3.5	
	T100N1	-3.2	-4.9	-0.7	0.1	-0.7	-6.5	-3.2	0.7	-5.4	-0.3	-3.0	-3.2	-3.7	-4.3	-2.2	-2.0	-4.8	
	T200N1	-3.0	-1.7	-3.0	1.5	-1.4	-4.6	-4.2	-5.9	-0.2	-3.1	3.7	-0.3	-0.2	-4.8	0.7	-2.7	-0.4	
	T500N1	2.7	-1.3	-2.0	-2.3	-0.2	-3.5	-1.2	-5.5	0.6	0.0	-2.8	-4.9	0.1	3.3	1.6	-2.1	1.9	
LN	T50N1	3.7	-4.4	2.4	-3.0	-7.9	-4.2	-3.0	-2.4	-36.2	-7.2	-23.4	-20.5	-20.1	-23.0	-15.4	-13.3	-23.9	
	T100N1	-0.3	-3.4	-0.8	1.2	-5.2	-4.5	-5.5	-6.1	-24.1	-0.6	-21.3	-17.3	-18.3	-13.6	-23.0	-22.7	-21.7	
	T200N1	0.3	-5.8	-6.2	-2.5	-1.2	-3.6	-4.8	-6.4	-16.6	3.2	-23.7	-9.3	-13.0	-16.4	-16.3	-13.4	-13.9	
	T500N1	5.5	1.5	1.9	3.8	-0.1	-0.2	2.5	-0.1	-12.5	6.8	-14.4	-12.2	-6.7	-5.2	-9.0	-6.1	-7.3	
CN	T50N1	-10.6	-7.0	-9.7	-3.0	-18.1	-17.0	-13.9	-12.8	-22.8	-21.4	-16.7	-28.6	-29.1	-25.8	-22.1	-25.1	-24.9	
	T100N1	-1.4	-6.0	-4.5	-2.2	-10.0	-5.7	-9.0	-7.6	-14.4	-13.5	-12.8	-18.4	-17.4	-14.2	-19.7	-16.7	-17.4	
	T200N1	-4.8	-1.7	-3.6	2.8	-6.8	-4.4	-2.4	-4.2	-10.8	-3.5	-11.9	-7.3	-15.2	-13.9	-16.9	-11.6	-12.2	
	T500N1	-2.0	-4.2	1.3	0.1	-3.5	-1.1	-1.5	-0.8	-2.6	-1.6	-7.3	-4.7	-7.9	-5.9	-3.8	-5.7	-9.6	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-17.3	-10.4	-13.8	-16.7	-10.3	-11.8	-15.3	-11.4	-15.1	-13.9	-17.1	-10.4	-16.8	-11.8	-11.6	-12.6	-10.5	
	T100N1	-11.2	-10.6	-6.2	-6.4	-8.3	-13.9	-10.5	-8.0	-9.7	-5.4	-9.6	-8.5	-9.5	-9.8	-8.5	-7.8	-11.4	
	T200N1	-8.1	-4.7	-7.0	-2.4	-7.5	-9.9	-8.7	-11.5	-4.8	-7.7	-0.5	-4.3	-3.0	-9.5	-2.9	-6.5	-4.3	
	T500N1	-1.2	-3.2	-4.9	-4.9	-3.6	-7.7	-4.5	-7.9	-2.2	-2.2	-5.2	-7.0	-2.0	1.0	-1.1	-4.2	-0.7	
LN	T50N1	-7.7	-10.6	-3.4	-14.7	-15.7	-12.7	-11.2	-12.4	-41.0	-16.6	-28.7	-24.4	-24.6	-26.0	-20.2	-16.9	-27.4	
	T100N1	-13.6	-9.8	-7.4	-9.9	-11.2	-12.8	-12.7	-13.9	-27.2	-8.2	-25.0	-18.8	-20.3	-15.7	-24.7	-24.9	-23.7	
	T200N1	-11.3	-11.9	-11.5	-13.1	-7.4	-8.4	-11.5	-13.5	-18.5	-4.6	-25.8	-9.2	-12.9	-17.1	-15.7	-14.1	-14.1	
	T500N1	-4.7	-3.7	-3.8	-5.4	-4.2	-5.3	-2.3	-3.9	-13.4	0.1	-14.8	-9.8	-5.5	-4.2	-6.3	-4.5	-6.2	
CN	T50N1	-18.8	-13.4	-16.9	-11.5	-24.2	-24.0	-20.8	-20.8	-29.5	-28.3	-23.9	-33.3	-34.3	-32.2	-27.6	-30.0	-31.0	
	T100N1	-12.6	-13.7	-12.5	-11.7	-19.1	-13.6	-16.0	-15.3	-19.1	-16.8	-16.4	-22.8	-22.0	-18.8	-23.8	-22.2	-20.8	
	T200N1	-12.6	-7.2	-10.4	-4.4	-13.9	-11.5	-7.4	-9.8	-13.2	-5.9	-14.3	-9.1	-18.0	-16.0	-19.7	-14.0	-13.7	
	T500N1	-8.2	-8.2	-2.7	-5.6	-8.2	-5.6	-6.4	-4.9	-3.7	-3.1	-8.1	-5.4	-8.9	-7.6	-4.4	-7.2	-11.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.32

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-6.4	6.2	7.6	-10.6	-2.7	1.4	2.9	0.1	-0.4	-1.5	-1.0	0.2	-0.8	-1.8	-1.0	3.6	2.1	
	T20N25	-6.8	6.2	2.2	-6.2	-7.2	-1.3	-0.4	0.1	-4.6	-0.2	8.1	-1.0	-0.7	-0.4	-0.1	-2.7	1.0	
	T25N20	-7.5	2.2	1.0	-6.0	-2.7	-5.4	-4.2	0.5	-3.5	0.6	5.0	-5.9	3.3	1.8	-3.3	-0.4	0.0	
	T50N10	-7.8	-7.5	-7.8	-10.6	-7.4	-9.7	-1.3	0.6	-13.7	-0.3	-3.1	-1.3	-3.5	1.5	1.7	0.8	0.1	
LN	T10N50	-33.0	-16.7	-3.7	-30.1	-2.1	-2.3	0.7	0.2	-64.0	10.7	-50.7	-40.2	-42.6	-43.4	-35.9	-40.4	-44.4	
	T20N25	-17.3	-7.7	-10.8	-16.1	-3.1	0.4	-3.4	-2.2	-59.1	9.4	-54.0	-41.2	-45.5	-44.3	-30.6	-42.9	-44.9	
	T25N20	-18.0	-8.1	-10.2	-17.8	-3.2	-3.2	-6.5	-3.4	-57.8	9.3	-53.9	-43.0	-45.0	-42.5	-34.4	-44.4	-45.7	
	T50N10	-10.6	-12.8	-4.4	-11.9	-3.9	-4.3	-2.3	-3.1	-57.6	7.3	-58.3	-37.9	-44.2	-41.2	-34.8	-41.7	-45.5	
CN	T10N50	-26.1	-7.9	-6.6	-18.9	-16.4	-13.2	-17.6	-17.1	-45.6	-45.1	-44.5	-51.9	-53.5	-52.2	-49.0	-52.2	-53.5	
	T20N25	-15.1	-10.2	-10.7	-16.0	-14.5	-16.1	-16.5	-16.2	-44.9	-45.1	-45.9	-52.4	-54.3	-51.4	-50.8	-53.9	-58.2	
	T25N20	-11.5	-6.6	-11.4	-14.9	-14.7	-14.5	-15.9	-13.2	-46.1	-45.7	-45.5	-52.7	-53.6	-52.4	-49.3	-54.5	-53.6	
	T50N10	-8.3	-6.8	-5.0	-7.4	-13.9	-11.1	-13.1	-16.6	-50.1	-46.2	-46.8	-51.0	-54.4	-51.5	-49.1	-54.5	-54.5	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-23.3	-0.3	0.9	-26.3	-39.5	-36.9	-36.5	-38.2	-4.0	-1.3	-4.4	-1.9	-2.6	-3.5	-3.4	1.6	0.1	
	T20N25	-23.4	-4.4	-8.1	-23.0	-32.1	-27.8	-27.2	-26.9	-7.7	-0.5	4.4	-2.8	-2.1	-1.9	-1.9	-4.1	-0.5	
	T25N20	-23.7	-9.0	-10.1	-22.2	-25.7	-27.8	-27.0	-23.5	-6.5	0.1	1.7	-7.4	2.0	0.5	-4.9	-1.7	-1.3	
	T50N10	-18.7	-15.5	-15.8	-21.0	-21.0	-23.1	-15.8	-14.2	-15.6	-0.7	-5.1	-2.4	-4.3	0.6	0.5	-0.1	-0.8	
LN	T10N50	-44.1	-21.1	-8.7	-41.5	-39.4	-39.7	-38.5	-38.8	-65.3	11.2	-52.4	-41.5	-43.6	-44.5	-37.6	-41.5	-45.5	
	T20N25	-32.4	-17.2	-20.1	-31.5	-29.8	-27.2	-30.4	-29.5	-60.5	9.3	-55.6	-42.3	-46.3	-45.1	-31.9	-43.7	-45.7	
	T25N20	-33.0	-18.7	-20.9	-32.5	-26.3	-26.4	-29.5	-27.1	-59.2	8.8	-55.3	-44.0	-45.5	-43.4	-35.7	-45.3	-46.6	
	T50N10	-22.1	-21.1	-13.6	-23.0	-18.5	-18.9	-17.3	-18.0	-58.5	6.8	-59.1	-38.6	-44.7	-41.8	-35.6	-42.3	-46.0	
CN	T10N50	-39.2	-13.4	-12.1	-33.0	-48.4	-46.4	-49.1	-48.7	-47.7	-45.1	-46.5	-53.0	-54.4	-53.0	-50.4	-53.2	-54.3	
	T20N25	-30.4	-19.7	-19.5	-31.3	-37.9	-39.1	-38.9	-38.8	-46.9	-45.3	-47.8	-53.3	-55.0	-52.1	-51.8	-54.6	-58.9	
	T25N20	-27.3	-17.3	-21.4	-30.1	-35.2	-35.1	-36.0	-33.9	-47.9	-46.0	-47.3	-53.5	-54.2	-53.0	-50.3	-55.1	-54.3	
	T50N10	-19.7	-15.4	-13.7	-18.8	-26.9	-24.5	-26.2	-29.2	-51.3	-46.4	-48.0	-51.6	-54.9	-51.9	-49.8	-55.0	-54.9	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-6.6	-3.8	-2.4	-10.4	-3.5	0.2	2.0	-1.0	-2.2	-2.4	-3.1	1.0	-1.8	-1.7	-1.6	3.8	1.5	
	T20N25	-3.3	3.3	-0.7	-2.7	-7.6	-1.6	-0.9	-0.6	-5.8	-0.7	6.7	-0.9	-1.1	-1.4	-0.1	-3.5	0.4	
	T25N20	-2.3	2.7	1.4	-0.6	-3.3	-5.9	-4.8	0.2	-4.7	-0.2	3.8	-6.1	3.1	1.8	-3.2	-0.4	-0.8	
	T50N10	-3.2	-5.4	-5.6	-6.2	-7.5	-9.6	-1.2	0.6	-14.1	-1.0	-4.2	-1.2	-3.4	1.2	1.3	0.0	0.6	
LN	T10N50	-11.9	-9.4	1.0	-11.1	-3.3	-3.1	-0.5	-1.2	-20.1	1.6	-6.1	-8.0	-5.1	-8.4	-5.6	-2.4	-8.3	
	T20N25	-0.2	-2.8	-7.0	0.9	-3.2	-0.2	-3.9	-2.6	-15.8	2.9	-10.5	-12.4	-9.3	-9.9	-3.4	-9.2	-8.6	
	T25N20	-1.6	-0.5	-3.4	-1.9	-4.0	-3.7	-7.2	-3.9	-17.2	3.7	-9.4	-15.3	-8.5	-5.3	-8.6	-6.8	-7.5	
	T50N10	1.3	-6.9	0.3	-0.1	-3.8	-4.3	-2.5	-3.5	-15.2	3.1	-16.9	-9.3	-9.4	-1.9	-9.9	-7.3	-8.5	
CN	T10N50	-15.0	-5.7	-4.0	-7.2	-3.8	-2.1	-4.0	-5.0	-5.1	-7.4	-0.8	-8.7	-2.8	1.1	-3.4	0.3	-5.1	
	T20N25	-3.0	-4.8	-3.9	-3.4	-0.5	-3.1	-2.5	-2.9	-2.3	-2.6	-1.1	-10.0	1.6	2.4	-4.0	-4.5	-13.0	
	T25N20	3.2	0.8	-2.4	-3.2	-1.8	0.1	-2.2	-0.9	-3.1	-4.9	-0.7	-9.8	-1.5	0.3	-3.2	-4.1	-6.3	
	T50N10	2.9	0.3	3.1	2.9	-0.8	2.2	-0.6	-5.3	-8.5	-5.4	-3.2	-6.1	-3.3	-0.8	-2.9	-6.6	-6.2	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	0.6	-1.0	-0.2	-2.3	-4.8	-0.2	1.9	-0.9	-2.6	-1.8	-3.1	0.5	-1.8	-1.8	-2.2	4.3	0.0	
	T20N25	2.3	5.3	0.9	1.6	-8.1	-2.7	-1.0	0.3	-6.5	-1.0	5.9	-1.3	-1.8	-1.9	0.1	-4.7	0.4	
	T25N20	1.9	5.3	3.9	3.5	-3.7	-6.4	-4.7	0.1	-5.4	-0.9	3.5	-6.0	2.6	0.9	-4.1	-0.5	-1.7	
	T50N10	-0.9	-4.3	-4.4	-4.5	-8.2	-10.7	-2.5	-0.6	-15.0	-2.3	-5.6	-2.1	-5.3	0.8	-0.5	-0.6	0.0	
LN	T10N50	-15.7	-9.5	0.5	-14.3	-5.2	-4.6	-1.3	-1.6	-19.5	0.0	-5.7	-5.2	-2.8	-5.6	-0.8	0.8	-6.8	
	T20N25	-5.0	-4.3	-6.7	-4.6	-4.1	-1.3	-5.0	-3.0	-16.1	-1.0	-9.4	-9.6	-6.9	-7.9	1.0	-6.6	-6.2	
	T25N20	-6.3	0.4	-4.4	-5.7	-4.6	-4.6	-6.6	-4.6	-16.7	-1.8	-8.2	-11.1	-5.8	-2.8	-5.0	-4.3	-5.7	
	T50N10	-4.1	-8.3	-1.2	-5.2	-5.5	-6.7	-4.6	-5.0	-15.2	-2.7	-16.7	-6.2	-7.5	0.4	-7.6	-4.4	-5.7	
CN	T10N50	-11.6	-3.7	-2.4	-3.0	-5.3	-3.6	-6.2	-6.9	-4.0	-5.0	-0.8	-7.7	-4.1	-0.2	-5.2	-0.9	-4.4	
	T20N25	-1.7	-4.1	-3.4	-4.2	-2.4	-4.8	-5.1	-5.5	-1.6	-1.7	-1.1	-8.3	0.9	1.3	-5.0	-4.7	-13.1	
	T25N20	2.1	1.1	-2.5	-2.6	-3.5	-1.9	-4.4	-2.9	-2.5	-4.9	-0.8	-8.4	-2.1	-1.1	-3.2	-4.5	-6.5	
	T50N10	-0.3	0.1	0.9	0.7	-3.6	-0.9	-2.7	-7.9	-8.4	-5.8	-3.4	-5.0	-3.9	-1.1	-2.8	-6.3	-6.9	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.33

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-11.5	-1.0	-5.8	-8.8	-5.9	-4.7	-3.6	-2.1	-0.4	-2.3	-2.0	-0.1	-4.1	-4.4	-3.8	-4.8	-3.0	
	T100N1	-8.7	-10.3	-4.9	-4.0	-4.0	-4.5	-4.4	-4.9	-6.5	2.5	0.1	-4.3	-3.6	-4.6	-0.2	0.1	-5.8	
	T200N1	-1.4	-5.9	-2.5	-5.1	-3.6	-2.6	-4.0	0.4	1.8	-1.4	-0.6	-1.5	2.0	-5.1	1.6	0.3	-2.0	
	T500N1	-1.4	-2.5	0.2	-3.8	-3.2	-0.4	-2.7	-1.1	-9.8	-1.0	5.9	-2.1	1.9	3.0	1.5	-2.1	2.0	
LN	T50N1	-8.2	-4.4	-8.0	-10.1	-9.1	-7.3	-3.5	-7.3	-40.5	-1.4	-34.0	-24.1	-30.5	-25.7	-20.5	-26.8	-26.9	
	T100N1	-6.8	-5.2	-0.8	-4.2	-5.1	-6.7	-7.0	-5.4	-37.3	1.9	-37.0	-21.3	-26.4	-25.2	-24.9	-32.1	-32.4	
	T200N1	-3.9	-7.3	-4.2	-4.7	-2.0	3.4	-1.7	0.9	-36.3	5.8	-39.2	-18.0	-24.3	-31.5	-21.9	-26.9	-26.9	
	T500N1	0.7	-3.0	0.0	-2.7	-3.3	1.4	3.7	-0.7	-40.6	1.5	-37.5	-24.5	-24.7	-24.4	-20.7	-27.4	-26.3	
CN	T50N1	-11.5	-8.6	-9.5	-9.8	-29.8	-25.7	-22.6	-27.7	-45.4	-46.2	-44.9	-49.5	-55.3	-53.2	-51.3	-50.8	-52.5	
	T100N1	-9.3	-7.1	-9.7	-8.5	-22.1	-20.7	-19.3	-17.8	-48.5	-45.8	-44.4	-51.4	-52.4	-50.1	-50.7	-51.1	-52.3	
	T200N1	-3.7	-2.4	-3.9	-6.4	-18.6	-13.1	-15.9	-17.9	-47.5	-46.1	-48.7	-49.9	-56.5	-51.8	-51.3	-54.1	-54.1	
	T500N1	-7.5	-5.2	-3.7	-1.2	-12.0	-12.9	-13.9	-14.7	-46.0	-44.3	-47.7	-49.6	-54.9	-53.6	-49.1	-54.6	-55.5	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-25.7	-13.3	-17.8	-22.6	-35.2	-34.5	-33.9	-32.8	-6.3	-5.0	-7.7	-5.7	-7.5	-8.1	-8.3	-8.2	-6.4	
	T100N1	-17.9	-17.8	-12.8	-13.5	-22.8	-23.1	-23.3	-23.7	-9.8	1.3	-3.3	-7.0	-5.6	-6.3	-2.9	-1.8	-7.5	
	T200N1	-6.7	-10.3	-7.0	-10.4	-14.4	-13.6	-14.9	-10.9	-0.2	-2.0	-2.6	-2.9	1.0	-6.0	0.1	-0.7	-2.9	
	T500N1	-3.4	-4.2	-1.6	-5.7	-7.9	-5.2	-7.4	-5.9	-10.6	-1.3	5.0	-2.7	1.5	2.6	0.9	-2.5	1.6	
LN	T50N1	-22.8	-16.9	-19.8	-23.4	-38.4	-37.2	-34.9	-37.6	-43.8	-4.0	-37.8	-28.2	-32.9	-28.4	-25.0	-29.6	-29.7	
	T100N1	-16.7	-13.7	-9.7	-14.3	-24.3	-25.5	-26.2	-24.8	-39.4	0.6	-39.2	-23.6	-27.8	-26.6	-26.9	-33.4	-33.7	
	T200N1	-9.4	-11.8	-9.0	-10.2	-13.3	-8.5	-13.1	-10.8	-37.5	5.2	-40.4	-19.2	-25.0	-32.1	-23.1	-27.6	-27.6	
	T500N1	-1.3	-4.8	-1.8	-4.6	-8.1	-3.6	-1.5	-5.6	-41.1	1.2	-38.0	-24.9	-25.0	-24.7	-21.1	-27.7	-26.6	
CN	T50N1	-26.6	-21.4	-22.5	-24.5	-53.2	-50.3	-48.6	-52.0	-49.2	-48.3	-48.6	-52.8	-57.2	-55.4	-54.3	-53.0	-54.5	
	T100N1	-19.8	-15.9	-18.3	-19.0	-38.3	-37.2	-36.0	-34.8	-50.5	-46.8	-46.5	-52.9	-53.4	-51.1	-52.2	-52.2	-53.3	
	T200N1	-9.4	-7.3	-8.7	-11.9	-28.2	-23.2	-26.0	-27.7	-48.7	-46.6	-49.8	-50.8	-57.0	-52.4	-52.2	-54.6	-54.6	
	T500N1	-9.4	-7.0	-5.5	-3.4	-16.4	-17.2	-18.2	-19.0	-46.5	-44.5	-48.2	-49.9	-55.1	-53.8	-49.4	-54.8	-55.7	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																			
N	T50N1	-4.0	4.5	-0.1	-1.8	-5.0	-4.1	-3.6	-2.8	-1.6	-3.0	-4.7	1.0	-5.2	-5.3	-4.2	-6.1	-3.7	
	T100N1	-4.5	-7.2	-1.9	0.2	-4.6	-5.3	-4.5	-4.9	-7.9	1.2	-1.2	-5.4	-4.8	-5.4	-0.7	-1.2	-6.5	
	T200N1	0.8	-4.2	-1.2	-3.1	-3.8	-3.0	-4.1	0.1	0.8	-1.6	-1.3	-2.0	1.5	-5.4	1.4	-0.2	-3.1	
	T500N1	-0.5	-2.0	0.6	-3.2	-3.5	-0.6	-2.7	-1.1	-10.4	-1.1	5.4	-2.4	1.6	2.7	1.4	-2.3	1.7	
LN	T50N1	1.8	0.3	-3.7	-1.5	-9.8	-6.5	-2.6	-6.0	-22.6	-3.6	-14.9	-13.4	-15.6	-10.6	-9.8	-13.0	-11.4	
	T100N1	-1.0	-1.3	2.3	2.4	-6.3	-7.1	-7.2	-6.1	-15.1	-3.1	-14.9	-8.8	-9.8	-6.9	-11.2	-15.1	-15.4	
	T200N1	0.5	-5.4	-1.7	-0.8	-2.7	2.7	-2.0	0.9	-8.1	2.8	-11.0	-3.6	-2.9	-11.7	-7.6	-6.3	-6.6	
	T500N1	3.8	-1.9	1.3	-0.2	-3.4	1.3	3.7	-0.5	-9.5	-1.1	-5.6	-8.7	-1.8	0.0	-4.3	-4.5	-2.8	
CN	T50N1	-0.7	-2.0	-2.4	-1.7	-14.1	-11.6	-10.6	-14.0	-16.6	-16.5	-15.6	-22.6	-25.6	-26.6	-25.1	-22.0	-24.0	
	T100N1	-1.8	-1.7	-4.0	-1.6	-9.8	-8.1	-6.8	-5.8	-15.7	-13.4	-10.2	-18.8	-16.2	-12.2	-17.3	-15.1	-17.9	
	T200N1	1.0	1.0	-0.7	-2.4	-5.9	-1.5	-3.3	-7.3	-8.4	-7.3	-12.1	-10.4	-16.6	-9.2	-13.6	-11.9	-12.5	
	T500N1	-4.0	-2.7	-0.9	2.7	0.5	-0.9	-0.6	-1.9	-3.2	-2.0	-5.7	-5.7	-7.9	-5.6	-2.6	-6.9	-9.6	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-11.7	-1.0	-6.4	-10.1	-13.3	-10.9	-12.8	-12.1	-11.4	-11.9	-14.0	-6.8	-13.9	-13.7	-12.5	-13.9	-11.2	
	T100N1	-10.9	-12.4	-7.0	-7.0	-11.9	-13.1	-11.7	-13.7	-13.0	-3.6	-6.2	-11.3	-10.8	-10.3	-7.1	-7.3	-13.1	
	T200N1	-4.6	-7.4	-5.0	-6.9	-9.0	-7.9	-9.5	-5.7	-4.0	-5.2	-4.7	-6.6	-2.1	-9.9	-2.3	-4.4	-7.6	
	T500N1	-4.0	-4.3	-2.1	-5.4	-6.8	-3.4	-6.2	-4.7	-12.0	-3.7	3.0	-4.6	-0.7	1.0	-0.9	-4.8	-0.9	
LN	T50N1	-8.7	-7.4	-9.6	-13.4	-19.2	-14.7	-11.7	-13.8	-28.6	-13.9	-21.3	-18.1	-21.5	-15.2	-17.2	-18.6	-18.1	
	T100N1	-10.1	-7.3	-2.4	-6.5	-12.2	-16.8	-15.1	-14.8	-19.2	-9.2	-19.8	-11.1	-13.1	-10.1	-13.9	-18.4	-19.3	
	T200N1	-6.9	-10.1	-6.2	-8.2	-8.5	-3.4	-8.4	-6.1	-10.6	-3.6	-13.5	-5.1	-3.4	-13.6	-8.5	-8.0	-7.9	
	T500N1	-3.4	-6.1	-3.1	-6.2	-7.9	-3.4	-0.1	-3.5	-10.7	-6.0	-6.9	-7.9	-1.6	0.1	-3.2	-3.9	-3.0	
CN	T50N1	-10.0	-9.9	-10.2	-10.7	-24.0	-19.3	-17.3	-22.4	-24.0	-22.7	-22.4	-29.1	-31.4	-31.8	-30.2	-27.4	-29.4	
	T100N1	-11.9	-10.6	-11.6	-10.9	-17.5	-16.0	-14.6	-13.3	-20.0	-17.0	-15.1	-22.6	-21.0	-17.6	-22.0	-20.4	-21.5	
	T200N1	-7.4	-4.4	-6.8	-10.0	-13.1	-7.9	-9.8	-13.2	-10.9	-10.0	-14.8	-12.3	-19.6	-10.8	-16.5	-14.7	-14.2	
	T500N1	-9.8	-6.6	-5.5	-3.0	-4.2	-5.8	-5.6	-6.0	-4.2	-3.4	-6.2	-6.4	-9.1	-7.2	-3.3	-8.4	-11.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.34

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-17.5	3.0	2.7	-17.0	-4.6	-0.1	1.7	0.0	-6.7	-3.3	1.5	-3.4	-1.5	0.8	-3.0	-0.2	-0.6	
	T20N25	-8.0	2.6	3.7	-9.0	-3.7	-3.7	-1.3	-2.3	-9.3	-0.4	9.5	-0.3	1.7	1.8	1.2	-1.4	1.3	
	T25N20	-16.0	-3.5	-5.2	-13.4	-5.1	-3.7	4.2	-3.3	-4.1	-0.8	4.1	-4.9	4.8	1.5	-3.0	1.1	0.9	
	T50N10	-14.3	-11.6	-12.0	-11.5	-4.4	-1.1	-0.9	0.0	-2.8	-0.4	1.5	1.1	-1.4	0.8	0.9	-0.3	-1.9	
LN	T10N50	-26.5	-6.7	-0.3	-26.4	-1.2	-2.4	2.1	-1.4	-46.5	0.4	-35.2	-27.7	-25.0	-27.7	-19.7	-24.0	-24.7	
	T20N25	-18.8	-3.8	-5.6	-18.9	-7.3	-3.9	-3.5	-4.2	-42.2	0.2	-37.0	-23.5	-29.7	-26.7	-15.8	-27.4	-26.5	
	T25N20	-19.5	-10.2	-13.5	-20.6	-1.9	-3.4	-1.7	2.2	-42.8	8.3	-36.6	-24.9	-26.5	-24.5	-21.6	-27.0	-30.2	
	T50N10	-16.0	-15.8	-11.8	-14.7	-12.3	-6.4	-1.7	0.6	-40.4	5.3	-39.4	-23.4	-27.7	-24.9	-17.5	-25.5	-30.3	
CN	T10N50	-25.1	-8.7	-5.4	-24.4	-18.8	-13.6	-15.2	-15.8	-43.6	-44.8	-44.3	-52.4	-53.5	-52.5	-49.8	-52.9	-53.9	
	T20N25	-17.2	-12.6	-15.0	-19.5	-16.2	-16.8	-15.6	-16.2	-45.3	-47.1	-46.3	-52.6	-54.7	-51.8	-50.3	-54.2	-57.7	
	T25N20	-17.4	-11.6	-13.3	-19.7	-15.5	-14.8	-13.7	-12.1	-47.4	-47.0	-44.9	-51.6	-53.9	-52.6	-49.7	-55.2	-53.5	
	T50N10	-12.4	-10.9	-10.8	-12.0	-12.5	-12.0	-14.5	-12.1	-47.0	-44.7	-44.9	-50.4	-55.0	-52.3	-49.4	-53.8	-52.8	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-35.5	-7.3	-7.7	-34.4	-57.8	-55.9	-55.5	-56.2	-11.8	-3.2	-3.7	-6.3	-3.8	-1.5	-6.2	-2.6	-3.0	
	T20N25	-28.9	-10.4	-9.6	-29.6	-46.7	-46.7	-45.4	-46.1	-14.3	-0.9	3.4	-3.2	-0.4	-0.3	-1.8	-3.3	-0.9	
	T25N20	-37.1	-19.8	-21.3	-34.9	-43.8	-42.9	-38.4	-42.9	-9.4	-1.8	-1.5	-7.5	2.7	-0.4	-5.7	-0.9	-1.1	
	T50N10	-31.1	-25.5	-25.9	-28.5	-32.0	-29.7	-29.5	-28.8	-6.9	-1.4	-2.6	-1.0	-2.8	-0.7	-1.2	-1.7	-3.3	
LN	T10N50	-41.4	-15.3	-9.2	-40.9	-56.3	-56.9	-55.4	-57.0	-49.4	0.6	-38.5	-29.9	-26.7	-29.4	-22.5	-25.8	-26.6	
	T20N25	-37.2	-16.1	-18.1	-37.4	-48.8	-46.9	-46.9	-47.4	-45.4	-0.2	-40.6	-25.8	-31.2	-28.2	-18.3	-28.9	-28.1	
	T25N20	-39.6	-25.2	-28.1	-40.3	-42.0	-42.8	-42.0	-39.7	-45.9	7.3	-40.0	-27.0	-28.0	-25.9	-23.8	-28.5	-31.6	
	T50N10	-33.2	-29.6	-26.5	-31.8	-37.7	-33.6	-30.4	-28.7	-42.9	4.1	-41.9	-25.0	-28.7	-26.0	-19.3	-26.6	-31.3	
CN	T10N50	-40.9	-17.3	-14.3	-40.2	-64.5	-62.3	-62.9	-63.1	-46.8	-44.9	-47.3	-53.9	-54.6	-53.6	-51.7	-54.1	-55.0	
	T20N25	-35.9	-24.3	-25.8	-37.9	-54.0	-54.3	-53.1	-53.5	-48.4	-47.4	-49.3	-54.1	-55.6	-52.8	-51.8	-55.2	-58.6	
	T25N20	-37.6	-26.0	-27.3	-39.2	-50.2	-49.7	-48.9	-48.1	-50.3	-47.5	-47.9	-53.1	-54.9	-53.5	-51.2	-56.1	-54.5	
	T50N10	-30.4	-25.9	-25.7	-30.0	-38.0	-37.7	-39.3	-37.6	-49.4	-45.4	-47.3	-51.5	-55.6	-53.0	-50.6	-54.5	-53.6	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-15.8	-6.9	-7.0	-15.0	-5.3	-1.2	0.9	-0.9	-8.4	-4.4	-0.2	-2.7	-2.5	0.7	-3.6	0.1	-1.3	
	T20N25	-3.5	-2.2	-1.4	-5.0	-4.3	-4.2	-2.0	-2.9	-10.4	-0.7	7.9	-0.2	1.4	0.9	1.0	-1.9	0.9	
	T25N20	-5.1	1.9	0.0	-2.0	-5.6	-4.4	3.4	-3.9	-4.9	-1.4	3.1	-5.1	4.8	1.7	-3.0	1.3	0.2	
	T50N10	-1.3	-1.7	-1.8	1.7	-4.9	-1.5	-0.9	-0.2	-3.4	-0.7	0.7	1.0	-1.2	0.2	0.6	-0.8	-1.4	
LN	T10N50	-11.7	-6.1	-1.2	-13.3	-1.8	-3.3	1.2	-2.5	-13.3	-4.3	-3.7	-9.6	-1.0	-6.3	-1.7	1.1	-2.2	
	T20N25	-4.7	-1.7	-3.6	-5.2	-8.0	-4.4	-4.4	-4.8	-10.9	-3.1	-5.5	-6.4	-6.2	-4.5	-0.5	-6.3	-2.8	
	T25N20	-1.1	0.1	-4.4	-2.5	-2.7	-4.0	-2.1	1.4	-13.5	5.5	-4.8	-8.9	-2.0	-0.5	-6.8	-3.4	-7.0	
	T50N10	1.5	-3.1	1.1	3.2	-12.6	-6.5	-1.7	0.1	-8.9	3.0	-8.3	-7.0	-5.7	-0.4	-2.5	-3.9	-7.2	
CN	T10N50	-12.4	-6.7	-3.5	-12.3	-5.9	-2.4	-1.4	-4.0	-1.9	-7.7	-0.3	-8.9	-2.7	0.3	-5.0	-1.1	-5.6	
	T20N25	-3.5	-7.3	-8.8	-5.8	-2.3	-4.0	-1.2	-2.9	-4.2	-7.2	-2.2	-10.1	0.6	1.5	-3.2	-4.7	-11.5	
	T25N20	2.8	0.7	0.6	-2.0	-2.5	-1.2	0.2	0.9	-6.6	-7.7	-0.2	-7.4	-2.6	0.3	-3.9	-5.8	-6.0	
	T50N10	9.3	6.5	6.9	8.9	0.8	1.1	-2.8	-0.4	-2.9	-3.1	0.6	-5.2	-4.1	-2.8	-3.6	-4.7	-2.9	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-8.0	-3.4	-3.9	-6.1	-6.3	-1.4	0.8	-0.5	-8.7	-2.9	-0.4	-3.0	-2.5	0.8	-4.1	0.7	-2.1	
	T20N25	3.9	0.6	1.6	0.9	-4.9	-4.9	-2.3	-2.0	-10.9	0.0	7.7	-0.5	0.9	0.5	1.2	-2.8	0.9	
	T25N20	0.3	5.8	3.8	3.3	-5.5	-5.0	3.6	-3.5	-5.9	-2.1	2.8	-4.8	4.4	1.0	-3.9	0.6	-0.5	
	T50N10	1.7	0.3	-0.1	3.6	-5.8	-2.5	-2.4	-1.8	-4.3	-2.4	-0.9	0.2	-3.1	-0.2	-1.6	-1.5	-2.0	
LN	T10N50	-10.0	-4.7	-0.3	-10.5	-3.3	-4.3	0.6	-2.4	-12.5	-3.8	-3.5	-8.1	0.7	-4.2	2.1	3.6	-1.7	
	T20N25	-3.1	-0.3	-1.2	-4.6	-8.3	-5.8	-4.8	-4.4	-11.1	-3.1	-4.2	-4.7	-4.3	-3.2	2.3	-4.7	-1.0	
	T25N20	-0.1	3.2	-2.1	-1.1	-3.3	-4.4	-2.0	1.2	-13.4	2.9	-3.5	-5.9	-0.2	1.0	-4.6	-1.5	-5.7	
	T50N10	0.6	-2.8	2.0	2.5	-13.2	-7.6	-3.6	-1.4	-9.1	-1.4	-8.8	-5.6	-4.9	1.2	-1.6	-1.7	-5.3	
CN	T10N50	-8.5	-4.4	-1.1	-7.4	-7.4	-4.3	-3.8	-5.4	-0.3	-4.1	0.4	-7.8	-4.2	-1.0	-6.8	-2.1	-5.0	
	T20N25	-0.8	-5.2	-6.9	-5.6	-3.1	-5.6	-3.6	-4.8	-2.8	-5.3	-1.3	-8.4	0.1	0.4	-4.5	-5.1	-11.6	
	T25N20	2.3	1.6	1.3	-1.2	-4.1	-3.1	-1.9	-1.2	-5.9	-7.2	-0.2	-6.1	-3.2	-0.9	-3.9	-6.3	-6.2	
	T50N10	6.2	5.6	5.0	6.7	-2.3	-2.5	-5.3	-3.1	-3.7	-3.9	-0.1	-4.6	-4.8	-2.6	-3.3	-4.2	-3.5	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.35

RELATIVE BIAS×100 OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-13.1	-8.2	-6.6	-17.3	-6.2	-9.7	0.5	-2.3	-5.5	-3.9	-1.6	-4.2	-4.4	-2.0	-1.9	-2.8	-2.6	
	T100N1	-7.6	-6.8	-4.7	-1.7	-6.7	-6.5	-3.0	-2.5	-8.0	1.3	0.5	-4.1	-6.6	-2.1	0.1	-2.1	-3.8	
	T200N1	-6.2	-1.2	-3.6	-4.8	-4.5	0.1	0.3	2.5	-1.1	-0.7	2.1	-0.9	4.0	-7.9	2.2	0.0	-2.8	
	T500N1	-0.7	-1.3	-1.9	-3.6	4.7	-2.7	-3.7	-2.1	-1.5	-3.6	-1.1	-0.7	0.5	3.1	1.7	-4.1	1.3	
LN	T50N1	-10.3	-9.9	-9.0	-15.0	-3.3	-6.0	-6.6	-3.3	-27.4	-2.7	-24.3	-14.3	-18.5	-17.5	-10.7	-16.7	-19.2	
	T100N1	-9.4	-5.4	-3.4	-2.9	-1.7	-1.1	-1.1	-4.2	-27.0	3.7	-24.5	-13.7	-18.0	-18.3	-15.4	-22.4	-21.8	
	T200N1	-5.4	-5.0	-1.4	-3.8	-1.6	-4.7	-0.4	-1.0	-21.3	3.9	-23.5	-11.8	-13.2	-20.2	-13.8	-17.9	-17.4	
	T500N1	-0.1	-0.8	0.2	-2.3	-10.4	-4.9	-0.3	-2.2	-39.5	-0.6	-23.5	-16.1	-13.7	-14.3	-12.7	-17.5	-14.8	
CN	T50N1	-17.7	-10.0	-11.5	-15.1	-30.9	-29.9	-28.6	-28.3	-45.5	-45.0	-47.0	-46.5	-53.4	-54.3	-51.4	-52.7	-53.6	
	T100N1	-9.3	-7.8	-14.5	-12.1	-22.2	-19.3	-21.2	-19.0	-48.5	-47.0	-48.4	-50.6	-53.0	-51.3	-49.2	-50.9	-51.9	
	T200N1	-7.9	-8.0	-6.7	-6.9	-15.7	-14.5	-15.7	-17.8	-46.5	-46.0	-48.1	-49.2	-56.5	-54.2	-51.7	-56.1	-55.7	
	T500N1	-7.8	-3.3	-3.8	1.9	-17.2	-14.2	-7.8	-13.1	-47.8	-44.4	-48.2	-49.1	-54.8	-53.6	-50.1	-54.0	-56.1	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-29.3	-21.8	-20.8	-31.4	-46.8	-48.9	-43.9	-45.3	-12.3	-6.6	-8.7	-10.2	-8.2	-6.0	-7.8	-6.9	-6.5	
	T100N1	-19.9	-17.5	-15.6	-14.5	-35.4	-35.3	-33.0	-32.7	-12.6	-0.3	-4.3	-7.5	-8.7	-4.3	-3.3	-4.3	-5.9	
	T200N1	-12.5	-7.3	-9.5	-11.3	-23.1	-19.4	-19.3	-17.4	-4.1	-1.5	-1.0	-3.0	2.6	-9.0	0.1	-1.4	-4.0	
	T500N1	-3.0	-3.5	-4.1	-5.8	-4.9	-11.6	-12.5	-11.1	-2.9	-4.0	-2.6	-1.6	-0.1	2.5	0.8	-4.6	0.7	
LN	T50N1	-27.0	-25.0	-22.7	-30.5	-47.2	-48.4	-48.1	-46.2	-32.8	-5.7	-30.1	-19.9	-21.7	-20.4	-16.0	-19.7	-22.5	
	T100N1	-21.8	-16.6	-14.8	-16.0	-32.4	-31.9	-32.3	-34.3	-30.6	2.0	-28.2	-16.7	-19.9	-20.1	-18.4	-24.2	-23.5	
	T200N1	-12.0	-11.1	-7.7	-10.6	-20.9	-23.4	-20.1	-20.5	-23.7	3.0	-26.0	-13.7	-14.3	-21.2	-15.6	-19.0	-18.5	
	T500N1	-2.4	-3.0	-2.0	-4.6	-18.7	-13.7	-9.6	-11.3	-40.4	-1.0	-24.5	-16.9	-14.2	-14.7	-13.5	-18.0	-15.3	
CN	T50N1	-33.3	-25.0	-26.4	-30.6	-62.6	-62.1	-61.2	-61.3	-49.8	-47.1	-51.3	-50.3	-55.6	-56.5	-54.7	-54.8	-55.7	
	T100N1	-21.6	-19.0	-24.9	-24.5	-47.3	-45.3	-46.7	-45.1	-51.4	-48.2	-51.2	-52.6	-54.2	-52.5	-51.3	-52.2	-53.2	
	T200N1	-14.6	-13.9	-12.7	-13.5	-32.6	-31.7	-32.9	-34.5	-48.3	-46.6	-50.0	-50.4	-57.1	-54.9	-52.9	-56.7	-56.3	
	T500N1	-10.0	-5.5	-6.0	-0.6	-24.9	-22.2	-16.5	-21.2	-48.7	-44.7	-49.0	-49.6	-55.0	-53.9	-50.7	-54.3	-56.4	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	-1.3	-1.3	2.4	-7.7	-6.3	-9.0	0.6	-2.4	-6.9	-4.2	-3.3	-3.4	-5.2	-2.6	-1.5	-4.0	-2.8	
	T100N1	1.4	0.5	2.4	7.5	-7.2	-6.4	-2.9	-3.1	-8.9	0.2	-0.6	-4.7	-7.3	-3.1	-0.4	-3.2	-4.6	
	T200N1	-2.7	1.8	-0.7	-1.1	-4.6	-0.3	-0.1	2.2	-1.9	-1.0	1.2	-0.8	3.7	-8.3	1.6	-0.6	-3.6	
	T500N1	0.3	-0.5	-1.2	-2.5	4.6	-3.0	-3.7	-2.2	-2.0	-3.7	-1.4	-0.9	0.0	2.8	1.5	-4.1	1.2	
LN	T50N1	5.4	-0.4	2.2	-1.2	-3.1	-4.6	-5.8	-2.3	-14.8	-4.0	-10.6	-6.3	-9.2	-8.6	-4.6	-8.5	-10.0	
	T100N1	0.1	2.0	4.6	7.9	-2.8	-1.9	-1.4	-4.7	-12.1	0.8	-9.8	-6.9	-8.3	-7.2	-7.3	-12.1	-10.9	
	T200N1	-0.8	-2.4	1.9	0.7	-2.2	-4.7	-0.6	-1.5	-1.1	2.0	-2.9	-2.9	0.6	-7.4	-5.9	-5.3	-4.5	
	T500N1	2.4	0.1	1.8	-0.5	-10.3	-5.0	-0.3	-2.4	-21.2	-1.9	-1.4	-6.7	0.6	0.8	-2.8	-3.4	-0.1	
CN	T50N1	-5.5	-0.6	-0.1	-3.6	-15.9	-14.3	-16.5	-13.1	-18.7	-16.1	-18.7	-20.4	-26.4	-28.5	-25.6	-24.9	-27.6	
	T100N1	2.0	0.7	-5.3	-1.2	-11.1	-7.8	-8.3	-7.3	-16.5	-16.1	-17.0	-19.5	-17.6	-14.2	-17.5	-16.0	-16.5	
	T200N1	-2.5	-3.7	-2.4	-1.0	-3.0	-3.2	-3.6	-6.2	-7.6	-6.6	-10.9	-9.4	-17.0	-14.4	-15.6	-15.7	-15.0	
	T500N1	-3.8	-0.5	-1.0	6.2	-5.0	-1.7	6.1	-0.4	-6.4	-1.8	-6.0	-4.4	-7.5	-5.8	-5.0	-5.8	-10.7	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-9.2	-8.0	-3.5	-15.4	-14.7	-17.8	-8.3	-10.4	-14.6	-12.0	-11.6	-11.2	-14.5	-10.5	-10.7	-12.5	-9.5	
	T100N1	-4.3	-4.2	-2.1	1.1	-15.2	-14.2	-11.3	-11.6	-15.0	-4.9	-6.5	-10.2	-12.6	-8.8	-8.7	-9.1	-11.0	
	T200N1	-7.3	-1.1	-4.5	-4.6	-9.4	-5.6	-6.7	-4.3	-6.9	-4.9	-2.4	-5.1	0.3	-12.2	-2.2	-5.5	-8.3	
	T500N1	-2.8	-2.8	-3.9	-4.6	1.5	-5.8	-7.0	-5.2	-3.9	-5.9	-3.5	-2.9	-2.3	0.7	-1.0	-6.1	-1.5	
LN	T50N1	-2.6	-6.0	-3.0	-10.3	-13.0	-13.6	-15.6	-13.2	-21.2	-12.4	-18.1	-12.0	-16.4	-13.8	-13.2	-14.5	-17.5	
	T100N1	-6.5	-3.6	0.1	-0.5	-10.8	-10.2	-8.3	-12.7	-16.8	-5.6	-14.6	-10.7	-12.8	-11.0	-11.8	-16.9	-15.3	
	T200N1	-7.4	-5.7	-1.9	-5.3	-8.1	-9.9	-5.9	-7.9	-4.8	-3.3	-6.2	-5.4	-0.9	-10.3	-6.7	-7.9	-7.0	
	T500N1	-2.8	-2.7	-1.0	-5.2	-12.7	-8.7	-3.1	-5.3	-22.8	-5.4	-2.6	-7.0	0.3	0.6	-2.8	-3.5	-1.1	
CN	T50N1	-13.7	-8.0	-5.6	-11.3	-23.0	-22.0	-23.6	-19.5	-24.7	-21.5	-24.6	-25.8	-31.2	-33.9	-30.9	-29.2	-32.0	
	T100N1	-7.8	-6.5	-12.5	-11.1	-18.7	-14.8	-15.9	-14.9	-20.3	-20.1	-21.6	-22.8	-22.3	-18.4	-21.8	-21.2	-19.9	
	T200N1	-10.2	-8.5	-8.3	-8.0	-9.4	-8.5	-10.5	-12.2	-10.7	-9.5	-13.3	-11.2	-19.8	-15.8	-17.9	-18.1	-17.5	
	T500N1	-10.3	-4.0	-5.4	0.0	-9.1	-6.6	0.6	-5.4	-7.3	-3.7	-6.7	-5.2	-8.7	-7.5	-5.6	-7.4	-12.0	

Note: The entries in the table equal relative bias×100. The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.36

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-14.3	3.6	5.8	-16.6	1.7	4.5	2.3	5.0	0.6	-3.8	-1.4	0.9	-2.2	0.8	3.3	0.3	0.6	
	T20N25	-14.9	3.9	1.8	-11.1	-2.3	3.0	-2.3	0.8	-2.6	-4.8	3.0	0.2	-1.0	0.3	2.6	-1.2	3.8	
	T25N20	-17.9	-0.5	-7.0	-13.5	2.5	-2.0	-1.3	-0.1	2.3	-4.8	-0.9	1.2	5.1	0.2	-4.4	-3.1	1.4	
	T50N10	-17.2	-15.4	-15.8	-22.1	-3.1	-1.5	-2.9	-1.6	2.6	0.1	0.0	-0.1	-3.6	2.9	-0.4	-2.8	-0.6	
LN	T10N50	-26.6	-5.8	-3.5	-24.2	-1.4	0.4	0.3	1.4	-30.8	1.7	-22.2	-14.8	-16.3	-16.6	-11.9	-14.3	-14.1	
	T20N25	-17.1	1.5	-2.3	-17.8	-3.1	1.9	-1.4	-2.6	-28.3	1.6	-25.6	-14.6	-17.3	-17.1	-7.6	-19.7	-16.7	
	T25N20	-17.6	-5.7	-8.9	-21.5	-5.1	-5.1	-4.8	1.2	-28.9	0.3	-25.4	-17.5	-15.9	-15.0	-14.0	-18.3	-17.9	
	T50N10	-19.4	-16.0	-14.4	-17.9	-2.9	-5.5	-4.9	-1.9	-24.9	1.8	-28.8	-12.0	-18.5	-15.0	-14.0	-17.5	-17.7	
CN	T10N50	-22.2	-6.6	-5.0	-23.0	-20.3	-16.6	-13.3	-15.7	-44.8	-44.6	-46.3	-52.9	-53.2	-52.3	-49.8	-52.1	-53.9	
	T20N25	-20.4	-11.0	-13.5	-20.9	-17.4	-13.7	-17.3	-16.1	-46.2	-48.2	-46.9	-52.8	-54.6	-52.1	-50.5	-53.2	-57.9	
	T25N20	-22.3	-18.4	-19.4	-23.2	-14.8	-15.6	-15.7	-13.6	-44.5	-47.8	-45.4	-51.2	-53.3	-52.6	-49.2	-56.1	-54.0	
	T50N10	-20.1	-20.4	-19.6	-22.2	-15.3	-13.3	-13.7	-11.6	-46.5	-43.7	-46.4	-51.0	-54.3	-51.1	-49.4	-54.7	-53.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-34.5	-9.8	-7.8	-35.5	-66.8	-65.9	-66.9	-66.0	-5.9	-3.9	-7.3	-2.6	-4.6	-1.8	-0.6	-2.3	-2.0	
	T20N25	-35.2	-10.5	-12.5	-32.3	-58.5	-56.2	-58.6	-57.3	-9.0	-5.3	-3.9	-3.4	-3.4	-2.1	-0.9	-3.5	1.3	
	T25N20	-39.8	-17.5	-23.3	-36.2	-52.7	-54.8	-54.8	-54.2	-4.7	-5.7	-7.6	-2.3	2.6	-2.1	-7.7	-5.3	-1.0	
	T50N10	-39.2	-34.5	-34.8	-42.5	-43.7	-42.8	-43.6	-42.8	-3.4	-1.6	-5.6	-3.1	-5.4	0.9	-3.3	-4.6	-2.5	
LN	T10N50	-43.1	-17.1	-15.2	-40.5	-67.7	-67.2	-67.6	-67.2	-35.1	1.9	-26.8	-17.8	-18.4	-18.8	-15.3	-16.5	-16.4	
	T20N25	-36.9	-12.6	-16.3	-37.6	-59.0	-56.8	-58.4	-59.0	-33.1	1.2	-30.7	-17.6	-19.4	-19.1	-10.9	-21.6	-18.7	
	T25N20	-39.2	-21.5	-24.4	-41.8	-56.2	-56.2	-56.3	-53.5	-33.7	-0.6	-30.4	-20.4	-17.9	-16.9	-17.0	-20.3	-19.8	
	T50N10	-41.6	-35.6	-34.6	-40.1	-43.6	-45.2	-44.9	-43.0	-29.4	0.0	-32.9	-14.6	-20.0	-16.6	-16.5	-19.1	-19.2	
CN	T10N50	-39.8	-17.9	-16.6	-40.4	-74.3	-73.1	-72.0	-72.7	-48.4	-44.7	-49.7	-54.7	-54.5	-53.6	-51.9	-53.5	-55.2	
	T20N25	-39.4	-24.0	-25.8	-40.2	-65.4	-63.8	-65.0	-64.5	-49.9	-48.5	-50.5	-54.6	-55.7	-53.3	-52.4	-54.4	-58.9	
	T25N20	-42.1	-32.1	-32.7	-42.8	-61.0	-61.4	-61.3	-60.3	-48.4	-48.3	-49.1	-53.0	-54.4	-53.7	-51.0	-57.2	-55.1	
	T50N10	-41.5	-38.6	-38.0	-42.8	-51.1	-49.9	-50.1	-48.9	-49.7	-44.8	-49.6	-52.5	-55.2	-52.0	-51.0	-55.6	-54.1	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-11.3	-5.9	-3.8	-13.5	0.8	3.2	1.3	3.7	-0.7	-4.3	-3.3	1.4	-3.0	0.7	2.5	0.6	0.1	
	T20N25	-11.5	-4.3	-6.4	-8.2	-2.8	2.2	-3.1	0.4	-3.4	-5.0	1.6	0.1	-1.2	-0.4	2.4	-1.8	3.4	
	T25N20	-7.4	2.0	-4.6	-2.9	2.0	-2.6	-1.8	-0.6	1.9	-4.5	-1.3	0.8	5.1	0.3	-4.4	-2.8	0.8	
	T50N10	9.4	7.9	7.7	2.3	-3.5	-1.7	-3.2	-1.9	2.7	1.4	0.0	0.0	-3.6	2.1	-0.8	-3.5	-0.1	
LN	T10N50	-16.4	-9.3	-7.3	-14.1	-1.7	-0.4	-0.8	0.2	-7.3	-1.5	-0.6	-2.4	-1.4	-2.9	-1.7	1.3	-0.6	
	T20N25	-7.3	-2.2	-5.9	-8.7	-3.9	1.2	-2.2	-3.2	-5.9	-0.6	-4.7	-3.9	-2.3	-4.0	1.8	-7.2	-2.0	
	T25N20	-2.1	-1.2	-4.8	-7.8	-5.9	-5.8	-5.2	0.8	-6.9	-0.8	-3.2	-7.7	-0.1	-0.1	-5.3	-3.5	-3.2	
	T50N10	11.4	11.7	13.8	13.1	-3.6	-5.7	-4.8	-2.2	-1.7	2.1	-7.3	-1.9	-5.2	-0.7	-5.6	-4.3	-2.5	
CN	T10N50	-8.7	-4.9	-3.9	-10.3	-7.7	-5.3	0.9	-3.5	-4.1	-8.1	-4.6	-9.6	-2.2	0.7	-4.4	0.0	-5.4	
	T20N25	-6.6	-7.0	-8.7	-6.7	-3.1	0.1	-3.2	-2.5	-5.5	-8.9	-4.0	-10.3	0.5	1.3	-4.1	-3.3	-10.8	
	T25N20	-3.9	-9.3	-9.3	-6.0	-1.7	-1.7	-2.5	-1.4	-1.2	-8.4	-0.7	-6.8	-1.1	0.4	-2.3	-7.9	-6.7	
	T50N10	13.8	7.9	10.1	8.8	-2.0	-0.1	-1.9	0.8	-1.2	-0.1	-1.6	-5.8	-3.3	-0.8	-3.3	-7.2	-4.4	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-2.1	-2.0	-0.3	-3.4	0.3	2.4	1.1	4.2	-0.6	-1.9	-3.1	0.9	-3.2	0.7	2.4	1.2	-1.3	
	T20N25	-3.4	-0.8	-2.8	-0.9	-3.6	2.0	-3.2	1.2	-3.8	-3.1	1.4	-0.2	-2.1	-0.7	2.6	-2.9	3.3	
	T25N20	-0.5	6.6	0.0	3.3	1.9	-2.5	-1.6	-0.4	1.4	-4.0	-1.5	0.7	4.6	-0.4	-5.5	-3.1	-0.3	
	T50N10	13.0	10.1	10.1	5.1	-4.1	-3.0	-4.4	-2.7	1.3	-1.2	-1.7	-1.0	-5.4	1.8	-2.7	-3.8	-1.0	
LN	T10N50	-11.7	-6.4	-4.6	-8.2	-2.5	-1.2	-1.3	0.4	-7.0	0.5	-0.2	-1.4	0.0	-1.7	0.9	3.5	-0.7	
	T20N25	-2.7	-0.1	-2.7	-5.4	-4.5	0.3	-3.0	-2.6	-6.0	1.2	-3.6	-3.5	-1.1	-3.0	3.3	-6.1	-0.5	
	T25N20	1.9	2.2	-1.6	-4.6	-6.4	-6.0	-4.7	0.5	-6.4	-0.7	-2.3	-5.7	1.5	1.0	-4.1	-2.4	-2.6	
	T50N10	13.0	13.8	15.8	14.4	-4.5	-6.6	-6.0	-3.2	-2.6	-1.9	-8.0	-1.4	-5.4	0.2	-5.6	-3.3	-1.5	
CN	T10N50	-3.7	-2.4	-1.2	-5.1	-9.4	-7.3	-1.9	-5.5	-2.4	-3.8	-3.5	-8.8	-3.3	-0.7	-6.5	-1.1	-4.8	
	T20N25	-4.2	-4.2	-6.4	-5.7	-4.7	-1.6	-6.0	-5.1	-3.3	-5.5	-2.4	-8.7	-0.5	0.3	-5.3	-3.8	-10.8	
	T25N20	-3.0	-7.1	-7.4	-4.9	-2.9	-3.9	-4.8	-3.4	0.4	-6.1	0.1	-5.6	-1.5	-1.0	-2.4	-8.5	-6.8	
	T50N10	10.1	6.8	7.3	6.1	-4.6	-2.4	-5.2	-1.9	-2.0	-1.9	-2.9	-5.2	-4.1	-0.4	-3.3	-6.7	-5.2	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.37

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	-4.1	1.1	2.1	-6.5	-6.3	-6.1	-14.1	-9.4	-1.6	-2.4	-5.1	-3.2	-5.0	-0.8	-7.3	-7.4	-4.9	
	T100N1	-5.9	0.5	-0.6	-1.6	-3.3	-10.1	-8.5	-8.4	-5.3	1.7	-0.1	-6.9	-4.1	-5.1	-0.9	-5.7	-2.3	
	T200N1	-1.1	-2.1	-3.3	-3.3	-0.1	-2.4	-3.9	-4.0	-2.8	-0.3	-0.7	0.0	3.9	-7.0	1.6	3.0	-4.6	
	T500N1	-2.3	2.2	0.8	-0.9	0.7	-3.2	-2.2	-0.7	-0.9	-5.1	-0.3	-1.2	1.4	8.5	0.5	-3.4	2.2	
LN	T50N1	-11.8	-8.6	-19.8	-15.9	-16.5	-25.3	-31.8	-11.1	-36.0	-8.7	-32.8	-67.3	-65.0	-67.3	-64.9	-74.1	-71.6	
	T100N1	-5.0	-6.1	-3.3	-9.0	-15.1	-12.9	-51.8	-34.9	-29.1	-1.1	-33.1	-71.1	-72.4	-74.0	-75.2	-71.2	-76.6	
	T200N1	-9.6	-6.2	-4.5	-6.2	-3.0	-3.3	-6.9	-6.1	-33.8	-3.2	-34.1	-69.0	-74.8	-75.5	-72.2	-75.3	-74.1	
	T500N1	-2.3	2.1	-0.8	-1.8	4.5	-0.8	-4.8	-5.4	-34.0	4.4	-31.1	-72.8	-73.8	-74.9	-70.5	-71.9	-73.7	
CN	T50N1	-19.9	-32.3	-28.0	-22.8	-46.5	-47.1	-40.7	-46.9	-40.2	-41.0	-34.8	-48.0	-51.5	-49.7	-46.8	-52.7	-48.9	
	T100N1	-18.6	-20.5	-28.7	-22.5	-34.8	-28.6	-33.3	-44.0	-38.3	-38.1	-38.0	-48.0	-52.2	-50.8	-51.2	-51.8	-52.0	
	T200N1	-19.8	-12.8	-15.8	-19.2	-25.4	-23.2	-26.8	-24.9	-36.0	-37.6	-39.0	-49.9	-55.8	-54.9	-52.0	-54.1	-54.3	
	T500N1	-12.4	-13.5	-8.9	-12.4	-20.0	-14.9	-17.3	-16.9	-34.3	-34.3	-37.3	-49.7	-55.5	-54.4	-51.9	-55.2	-55.4	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	-15.8	-10.2	-10.4	-17.1	-29.2	-29.2	-34.4	-30.2	-12.6	-9.3	-14.0	-11.4	-10.5	-6.3	-13.0	-12.5	-9.7	
	T100N1	-14.0	-6.6	-7.8	-10.4	-16.5	-21.9	-20.5	-20.6	-11.4	-2.4	-6.2	-10.7	-6.5	-7.4	-4.2	-8.1	-4.8	
	T200N1	-6.1	-6.2	-7.3	-8.3	-6.9	-9.0	-10.2	-10.4	-5.3	-1.8	-3.3	-1.6	2.7	-8.0	0.1	1.8	-5.6	
	T500N1	-4.7	0.1	-1.2	-3.3	-2.0	-5.7	-4.7	-3.3	-1.9	-5.6	-1.4	-1.8	1.0	8.1	-0.1	-3.7	1.8	
LN	T50N1	-22.6	-19.7	-30.4	-25.6	-37.1	-44.0	-48.9	-33.2	-41.9	-14.3	-39.3	-69.1	-66.6	-69.0	-66.9	-75.2	-72.8	
	T100N1	-13.8	-13.7	-10.3	-17.0	-27.2	-25.3	-58.5	-43.5	-33.5	-4.5	-37.1	-72.1	-73.1	-74.7	-76.0	-71.9	-77.1	
	T200N1	-14.3	-10.5	-8.6	-11.5	-10.0	-9.8	-13.5	-12.7	-35.6	-4.8	-35.8	-69.5	-75.1	-75.8	-72.6	-75.6	-74.3	
	T500N1	-4.9	-0.1	-2.8	-4.3	1.7	-3.6	-7.5	-8.0	-34.7	3.8	-31.8	-72.9	-73.9	-75.0	-70.7	-72.0	-73.8	
CN	T50N1	-31.4	-42.9	-40.1	-33.4	-60.6	-61.8	-56.6	-61.2	-47.1	-46.6	-42.2	-52.7	-54.5	-53.3	-51.8	-56.2	-52.4	
	T100N1	-27.8	-28.9	-35.9	-31.1	-46.3	-40.4	-44.6	-53.4	-44.1	-42.3	-43.0	-51.4	-54.3	-52.9	-53.9	-53.6	-53.8	
	T200N1	-25.0	-17.1	-20.1	-24.7	-31.6	-29.4	-33.1	-31.2	-38.8	-39.6	-41.6	-51.3	-56.6	-55.7	-53.4	-55.0	-55.2	
	T500N1	-15.2	-15.5	-11.1	-15.2	-22.6	-17.6	-20.0	-19.6	-35.5	-35.2	-38.4	-50.3	-55.8	-54.8	-52.4	-55.6	-55.7	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	17.1	18.7	22.5	10.4	14.5	18.5	-2.5	1.9	17.4	10.8	9.1	15.0	4.2	10.0	3.1	-1.1	3.6	
	T100N1	1.4	5.9	5.7	6.0	2.3	-5.9	-4.3	-3.5	2.0	8.5	5.4	-1.5	-2.9	-3.7	2.5	-4.5	-0.7	
	T200N1	1.1	-0.2	-1.6	-1.0	2.1	-0.3	-2.1	-2.5	-1.6	0.7	0.5	1.0	4.3	-6.9	2.1	3.1	-4.8	
	T500N1	-1.4	3.1	1.8	-0.1	1.1	-2.6	-1.6	-0.3	-0.7	-4.8	0.2	-0.9	1.1	8.6	0.9	-3.4	2.2	
LN	T50N1	6.0	2.7	-9.7	-0.2	-2.4	-12.1	-22.8	-2.3	-16.6	-2.3	-12.0	-39.2	-31.8	-36.1	-36.1	-47.9	-43.3	
	T100N1	9.9	2.9	5.0	4.7	-8.9	-6.5	-48.4	-31.9	-9.4	1.4	-12.3	-39.8	-39.1	-37.7	-46.3	-33.9	-45.1	
	T200N1	0.4	0.1	1.7	4.2	2.3	0.2	-3.7	-2.0	-13.8	0.3	-13.6	-31.2	-32.2	-34.9	-36.9	-36.7	-31.4	
	T500N1	10.0	9.3	7.0	10.2	8.3	4.4	0.6	-0.9	-11.6	8.6	-8.6	-29.2	-24.3	-24.2	-24.8	-17.9	-22.9	
CN	T50N1	2.5	-14.7	-7.2	-3.0	-19.5	-17.9	-7.5	-17.0	-7.6	-3.5	1.2	-19.2	-19.9	-19.9	-15.6	-24.6	-18.5	
	T100N1	2.4	-1.3	-11.0	-3.2	-5.0	1.9	-3.9	-20.7	-2.1	-1.0	-4.4	-13.0	-16.4	-12.3	-18.6	-16.6	-17.7	
	T200N1	-6.0	0.2	-2.7	-5.4	-3.2	-2.6	-4.3	-3.1	-4.1	-2.4	-8.9	-10.5	-15.9	-14.7	-16.3	-12.7	-12.7	
	T500N1	0.6	-2.8	2.6	0.7	-3.0	4.5	0.7	1.7	-2.8	1.5	-6.3	-6.5	-9.5	-7.9	-8.6	-8.9	-9.5	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	10.5	14.4	16.9	4.6	8.0	9.3	-9.6	-5.3	8.5	2.7	0.7	7.3	-4.0	0.4	-5.5	-7.8	-4.2	
	T100N1	-5.0	0.1	0.1	0.4	-5.8	-13.6	-10.2	-9.3	-4.2	3.4	-1.1	-8.5	-9.0	-8.5	-3.9	-10.4	-7.5	
	T200N1	-2.7	-3.6	-5.6	-4.7	-3.3	-5.0	-8.2	-8.4	-4.9	-2.5	-2.9	-3.2	1.4	-10.3	-2.0	-1.9	-8.7	
	T500N1	-5.0	1.5	-1.5	-1.6	-3.2	-6.1	-4.8	-3.9	-3.8	-7.3	-2.3	-3.6	-1.0	6.3	-1.7	-5.7	-0.9	
LN	T50N1	-3.4	-3.6	-13.9	-8.9	-5.5	-17.4	-29.8	-7.7	-20.3	-10.4	-14.0	-41.0	-34.7	-38.8	-38.1	-50.2	-45.5	
	T100N1	-1.5	-5.3	-3.9	-7.4	-15.2	-12.3	-50.6	-37.2	-11.5	-8.5	-15.7	-39.8	-40.0	-38.8	-46.4	-35.1	-46.4	
	T200N1	-10.7	-6.7	-5.9	-7.4	-5.6	-7.0	-11.4	-9.5	-14.5	-8.7	-14.7	-29.8	-31.7	-34.6	-34.7	-36.6	-30.6	
	T500N1	-5.6	0.4	-2.8	-3.8	0.4	-4.1	-7.2	-8.8	-11.5	-3.0	-8.7	-25.3	-22.7	-22.3	-20.3	-15.3	-20.6	
CN	T50N1	-2.3	-19.5	-9.8	-7.9	-23.0	-22.1	-11.5	-20.1	-13.7	-10.2	-4.1	-23.2	-26.3	-26.1	-20.6	-29.0	-23.4	
	T100N1	-1.6	-4.2	-14.5	-5.0	-11.5	-4.6	-10.8	-26.3	-6.5	-4.7	-7.4	-16.1	-20.8	-16.6	-22.4	-20.5	-20.5	
	T200N1	-7.9	-2.2	-4.7	-8.0	-10.8	-10.5	-9.8	-9.2	-6.4	-5.0	-9.7	-11.5	-18.0	-15.9	-17.6	-14.5	-14.6	
	T500N1	-1.1	-4.1	1.1	-1.2	-9.1	-1.7	-5.2	-4.2	-2.9	0.1	-6.7	-5.4	-9.7	-8.6	-7.5	-9.5	-10.0	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.38

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T10N50	-8.3	11.6	12.6	-7.0	0.5	4.4	-2.4	-1.8	-3.2	0.1	-1.3	-2.0	-0.4	0.1	-0.5	1.7	1.8	
	T20N25	-5.0	8.3	8.2	-4.7	-4.3	0.0	0.6	-4.5	2.2	-5.6	3.1	-9.4	-6.2	1.7	0.6	-0.1	0.7	
	T25N20	-10.4	7.1	9.0	-3.5	-2.3	-0.1	0.7	-1.9	-4.2	-0.1	4.8	-2.1	0.0	2.3	1.6	0.7	-1.1	
	T50N10	-6.2	3.7	-1.7	-5.0	-1.2	-0.3	0.7	1.7	-3.4	4.3	2.4	0.6	-1.4	1.7	3.7	-2.4	-0.9	
LN	T10N50	-33.7	-10.1	-1.7	-30.7	-59.8	-10.9	-17.4	-6.1	-42.8	-6.1	-30.0	-73.7	-72.9	-72.0	-69.7	-68.9	-78.1	
	T20N25	-20.4	-2.5	-2.5	-13.0	-4.2	-7.1	-4.3	-6.3	-36.0	5.7	-32.1	-71.5	-74.7	-73.7	-62.3	-69.7	-73.9	
	T25N20	-16.2	1.3	3.5	-11.9	-8.1	-26.8	-4.1	-2.7	-31.8	4.3	-30.4	-73.2	-72.9	-74.3	-65.7	-74.6	-77.2	
	T50N10	-8.6	-7.2	-3.7	-8.0	-6.0	-4.3	-4.2	-0.5	-38.1	1.5	-30.7	-71.4	-74.2	-74.8	-68.5	-71.1	-75.0	
CN	T10N50	-32.5	-11.1	-11.8	-23.2	-22.2	-19.2	-21.4	-18.9	-35.2	-39.5	-34.4	-52.2	-52.4	-52.6	-47.3	-51.7	-52.6	
	T20N25	-22.4	-13.2	-12.2	-23.1	-16.9	-19.4	-24.8	-22.0	-36.9	-37.9	-33.9	-50.6	-54.7	-52.3	-49.3	-53.5	-57.5	
	T25N20	-23.3	-10.3	-11.4	-19.5	-18.0	-18.6	-20.7	-18.0	-32.6	-35.8	-32.1	-52.2	-55.1	-52.4	-49.8	-55.7	-54.3	
	T50N10	-18.8	-15.0	-13.0	-19.1	-19.3	-20.8	-15.5	-17.3	-35.7	-36.2	-33.6	-51.1	-54.7	-52.0	-50.2	-54.1	-54.8	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T10N50	-18.3	18.7	20.1	-16.6	-36.3	-33.6	-38.5	-38.0	-8.8	-2.1	-6.5	-3.7	-3.2	-2.8	-2.5	-1.3	-1.3	
	T20N25	-17.4	7.6	7.1	-17.0	-31.3	-28.2	-27.9	-31.6	-3.3	-6.4	-2.4	-11.1	-8.5	-0.7	-1.1	-2.3	-1.7	
	T25N20	-22.0	3.9	5.7	-15.7	-26.9	-25.2	-24.9	-26.9	-9.3	-0.7	-0.4	-4.0	-2.2	0.3	-0.2	-1.5	-3.3	
	T50N10	-17.6	-3.0	-8.2	-16.2	-17.5	-17.0	-16.0	-15.1	-7.4	3.6	-1.5	-0.8	-2.8	0.2	2.3	-3.9	-2.3	
LN	T10N50	-39.7	-4.2	6.0	-37.0	-74.2	-43.0	-48.4	-40.7	-46.1	-8.9	-34.3	-74.3	-73.7	-73.0	-70.5	-70.0	-78.8	
	T20N25	-29.7	-2.8	-3.8	-23.8	-31.8	-33.9	-32.1	-33.7	-39.6	4.8	-35.7	-72.1	-75.3	-74.4	-63.0	-70.4	-74.5	
	T25N20	-27.1	-1.8	0.2	-23.4	-31.8	-45.8	-29.2	-28.1	-35.4	3.6	-33.9	-73.7	-73.6	-74.8	-66.3	-75.1	-77.7	
	T50N10	-20.0	-13.7	-10.4	-19.4	-22.0	-20.6	-20.9	-17.5	-40.6	0.8	-33.6	-71.8	-74.5	-75.1	-69.0	-71.6	-75.3	
CN	T10N50	-39.9	-5.0	-5.8	-30.7	-51.0	-48.9	-50.7	-48.9	-39.9	-42.0	-38.7	-53.5	-54.1	-54.2	-48.9	-53.4	-54.2	
	T20N25	-31.8	-13.7	-12.8	-32.3	-41.1	-43.0	-46.6	-44.7	-41.0	-39.2	-38.0	-51.9	-56.0	-53.7	-50.6	-54.7	-58.7	
	T25N20	-33.2	-12.8	-13.8	-29.7	-39.4	-39.9	-41.7	-39.5	-36.6	-36.8	-35.7	-53.4	-56.2	-53.5	-51.0	-56.9	-55.4	
	T50N10	-28.7	-20.9	-18.9	-28.9	-33.7	-34.9	-30.3	-31.9	-38.7	-37.0	-36.6	-52.0	-55.5	-52.9	-51.2	-54.9	-55.6	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T10N50	-9.5	-4.6	-3.4	-8.2	-0.9	2.3	-3.3	-3.6	-5.4	1.2	-4.0	-2.0	-0.4	0.2	-1.0	2.1	1.4	
	T20N25	-7.4	-2.9	-3.1	-5.7	-4.7	-0.4	0.1	-4.6	-0.2	-6.1	0.8	-9.4	-6.2	1.3	0.7	-0.5	0.7	
	T25N20	-10.8	-1.6	0.2	-4.5	-2.6	-0.7	0.4	-1.8	-6.0	-1.2	2.2	-2.1	0.5	2.9	1.5	0.9	-1.4	
	T50N10	-4.5	1.4	-3.7	-3.3	-1.1	-0.2	1.1	2.0	-4.5	3.2	0.9	0.9	-1.2	1.2	3.4	-2.7	-0.2	
LN	T10N50	-15.6	-5.9	-0.2	-13.4	-51.8	-2.8	-1.5	-2.1	-17.2	-2.4	-7.3	-25.9	-20.1	-21.0	-18.7	-12.0	-31.4	
	T20N25	-6.0	-2.2	-1.1	3.5	2.3	1.8	2.4	0.9	-14.1	7.0	-10.4	-23.9	-22.9	-24.3	-14.2	-17.8	-23.4	
	T25N20	-1.2	3.0	6.1	3.0	-0.8	-16.8	1.6	2.2	-9.4	7.0	-7.3	-29.3	-19.5	-25.5	-20.0	-23.0	-29.3	
	T50N10	6.1	-0.3	2.2	6.4	0.1	1.6	0.9	3.6	-17.6	3.8	-7.8	-24.8	-26.0	-24.0	-26.1	-20.4	-23.2	
CN	T10N50	-17.7	-6.3	-5.0	-7.2	0.9	0.5	4.3	1.8	-4.8	-7.5	-2.0	-11.7	-0.2	0.9	-2.5	1.4	-3.7	
	T20N25	-8.6	-7.8	-4.6	-8.4	6.2	1.3	-2.4	-0.8	-7.3	-3.6	-2.2	-9.5	-0.8	-0.5	-3.9	-2.5	-11.0	
	T25N20	-9.7	-4.0	-4.4	-5.6	1.8	2.9	0.9	0.9	-1.6	-1.8	-1.2	-10.9	-4.7	0.1	-7.1	-6.7	-8.0	
	T50N10	-4.3	-4.7	-2.2	-5.5	1.9	-1.8	3.4	1.9	-5.6	-2.6	-1.4	-7.0	-5.2	-3.0	-6.3	-6.5	-6.5	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T10N50	-3.2	-2.3	-1.5	-1.7	0.3	3.2	-2.2	-2.2	-4.4	1.2	-2.9	-1.7	-1.0	0.8	-0.6	2.3	0.3	
	T20N25	-3.0	-2.0	-2.5	-2.2	-5.1	-0.2	0.1	-3.7	-0.7	-5.9	0.6	-9.1	-6.3	1.1	0.9	-1.2	0.6	
	T25N20	-7.6	-0.6	1.2	-2.1	-2.6	-0.6	1.0	-1.7	-6.1	-1.3	1.7	-1.8	0.0	2.3	1.0	0.7	-2.3	
	T50N10	-2.1	2.1	-2.8	-1.7	-1.8	-0.8	-0.1	0.7	-4.9	2.2	-0.3	0.5	-2.9	0.8	1.6	-3.2	-0.9	
LN	T10N50	-16.7	-4.9	0.5	-13.5	-54.0	-7.2	-4.5	-5.0	-13.9	-4.5	-4.2	-22.3	-17.5	-17.7	-13.4	-8.5	-29.6	
	T20N25	-11.7	-6.9	-5.4	-5.6	-2.7	-4.7	-3.3	-3.7	-12.3	1.0	-7.4	-19.6	-20.3	-21.7	-8.2	-14.6	-21.1	
	T25N20	-7.7	-0.7	1.6	-3.6	-5.1	-20.2	-2.1	-2.4	-6.9	0.4	-4.0	-24.5	-16.6	-22.6	-14.3	-20.4	-27.2	
	T50N10	-3.5	-6.2	-3.3	-3.9	-6.1	-4.7	-4.5	-2.1	-16.2	-4.6	-6.4	-20.2	-23.2	-21.7	-21.9	-16.8	-20.2	
CN	T10N50	-9.6	-0.8	1.7	-0.5	-1.4	-2.1	-0.1	-1.3	-1.7	-3.3	-1.3	-9.6	-1.1	-0.4	-2.9	0.3	-2.8	
	T20N25	-3.1	-5.8	-2.0	-5.7	2.4	-1.9	-7.6	-5.2	-4.9	-1.2	-1.2	-6.5	-1.4	-0.9	-3.4	-2.6	-10.4	
	T25N20	-5.4	-1.6	-2.2	-2.0	-1.4	-0.6	-3.1	-3.4	1.0	0.2	0.6	-8.3	-4.7	-0.2	-5.6	-6.4	-7.7	
	T50N10	-2.8	-3.9	-1.5	-2.3	-3.2	-6.5	-0.9	-2.1	-4.4	-2.0	-0.1	-5.1	-5.1	-2.4	-4.8	-5.7	-6.3	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.



TABLE 1.39

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-4.0	-1.6	3.0	-6.4	-14.4	-13.4	-9.4	-12.9	-0.7	-6.5	-7.1	-1.1	-6.0	-0.8	-6.0	-4.1	-6.7	
	T100N1	-6.3	-9.5	-2.4	-7.8	-6.8	-4.8	-6.5	-7.4	-5.1	-0.6	-4.6	-4.0	-2.4	-2.5	-1.5	-5.9	-6.8	
	T200N1	-5.0	-4.0	-4.9	-6.0	-1.2	-2.5	-3.4	-3.4	-0.3	-3.3	-1.6	-5.3	1.5	-6.3	1.9	0.7	-1.4	
	T500N1	-0.1	-0.8	-2.9	-1.5	-4.1	-2.6	-5.2	2.9	-8.6	0.6	2.9	-1.6	0.1	6.7	0.7	-4.0	2.7	
LN	T50N1	-10.4	-7.1	-8.6	-14.8	-20.6	-17.3	-14.6	-8.9	-29.2	-8.4	-22.6	-57.0	-61.7	-58.6	-51.8	-54.1	-60.2	
	T100N1	-11.0	-8.7	-10.8	-11.5	-14.5	-4.5	-16.0	-24.6	-21.7	-3.3	-17.7	-54.1	-59.4	-60.4	-62.2	-62.4	-61.9	
	T200N1	-7.0	-5.8	-6.9	-5.6	-3.2	-8.1	-0.7	-1.5	-18.3	2.4	-14.3	-53.7	-62.9	-62.2	-56.6	-61.3	-60.5	
	T500N1	-3.0	-0.6	-0.2	-0.5	-1.4	-1.0	1.2	-2.7	-16.0	0.3	-16.8	-58.6	-59.9	-60.5	-55.9	-58.9	-59.4	
CN	T50N1	-21.1	-21.8	-18.1	-17.2	-41.8	-44.3	-37.6	-41.5	-42.2	-43.7	-35.3	-42.2	-46.9	-48.2	-45.4	-49.7	-46.1	
	T100N1	-21.4	-23.8	-22.4	-27.0	-30.2	-29.4	-42.0	-44.0	-40.1	-36.9	-37.0	-49.3	-52.0	-51.1	-50.5	-52.5	-52.4	
	T200N1	-19.2	-18.6	-18.0	-18.5	-21.9	-18.3	-24.6	-23.3	-37.9	-35.6	-36.0	-49.2	-56.0	-54.8	-51.9	-54.9	-53.5	
	T500N1	-12.8	-16.5	-12.3	-17.9	-13.0	-19.5	-18.9	-17.6	-35.4	-35.7	-35.0	-50.6	-55.9	-54.5	-51.4	-55.1	-55.7	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-17.6	-17.1	-13.1	-19.7	-47.1	-45.9	-45.0	-47.2	-14.7	-14.6	-19.1	-10.3	-12.4	-7.0	-13.9	-10.7	-13.5	
	T100N1	-18.1	-19.9	-13.2	-19.2	-30.4	-28.7	-29.7	-30.4	-13.5	-5.2	-13.3	-8.4	-5.6	-5.6	-6.4	-9.1	-9.9	
	T200N1	-13.1	-11.3	-12.2	-14.3	-15.4	-16.5	-17.2	-17.2	-5.1	-5.5	-6.4	-7.5	-0.1	-7.8	-0.3	-1.0	-3.0	
	T500N1	-4.1	-4.4	-6.4	-5.4	-10.0	-8.5	-11.0	-3.4	-10.4	-0.3	0.8	-2.5	-0.6	6.1	-0.2	-4.6	2.1	
LN	T50N1	-22.8	-20.9	-23.7	-25.8	-51.1	-49.0	-47.6	-42.8	-39.0	-15.6	-32.7	-60.6	-63.8	-61.2	-55.3	-57.1	-62.4	
	T100N1	-21.6	-18.9	-20.9	-22.2	-36.3	-28.7	-36.8	-43.3	-28.5	-7.6	-24.8	-56.3	-60.7	-61.6	-63.8	-63.7	-63.3	
	T200N1	-14.9	-13.2	-14.1	-14.2	-17.3	-21.4	-15.1	-15.6	-22.1	0.1	-18.6	-54.7	-63.4	-62.8	-57.6	-61.9	-61.0	
	T500N1	-7.0	-4.4	-3.9	-4.5	-7.5	-7.1	-5.1	-8.8	-17.7	-0.6	-18.5	-59.0	-60.2	-60.8	-56.3	-59.1	-59.7	
CN	T50N1	-34.7	-37.6	-35.1	-31.0	-65.6	-66.9	-62.3	-65.1	-51.0	-50.0	-44.9	-48.8	-51.6	-52.5	-51.3	-53.5	-50.2	
	T100N1	-32.4	-34.7	-33.3	-36.7	-49.3	-49.5	-58.2	-60.0	-47.0	-42.1	-44.5	-52.9	-54.3	-53.5	-54.2	-54.7	-54.9	
	T200N1	-27.2	-25.4	-25.2	-26.5	-34.5	-31.4	-36.9	-35.5	-42.0	-38.2	-40.1	-51.1	-57.1	-55.9	-53.7	-56.0	-54.7	
	T500N1	-16.9	-20.0	-15.9	-21.9	-18.9	-24.8	-24.3	-23.2	-37.3	-36.8	-36.8	-51.3	-56.4	-54.9	-52.1	-55.5	-56.1	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	13.2	13.6	25.5	20.4	-0.6	1.4	26.2	24.2	14.7	8.9	11.0	11.4	2.2	7.0	10.5	7.9	9.3	
	T100N1	3.9	-2.2	4.8	2.5	-1.8	-0.4	-2.0	-2.5	-0.5	4.2	0.8	-1.0	-1.4	-1.0	2.9	-4.9	-5.2	
	T200N1	-0.1	-0.1	-0.6	-0.9	0.4	-0.9	-1.6	-1.8	1.1	-1.9	0.2	-4.6	1.8	-5.9	2.4	0.6	-1.6	
	T500N1	2.0	1.0	-1.1	0.6	-3.7	-2.1	-4.6	3.5	-8.0	1.2	3.3	-1.3	-0.2	6.8	1.1	-4.0	2.7	
LN	T50N1	17.5	7.4	11.1	4.4	-8.6	-2.6	2.9	2.7	-4.1	3.1	-2.3	-26.7	-34.3	-29.2	-24.5	-24.0	-31.3	
	T100N1	2.8	1.4	-1.5	2.7	-5.7	3.1	-9.7	-18.9	-8.6	0.4	-3.7	-24.0	-27.0	-26.1	-34.0	-30.3	-28.7	
	T200N1	2.8	0.9	-0.5	4.9	-0.2	-5.7	2.6	1.7	-5.2	5.1	0.0	-18.8	-22.9	-23.6	-23.1	-23.2	-20.8	
	T500N1	4.8	4.2	4.7	7.2	1.1	1.8	4.9	0.5	-3.3	2.5	-3.7	-19.9	-14.3	-12.9	-15.2	-10.9	-12.3	
CN	T50N1	7.9	5.8	12.2	13.3	-3.7	-5.7	-0.3	12.2	-4.5	-9.2	4.9	-3.5	-7.5	-12.3	-8.7	-18.0	-12.5	
	T100N1	1.9	-1.4	0.2	-6.8	-0.3	7.8	-14.0	-16.7	-6.9	1.7	1.0	-14.6	-14.1	-13.2	-15.0	-17.5	-16.0	
	T200N1	-2.4	-4.7	-3.3	-2.3	1.4	4.8	-1.2	-1.1	-6.3	0.7	-4.3	-9.9	-16.5	-15.8	-16.0	-13.5	-11.9	
	T500N1	1.5	-5.0	-0.6	-4.6	6.1	-2.0	-0.8	0.6	-3.8	0.1	-2.6	-7.9	-10.3	-8.1	-7.9	-8.7	-10.2	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	6.6	8.0	19.1	13.8	-8.4	-5.9	19.6	17.6	5.7	2.4	4.7	3.2	-6.8	-1.2	1.8	0.5	1.1	
	T100N1	-2.6	-6.9	0.1	-1.7	-10.1	-8.2	-8.1	-9.6	-6.2	-1.7	-5.5	-7.5	-6.5	-6.5	-2.9	-10.1	-11.1	
	T200N1	-4.0	-2.9	-3.4	-3.2	-5.7	-5.9	-6.7	-7.2	-2.9	-4.6	-3.1	-8.9	-0.9	-9.9	-2.1	-2.9	-5.4	
	T500N1	-0.4	-1.2	-3.2	-1.8	-7.3	-5.7	-8.1	0.0	-9.9	-1.0	0.3	-3.1	-2.1	4.9	-1.8	-6.8	0.2	
LN	T50N1	1.0	-1.2	3.0	-6.1	-18.8	-12.0	-6.0	-5.8	-13.5	-7.0	-7.5	-32.5	-38.8	-33.2	-29.3	-27.3	-34.5	
	T100N1	-4.7	-3.5	-7.0	-3.5	-11.3	-4.4	-14.9	-25.0	-13.7	-7.0	-7.4	-24.9	-29.1	-27.5	-34.3	-31.4	-30.3	
	T200N1	-5.6	-4.8	-6.7	-2.7	-5.8	-11.8	-5.0	-5.6	-7.0	-2.3	-2.0	-17.2	-22.3	-23.5	-21.0	-23.0	-20.3	
	T500N1	-3.2	-0.7	-0.8	-0.6	-4.9	-3.7	-1.6	-5.1	-4.0	-4.1	-4.6	-16.0	-12.4	-10.8	-11.1	-8.5	-10.3	
CN	T50N1	1.1	1.1	8.3	7.1	-9.6	-12.4	-4.8	6.7	-9.1	-14.5	0.4	-9.2	-14.6	-18.6	-14.2	-23.5	-18.0	
	T100N1	-2.2	-4.8	-3.1	-8.6	-8.7	1.2	-20.6	-21.3	-11.3	-0.9	-1.0	-18.4	-18.5	-17.0	-16.6	-22.1	-18.3	
	T200N1	-4.7	-6.4	-5.9	-3.4	-6.7	-2.6	-6.7	-6.8	-8.2	-1.9	-5.4	-11.0	-18.7	-17.0	-17.1	-15.5	-13.4	
	T500N1	0.3	-6.4	-2.2	-6.0	-0.7	-8.3	-6.9	-5.5	-3.5	-0.8	-2.9	-6.6	-10.5	-8.7	-7.0	-9.3	-10.7	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.40

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-15.7	-0.5	-1.7	-13.3	-4.5	-3.6	-1.0	-5.3	-2.2	-16.8	-4.9	-15.6	-12.3	-5.5	-0.8	1.0	1.4	
	T20N25	-5.5	10.0	12.9	-6.7	-1.7	0.4	-2.0	-2.7	-1.1	6.2	3.0	-1.5	3.2	2.2	0.6	-1.0	-0.4	
	T25N20	-5.8	14.4	10.6	-2.6	0.6	-3.0	1.9	1.6	2.9	-1.3	4.3	-0.9	2.3	4.5	2.0	0.7	0.7	
	T50N10	-9.5	-4.7	1.9	-8.6	-8.8	-5.3	-2.3	-2.0	0.4	-6.4	0.6	-5.6	-10.3	0.1	1.2	-2.3	-1.2	
LN	T10N50	-28.2	-8.5	-8.3	-27.6	-6.1	-2.5	-6.0	-1.8	-23.8	-8.0	-18.6	-58.8	-59.2	-58.6	-54.7	-56.5	-60.9	
	T20N25	-14.5	10.1	3.3	-13.2	-1.2	-0.6	0.8	-7.2	-17.9	-3.8	-16.6	-59.3	-61.7	-59.3	-46.1	-57.2	-60.3	
	T25N20	-12.6	-0.2	8.0	-11.4	-4.5	-2.3	-3.3	-4.1	-22.8	-0.2	-17.7	-57.6	-60.4	-60.8	-51.7	-60.7	-64.0	
	T50N10	-7.9	-5.8	-4.0	-7.6	-3.4	-1.4	-2.9	-2.0	-18.2	-0.9	-15.3	-57.6	-59.7	-60.1	-54.7	-57.6	-62.8	
CN	T10N50	-40.2	-28.7	-29.8	-38.2	-25.8	-22.1	-32.6	-34.6	-40.7	-42.4	-36.2	-51.5	-51.9	-53.0	-47.0	-51.1	-53.2	
	T20N25	-24.4	-9.9	-12.3	-23.0	-20.1	-23.8	-22.6	-18.2	-35.6	-39.3	-32.8	-53.4	-54.6	-51.7	-49.4	-53.0	-58.1	
	T25N20	-24.2	-12.1	-9.9	-20.1	-16.3	-17.7	-20.8	-14.4	-31.5	-36.1	-33.0	-50.2	-53.6	-52.0	-48.7	-55.5	-55.5	
	T50N10	-21.1	-11.0	-16.3	-20.4	-20.7	-21.0	-16.0	-17.8	-41.7	-37.3	-35.4	-50.7	-55.1	-51.2	-50.2	-54.9	-55.0	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-26.4	3.0	1.7	-23.3	-56.7	-56.1	-55.6	-57.5	-11.2	-19.6	-13.2	-18.5	-15.8	-9.1	-4.5	-2.8	-2.6	
	T20N25	-20.1	5.9	7.8	-21.4	-47.3	-46.2	-47.6	-48.1	-10.0	4.5	-6.1	-5.0	-0.3	-1.2	-2.6	-4.1	-3.7	
	T25N20	-21.6	7.6	3.3	-18.4	-42.3	-44.3	-42.0	-42.2	-6.5	-2.7	-4.4	-4.3	-0.9	1.4	-1.3	-2.3	-2.5	
	T50N10	-26.9	-16.6	-10.8	-25.6	-37.5	-35.1	-33.0	-32.7	-7.3	-7.8	-6.8	-8.2	-12.5	-2.2	-1.6	-4.5	-3.4	
LN	T10N50	-36.3	-5.3	-3.9	-34.8	-57.2	-55.6	-57.6	-55.7	-31.0	-11.6	-26.2	-60.3	-60.8	-60.5	-56.5	-58.2	-62.4	
	T20N25	-27.1	6.6	-1.4	-26.4	-47.2	-46.8	-46.3	-50.8	-25.5	-5.4	-23.9	-60.7	-63.1	-60.6	-48.0	-58.6	-61.7	
	T25N20	-26.4	-5.9	1.4	-25.5	-45.6	-44.3	-45.2	-45.6	-29.6	-1.5	-24.7	-59.0	-61.5	-62.1	-53.2	-62.0	-65.2	
	T50N10	-25.5	-17.6	-16.1	-24.9	-33.9	-32.6	-34.0	-33.1	-24.5	-2.2	-21.7	-58.8	-60.7	-61.1	-56.0	-58.6	-63.7	
CN	T10N50	-47.3	-25.8	-27.0	-44.9	-65.8	-64.1	-69.0	-69.6	-47.0	-45.7	-43.0	-53.9	-54.0	-55.0	-49.9	-53.5	-55.4	
	T20N25	-35.2	-13.3	-15.7	-34.2	-57.7	-59.6	-58.7	-56.4	-42.0	-40.9	-39.1	-55.4	-56.2	-53.5	-51.5	-54.7	-59.6	
	T25N20	-36.2	-17.8	-15.2	-32.6	-52.9	-53.7	-55.5	-51.8	-37.9	-37.5	-39.2	-52.3	-55.2	-53.6	-50.7	-57.2	-57.1	
	T50N10	-35.4	-21.9	-26.2	-34.9	-46.5	-46.7	-43.1	-44.4	-46.5	-38.8	-40.6	-52.3	-56.3	-52.6	-51.9	-56.2	-56.2	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-14.3	-14.1	-14.6	-12.2	-5.1	-5.3	-1.7	-6.6	-3.6	-14.9	-6.2	-15.4	-12.1	-5.4	-1.0	1.4	1.1	
	T20N25	-5.3	-3.0	-0.4	-6.1	-2.2	-0.2	-2.5	-3.3	-2.8	6.2	0.4	-1.5	3.0	1.6	0.3	-1.3	-0.7	
	T25N20	-4.8	3.0	-0.4	-2.1	0.0	-3.2	1.8	1.5	1.1	-1.9	2.3	-0.9	2.5	4.9	2.1	0.9	0.2	
	T50N10	-1.6	-2.8	4.3	-1.5	-8.3	-4.8	-2.0	-1.8	-0.3	-7.2	-0.1	-5.4	-9.8	-0.2	1.0	-2.4	-0.1	
LN	T10N50	-16.0	-12.1	-12.8	-16.2	0.2	1.3	-2.4	-0.1	-8.4	-4.2	-5.5	-16.4	-10.8	-13.4	-11.3	-7.2	-15.8	
	T20N25	-4.8	3.6	-2.4	-3.0	2.0	3.4	4.5	-2.7	-5.0	-3.5	-3.7	-19.7	-15.8	-13.2	-4.8	-11.7	-12.9	
	T25N20	-3.0	-4.2	3.0	-1.8	-2.3	1.2	-0.7	-1.6	-11.2	0.3	-5.7	-17.3	-13.0	-15.9	-12.9	-14.0	-18.0	
	T50N10	6.9	0.7	2.4	7.0	0.5	1.8	0.5	0.0	-5.8	-0.4	-2.5	-17.1	-15.4	-12.1	-17.4	-12.1	-16.7	
CN	T10N50	-24.5	-21.8	-21.0	-22.2	-1.9	0.0	-5.1	-12.4	-10.7	-9.8	-0.3	-10.4	0.7	-0.8	1.0	3.1	-4.2	
	T20N25	-9.4	-4.1	-5.3	-7.4	2.6	-4.4	-0.1	2.6	-6.0	-6.0	-1.3	-14.3	0.4	1.7	-4.5	-2.3	-12.1	
	T25N20	-9.4	-5.7	-2.5	-4.9	4.5	4.1	0.7	6.2	-0.7	-2.2	-2.5	-7.5	-1.1	0.8	-4.5	-6.1	-10.1	
	T50N10	-2.0	4.2	-2.0	-1.6	1.4	-2.0	3.1	1.1	-13.5	-4.1	-4.5	-5.4	-5.4	-0.9	-6.3	-8.3	-7.1	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-6.9	-11.1	-11.7	-4.8	-3.7	-4.1	-0.5	-4.6	-2.2	-14.1	-4.8	-14.8	-12.6	-4.5	-0.3	1.7	-0.2	
	T20N25	0.0	-1.8	0.7	-2.0	-2.0	-0.2	-2.4	-2.2	-3.2	7.2	0.2	-1.6	3.1	1.4	0.7	-2.2	-0.6	
	T25N20	-0.2	5.0	1.2	2.3	0.4	-3.0	2.1	1.7	1.2	-1.2	2.1	-0.4	2.1	4.2	1.9	1.0	-0.9	
	T50N10	1.6	-1.4	6.1	0.8	-8.8	-5.1	-2.8	-2.7	-0.9	-7.8	-1.1	-5.8	-11.1	-0.6	-1.1	-3.0	-0.5	
LN	T10N50	-12.4	-9.3	-10.4	-11.4	-3.1	-0.1	-3.6	-0.7	-5.6	-4.4	-2.4	-12.5	-8.1	-9.9	-5.2	-3.7	-13.7	
	T20N25	-4.6	1.1	-3.5	-5.2	-0.7	-0.3	1.6	-4.6	-4.5	-5.3	-2.0	-15.6	-12.9	-10.5	1.1	-8.6	-10.3	
	T25N20	-4.1	-5.5	0.9	-3.2	-4.6	-1.6	-2.5	-4.1	-9.6	-2.1	-3.3	-12.3	-9.8	-12.8	-7.3	-11.2	-15.6	
	T50N10	4.9	-1.5	0.8	4.6	-2.8	-2.1	-2.2	-2.2	-4.7	-4.0	-1.3	-12.7	-12.8	-9.8	-13.5	-8.6	-13.7	
CN	T10N50	-15.4	-15.3	-13.8	-14.6	-4.1	-2.3	-8.1	-15.0	-6.9	-4.8	0.8	-8.4	-0.5	-2.1	0.7	2.2	-3.8	
	T20N25	-3.6	-1.2	-2.3	-3.2	-1.2	-7.5	-4.8	-1.7	-3.5	-3.0	-0.1	-11.6	-0.2	1.1	-4.0	-2.3	-11.8	
	T25N20	-4.4	-2.5	0.3	-0.3	1.5	0.5	-3.5	1.7	1.8	0.7	-0.4	-4.5	-1.5	0.2	-3.0	-6.1	-9.8	
	T50N10	0.8	6.5	-0.9	2.8	-3.2	-5.5	-1.8	-2.9	-12.2	-2.8	-2.9	-3.1	-5.2	0.1	-4.6	-7.1	-6.9	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.41

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-11.1	-6.3	-4.2	-9.3	-10.5	-23.9	-16.8	-8.0	-7.6	-5.9	-6.9	-0.4	-3.9	-1.9	-5.7	-6.0	-5.5	
	T100N1	-9.4	-13.8	-2.5	-13.6	-14.2	-19.7	-9.4	-5.6	-5.9	0.0	-2.1	-6.9	-2.3	-3.2	-2.8	-3.0	-2.2	
	T200N1	-6.4	-5.1	-5.6	-7.0	-6.9	-5.3	-7.0	-2.5	-2.2	-3.8	-0.5	-4.9	0.3	-6.4	-1.5	-0.6	-3.7	
	T500N1	-0.2	-4.1	-0.1	-4.7	-1.5	-2.7	-2.1	-2.7	-6.0	-2.3	2.0	-5.1	2.1	4.1	2.9	-2.0	1.7	
LN	T50N1	-14.0	-5.8	-8.7	-15.6	-13.2	-8.5	-10.8	-7.5	-12.7	-5.0	-12.1	-44.2	-48.1	-43.3	-35.9	-46.1	-47.7	
	T100N1	-10.1	-5.4	-3.9	-14.0	-13.0	-17.5	-7.6	-11.1	-17.9	-3.3	-18.2	-42.3	-47.7	-48.5	-48.7	-51.4	-50.0	
	T200N1	-11.7	-7.5	-6.3	-9.2	-8.8	-2.0	-5.0	-3.6	-15.8	5.1	-13.9	-40.6	-49.0	-51.0	-44.1	-47.1	-48.1	
	T500N1	-6.7	-2.6	-4.7	-3.4	-2.4	-2.1	-1.4	-2.9	-10.8	-2.7	-7.3	-44.3	-46.7	-46.6	-42.5	-45.7	-47.5	
CN	T50N1	-21.2	-25.4	-17.7	-18.0	-45.2	-39.1	-35.1	-37.1	-36.9	-42.6	-35.5	-43.8	-48.2	-49.1	-47.5	-44.5	-51.3	
	T100N1	-23.9	-26.1	-23.0	-25.8	-37.1	-37.5	-41.2	-39.7	-37.3	-40.8	-39.5	-50.7	-52.4	-50.2	-48.8	-52.7	-51.9	
	T200N1	-18.5	-14.3	-14.3	-18.4	-26.8	-22.0	-29.9	-28.6	-39.2	-35.4	-38.1	-50.6	-55.6	-55.4	-51.3	-54.6	-54.2	
	T500N1	-13.9	-14.7	-12.5	-14.3	-14.8	-17.0	-17.7	-18.5	-35.9	-36.2	-38.1	-49.6	-55.8	-54.2	-51.4	-55.6	-55.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-24.2	-23.5	-21.4	-23.0	-54.6	-62.2	-58.7	-54.2	-22.9	-14.8	-22.1	-10.5	-10.8	-8.9	-14.8	-12.7	-12.1	
	T100N1	-23.3	-27.0	-16.6	-26.4	-45.6	-49.5	-42.7	-40.0	-17.2	-5.4	-13.2	-12.5	-6.0	-7.0	-8.1	-7.0	-5.9	
	T200N1	-17.3	-15.8	-16.3	-18.3	-28.8	-27.6	-29.0	-25.5	-9.1	-6.6	-7.7	-8.0	-1.9	-8.4	-4.7	-2.9	-5.8	
	T500N1	-5.4	-9.1	-5.4	-9.6	-12.6	-13.6	-13.1	-13.7	-9.1	-3.5	-1.4	-6.5	1.1	3.1	1.4	-2.9	0.7	
LN	T50N1	-26.5	-23.4	-25.9	-28.3	-54.2	-53.2	-54.5	-53.2	-27.6	-13.3	-27.3	-49.9	-51.5	-47.7	-42.2	-49.8	-51.8	
	T100N1	-23.4	-19.7	-17.7	-26.7	-44.7	-47.9	-40.9	-43.0	-27.2	-8.4	-27.5	-45.6	-49.8	-50.8	-51.6	-53.3	-51.9	
	T200N1	-21.5	-18.0	-16.3	-20.2	-30.4	-25.0	-27.3	-26.0	-21.5	2.0	-20.4	-42.5	-50.1	-52.0	-45.8	-48.2	-49.1	
	T500N1	-11.8	-7.9	-9.8	-8.7	-13.4	-13.0	-12.5	-13.9	-13.8	-4.0	-10.5	-45.1	-47.2	-47.1	-43.3	-46.3	-48.0	
CN	T50N1	-33.2	-39.7	-32.9	-30.2	-71.9	-68.8	-67.7	-68.7	-47.4	-49.1	-46.3	-50.3	-52.4	-53.3	-53.4	-49.2	-55.4	
	T100N1	-36.3	-39.3	-35.8	-37.7	-61.1	-61.6	-64.2	-63.2	-46.0	-45.9	-48.1	-54.6	-55.1	-53.0	-53.3	-55.3	-54.8	
	T200N1	-28.9	-24.7	-24.8	-28.9	-45.3	-41.6	-48.1	-46.8	-44.6	-38.5	-43.6	-52.8	-56.9	-56.7	-53.6	-55.9	-55.7	
	T500N1	-19.1	-19.7	-17.5	-19.8	-24.7	-26.8	-27.4	-28.2	-38.6	-37.6	-40.7	-50.6	-56.3	-54.8	-52.3	-56.2	-55.8	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	4.3	6.2	10.0	8.2	3.4	-11.6	-2.2	11.3	3.5	5.2	8.1	10.1	4.2	4.0	6.4	0.2	1.8	
	T100N1	6.1	-2.9	10.3	1.3	-10.4	-15.5	-4.8	-0.7	0.9	5.9	3.8	-2.6	-0.9	-1.4	0.7	-1.0	-1.2	
	T200N1	4.2	3.8	3.2	3.8	-4.6	-3.3	-5.2	-0.2	-0.3	-2.4	1.8	-3.7	1.2	-5.8	-0.7	-0.6	-3.6	
	T500N1	3.2	-1.5	2.7	-1.4	-0.9	-2.1	-1.5	-2.1	-5.5	-1.8	2.5	-4.7	2.2	4.3	3.3	-1.9	1.7	
LN	T50N1	5.4	15.7	8.0	6.2	-0.3	17.8	0.7	8.2	8.4	4.9	9.4	-18.2	-21.1	-14.1	-9.2	-19.4	-20.9	
	T100N1	7.2	8.9	10.1	3.0	-6.9	-9.9	-1.2	-4.1	-7.2	2.6	-7.8	-17.2	-19.9	-18.0	-24.2	-24.1	-20.8	
	T200N1	-1.6	0.9	1.6	2.5	-5.5	-0.2	-1.9	-0.7	-8.2	8.0	-5.0	-12.1	-14.6	-18.6	-16.4	-13.4	-14.0	
	T500N1	-0.4	1.7	-0.3	2.8	-0.7	-0.2	0.5	-1.4	-2.6	-1.0	0.8	-12.2	-8.1	-5.9	-9.4	-6.0	-9.1	
CN	T50N1	4.2	-4.5	8.1	6.3	-14.4	-6.0	0.6	3.6	-1.0	-9.2	0.0	-10.9	-18.0	-19.4	-14.8	-13.9	-22.6	
	T100N1	1.9	-4.1	0.2	0.1	-8.7	-8.8	-9.9	-9.7	-1.7	-5.0	-4.8	-15.7	-15.5	-11.7	-14.0	-17.6	-15.2	
	T200N1	1.5	4.2	5.0	1.5	-4.0	0.4	-6.5	-6.3	-8.3	1.6	-7.0	-11.3	-16.3	-15.5	-15.0	-13.7	-12.6	
	T500N1	0.8	-2.4	0.2	0.7	3.1	1.2	1.1	-0.1	-4.9	-1.0	-7.2	-6.4	-10.0	-7.4	-8.1	-9.4	-9.2	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	-0.1	-0.6	4.8	1.2	-3.5	-16.7	-8.3	5.5	-1.8	-0.5	-0.4	3.9	-4.2	-3.9	-2.6	-6.4	-5.6	
	T100N1	2.3	-7.1	6.1	-2.7	-16.4	-21.2	-11.5	-8.5	-2.6	-0.1	-1.3	-7.1	-6.7	-7.2	-4.8	-7.2	-6.9	
	T200N1	0.9	1.0	0.4	1.3	-10.2	-8.5	-10.0	-4.5	-3.7	-6.7	-1.7	-8.3	-2.0	-10.3	-4.8	-5.0	-7.7	
	T500N1	0.8	-3.9	0.5	-3.6	-4.1	-5.1	-5.1	-5.9	-7.2	-4.3	-0.1	-6.2	-0.3	2.2	0.6	-4.2	-1.1	
LN	T50N1	-1.3	9.1	2.1	0.3	-7.7	11.9	-5.9	2.1	1.9	-2.6	5.0	-21.2	-25.6	-18.2	-13.7	-23.9	-23.7	
	T100N1	2.4	3.0	4.7	-3.4	-11.3	-15.8	-7.7	-10.9	-10.9	-3.0	-12.5	-18.0	-22.7	-20.3	-25.0	-26.0	-22.9	
	T200N1	-6.7	-2.4	-2.4	-2.9	-11.3	-5.3	-9.2	-7.2	-10.0	1.2	-7.3	-11.7	-14.2	-19.0	-15.1	-14.4	-14.7	
	T500N1	-5.8	-2.0	-4.5	-2.7	-6.4	-5.5	-4.3	-6.9	-4.9	-5.4	-0.4	-9.3	-6.7	-4.3	-6.0	-3.9	-7.4	
CN	T50N1	-0.3	-8.8	0.1	-0.2	-19.0	-11.6	-6.7	-3.8	-5.8	-13.6	-6.6	-17.3	-22.6	-25.3	-20.8	-19.8	-28.3	
	T100N1	-1.9	-7.6	-3.3	-2.9	-15.4	-16.1	-16.2	-15.8	-5.5	-7.9	-6.9	-19.1	-19.7	-15.5	-17.0	-22.4	-18.3	
	T200N1	-0.8	1.2	1.7	-0.7	-11.4	-5.3	-13.0	-11.9	-10.0	-1.4	-8.7	-11.8	-18.7	-16.4	-16.4	-15.4	-14.0	
	T500N1	-0.9	-4.1	-1.1	-0.5	-3.2	-5.1	-5.5	-5.6	-5.0	-2.5	-7.9	-5.0	-10.3	-8.1	-6.9	-10.0	-9.7	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.42

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	-13.9	3.9	5.7	-15.2	-3.2	-1.9	3.7	2.8	-5.4	-8.6	1.9	-5.7	-1.4	-0.9	2.5	0.9	1.0
	T20N25	-4.9	10.7	8.6	-9.3	-2.9	5.0	0.0	-3.5	1.3	-2.8	4.4	0.3	-1.6	2.5	-0.1	-2.3	-1.9
	T25N20	-7.3	7.3	6.2	-6.4	-5.9	0.8	2.2	-0.5	-1.0	-1.0	3.1	-3.4	1.8	2.3	-1.1	-0.9	1.3
	T50N10	-9.3	-6.1	-1.6	-7.2	0.2	-0.5	-2.7	-0.5	-0.2	-1.9	2.1	-5.9	-3.0	3.7	-0.2	-1.3	0.0
LN	T10N50	-27.4	-6.6	-5.6	-23.2	-6.9	-3.4	0.3	1.2	-13.7	-9.3	-9.9	-46.1	-46.0	-47.8	-41.2	-43.9	-46.3
	T20N25	-11.9	8.1	6.3	-10.9	4.0	-1.6	-4.5	-5.0	-10.0	-3.6	-9.3	-46.6	-48.5	-47.4	-34.4	-45.6	-46.4
	T25N20	-12.7	6.5	12.3	-12.3	-0.5	-7.7	-2.3	2.0	-11.2	-7.7	-4.9	-48.4	-50.4	-46.1	-39.4	-48.0	-50.1
	T50N10	-10.2	-2.0	-3.1	-7.3	-3.1	-7.1	-4.5	-3.8	-11.5	-0.9	-7.5	-43.2	-47.2	-45.5	-41.6	-45.7	-48.8
CN	T10N50	-44.8	-38.0	-37.9	-42.4	-30.0	-37.6	-29.0	-23.7	-41.0	-41.9	-39.2	-51.5	-52.9	-52.3	-48.6	-52.5	-53.3
	T20N25	-24.1	-12.8	-11.5	-21.1	-22.3	-23.8	-22.4	-17.0	-35.0	-37.7	-33.2	-52.0	-55.4	-52.4	-49.4	-53.9	-58.1
	T25N20	-20.5	-10.4	-10.6	-22.5	-19.3	-19.2	-20.8	-15.7	-32.9	-36.6	-32.6	-50.5	-53.5	-52.0	-49.0	-55.2	-54.3
	T50N10	-25.5	-16.1	-19.3	-21.1	-17.1	-17.6	-15.9	-16.9	-32.2	-36.3	-36.1	-51.6	-53.5	-50.4	-50.7	-54.3	-54.8
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	-24.9	4.8	6.6	-25.2	-67.6	-67.1	-65.7	-66.0	-15.6	-12.3	-8.4	-9.8	-5.6	-5.2	-2.1	-3.3	-3.3
	T20N25	-20.1	3.6	0.5	-24.1	-60.6	-57.4	-59.5	-61.0	-9.7	-4.9	-6.7	-4.0	-5.5	-1.5	-4.2	-5.9	-5.7
	T25N20	-23.6	-2.5	-3.9	-22.7	-58.9	-55.9	-55.6	-56.8	-12.0	-2.9	-7.9	-7.6	-2.0	-1.3	-5.2	-4.5	-2.5
	T50N10	-28.5	-20.3	-16.3	-26.7	-44.6	-45.0	-46.2	-45.0	-10.4	-3.9	-8.1	-9.6	-5.9	0.6	-4.0	-4.2	-2.9
LN	T10N50	-35.4	-5.3	-3.1	-31.2	-68.5	-67.3	-66.5	-66.2	-23.2	-13.1	-19.5	-48.5	-48.3	-50.3	-44.0	-46.3	-48.6
	T20N25	-25.4	1.7	-2.0	-25.1	-57.7	-59.9	-61.3	-61.7	-20.1	-5.7	-18.9	-48.9	-50.6	-49.4	-37.1	-47.7	-48.5
	T25N20	-27.7	-2.8	1.6	-27.5	-56.3	-59.5	-57.4	-55.5	-21.1	-9.5	-15.0	-50.7	-52.3	-48.1	-41.9	-50.0	-51.9
	T50N10	-29.5	-17.0	-18.1	-26.9	-46.4	-48.7	-47.5	-47.0	-20.6	-2.9	-16.8	-45.5	-48.8	-47.2	-43.8	-47.3	-50.3
CN	T10N50	-51.0	-36.1	-36.5	-48.5	-75.0	-77.3	-75.0	-73.0	-48.2	-45.4	-46.4	-54.3	-55.1	-54.5	-51.7	-54.9	-55.5
	T20N25	-36.1	-18.8	-17.7	-33.4	-68.7	-69.3	-68.6	-66.4	-42.8	-39.7	-41.0	-54.5	-57.3	-54.4	-52.0	-55.8	-59.9
	T25N20	-34.3	-18.6	-18.7	-35.6	-65.2	-65.1	-65.8	-63.6	-40.8	-38.5	-40.3	-53.0	-55.4	-53.9	-51.5	-57.1	-56.2
	T50N10	-40.5	-28.9	-31.0	-37.3	-54.9	-55.1	-54.1	-54.5	-39.5	-38.2	-43.0	-53.7	-55.0	-52.0	-52.9	-55.9	-56.3
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	-11.5	-9.5	-7.6	-13.0	-4.2	-3.8	2.8	1.3	-6.1	-6.0	0.7	-5.7	-1.7	-0.9	2.2	1.1	0.9
	T20N25	-3.3	-3.1	-4.3	-7.6	-3.3	4.7	-0.6	-3.8	-0.6	-2.7	1.9	0.2	-1.7	1.9	-0.2	-2.8	-2.2
	T25N20	-5.3	-4.0	-5.4	-4.6	-6.3	0.3	1.7	-0.9	-2.6	-1.3	0.9	-3.7	1.9	3.0	-1.4	-0.8	0.8
	T50N10	2.8	-1.0	3.8	4.8	0.7	-0.3	-2.6	-0.1	-0.2	-1.1	1.6	-5.7	-2.7	3.4	-0.4	-1.6	0.8
LN	T10N50	-19.1	-13.4	-13.2	-14.4	-4.0	-2.7	2.2	2.2	-4.5	-5.2	-1.7	-11.5	-5.3	-10.4	-7.0	-2.9	-7.0
	T20N25	-4.7	-1.9	-2.5	-3.8	6.3	1.2	-2.7	-3.1	-2.6	-2.9	-2.7	-13.9	-9.3	-9.7	-2.3	-8.4	-7.7
	T25N20	-5.7	-1.4	3.8	-5.5	0.5	-6.4	-1.1	3.3	-4.6	-7.3	2.2	-18.1	-11.7	-6.9	-9.1	-8.9	-10.8
	T50N10	5.6	6.2	4.9	9.3	-0.7	-5.1	-2.1	-2.1	-3.6	0.8	-0.3	-10.1	-10.0	-3.9	-12.1	-8.7	-9.3
CN	T10N50	-30.5	-33.0	-30.9	-27.1	-7.3	-16.8	-2.0	-0.4	-11.0	-9.9	-5.5	-10.9	-0.7	2.2	-2.6	0.1	-4.7
	T20N25	-8.0	-6.9	-3.7	-3.5	0.9	-4.2	1.1	4.9	-4.4	-3.1	-2.0	-11.5	-1.7	-0.1	-4.8	-4.0	-12.4
	T25N20	-3.5	-3.6	-3.2	-6.5	0.6	2.4	2.0	4.7	-2.1	-2.2	-1.6	-8.4	-2.2	0.7	-6.0	-5.1	-7.9
	T50N10	-3.3	3.6	-2.3	3.3	4.4	2.4	4.4	2.6	0.8	-1.6	-4.2	-7.8	-2.2	1.2	-6.8	-6.8	-5.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	-3.4	-5.5	-4.0	-4.9	-2.7	-2.4	3.9	3.3	-4.3	-4.9	2.2	-5.0	-1.9	-0.3	3.0	1.5	0.0
	T20N25	2.5	-1.5	-2.9	-2.9	-3.4	4.9	-0.8	-3.2	-0.9	-1.8	1.9	0.4	-1.8	1.9	0.0	-3.8	-2.1
	T25N20	-0.8	-2.1	-3.7	-0.4	-6.1	0.7	2.1	-1.0	-2.6	-0.6	0.5	-3.1	1.7	2.2	-1.7	-0.6	-0.1
	T50N10	7.0	0.4	5.5	8.8	0.5	-1.2	-4.1	-0.9	-0.9	-0.8	0.5	-6.3	-4.4	2.7	-2.3	-1.9	0.4
LN	T10N50	-13.8	-9.8	-10.0	-8.2	-5.5	-2.5	2.1	2.4	-1.9	-4.5	1.2	-7.6	-2.9	-7.3	-1.0	0.3	-5.2
	T20N25	-2.1	-2.1	-2.2	-3.1	4.9	-0.8	-4.3	-3.3	-2.0	-3.2	-1.6	-10.0	-6.7	-7.5	2.8	-5.7	-5.0
	T25N20	-3.8	-1.6	3.4	-4.7	-0.2	-8.0	-1.9	1.6	-3.5	-8.2	3.9	-13.7	-8.9	-4.0	-4.2	-6.3	-8.6
	T50N10	6.6	5.4	5.1	10.0	-2.7	-7.1	-4.4	-4.3	-2.9	-0.9	0.2	-6.2	-7.7	-1.7	-8.9	-5.5	-6.1
CN	T10N50	-22.5	-27.2	-24.2	-19.4	-9.0	-18.9	-5.3	-2.9	-7.2	-4.5	-3.8	-8.7	-1.7	0.8	-3.0	-1.0	-4.0
	T20N25	-1.9	-3.2	0.1	1.4	-2.8	-6.8	-3.5	0.8	-2.4	0.1	-0.3	-8.8	-2.1	-0.7	-4.5	-4.1	-12.2
	T25N20	2.5	-0.4	0.2	-1.4	-2.5	-0.6	-2.2	0.6	0.6	0.9	1.2	-5.8	-2.3	0.1	-4.3	-5.0	-7.4
	T50N10	0.4	6.8	0.1	8.4	0.0	-1.8	0.0	-0.9	2.8	0.3	-2.2	-5.5	-2.3	1.7	-5.2	-6.0	-5.8

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.43

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	-6.4	-12.1	-19.7	-17.5	-27.0	-29.6	-22.2	-15.5	3.3	-0.1	-7.0	4.4	-1.3	5.7	-9.8	-8.0	-2.8
	T100N1	-16.4	-5.3	-6.8	-13.8	-27.2	-25.6	-31.2	-17.3	-12.2	-2.5	-5.8	-6.6	-3.6	-6.5	-2.9	-11.1	-7.4
	T200N1	-8.6	-13.9	-5.8	-14.5	-18.6	-28.8	-21.3	-9.3	-19.9	0.3	-12.4	-6.7	-0.3	-9.9	-1.7	-4.3	-3.8
	T500N1	-4.3	-8.5	-5.5	-12.5	-6.0	-6.8	-4.9	-6.2	-8.9	-4.0	-2.8	-2.3	2.9	5.6	-0.4	-2.7	1.1
LN	T50N1	-19.6	-17.4	-9.3	-13.7	-16.7	-25.4	-29.8	-48.8	-51.7	-17.5	-26.0	-72.5	-77.9	-71.2	-73.8	-77.3	-77.0
	T100N1	-17.9	-7.2	-18.3	-20.0	-50.1	-45.2	-39.4	-49.6	-33.7	-16.2	-34.8	-78.4	-80.5	-83.8	-80.2	-81.1	-80.7
	T200N1	-13.7	-17.4	-6.7	-18.4	-39.4	-35.6	-12.8	-17.1	-33.4	1.3	-25.7	-83.6	-85.6	-87.7	-81.6	-83.1	-84.8
	T500N1	-15.6	-10.4	-13.8	-14.8	-21.8	-25.4	-43.1	-43.2	-32.7	-2.8	-32.6	-85.2	-84.4	-87.1	-84.3	-85.9	-86.7
CN	T50N1	-22.3	-43.6	-14.4	-20.1	-48.6	-38.8	-40.7	-52.1	-39.8	-53.9	-32.3	-33.2	-47.7	-37.8	-38.1	-39.4	-45.6
	T100N1	-40.1	-35.8	-36.5	-37.0	-47.3	-53.8	-48.3	-52.8	-39.0	-46.4	-41.2	-47.7	-49.5	-49.6	-46.8	-46.7	-47.2
	T200N1	-36.5	-33.5	-37.2	-38.6	-44.0	-36.4	-53.8	-50.8	-42.3	-47.2	-47.1	-49.9	-54.9	-52.5	-51.2	-53.6	-53.2
	T500N1	-37.6	-30.1	-33.2	-35.7	-39.4	-22.7	-35.4	-43.5	-39.6	-42.7	-42.8	-51.0	-56.4	-54.7	-52.8	-55.7	-56.0
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	-15.3	-24.2	-32.7	-28.3	-47.7	-47.9	-42.1	-37.3	-12.5	-12.6	-20.4	-6.6	-8.8	-1.2	-17.5	-15.4	-9.8
	T100N1	-23.0	-15.6	-16.6	-21.7	-42.3	-40.0	-46.0	-35.4	-22.1	-11.8	-20.9	-12.3	-8.6	-10.9	-11.9	-16.8	-14.1
	T200N1	-15.0	-21.0	-13.3	-20.2	-29.7	-39.4	-31.9	-21.4	-26.0	-5.6	-17.7	-10.0	-2.9	-12.5	-4.5	-7.0	-6.1
	T500N1	-8.8	-12.1	-9.4	-16.5	-10.3	-11.1	-9.3	-10.8	-11.8	-6.4	-6.0	-3.6	2.1	4.8	-1.6	-3.5	0.3
LN	T50N1	-26.0	-27.9	-17.0	-22.5	-37.5	-45.3	-45.1	-59.7	-57.9	-24.0	-35.5	-74.7	-78.7	-73.2	-75.4	-78.2	-78.3
	T100N1	-24.6	-16.8	-26.6	-27.8	-59.9	-55.7	-52.6	-58.7	-40.2	-22.4	-41.5	-79.3	-81.2	-84.5	-81.0	-82.0	-81.6
	T200N1	-18.5	-22.7	-11.6	-23.9	-48.3	-42.9	-23.1	-26.8	-39.5	-3.7	-30.5	-84.3	-85.9	-87.9	-82.1	-83.5	-85.1
	T500N1	-20.0	-14.4	-17.4	-19.2	-25.5	-29.0	-46.1	-46.0	-34.8	-5.0	-34.5	-85.3	-84.6	-87.2	-84.4	-86.0	-86.9
CN	T50N1	-36.2	-53.6	-34.0	-34.4	-62.4	-54.7	-54.7	-63.1	-49.9	-60.7	-43.9	-41.4	-52.7	-44.6	-45.2	-45.5	-50.6
	T100N1	-49.3	-48.1	-48.9	-47.6	-60.6	-65.3	-62.1	-65.4	-47.8	-53.7	-49.7	-52.7	-54.2	-53.3	-51.6	-50.9	-52.0
	T200N1	-43.8	-41.6	-46.7	-45.9	-54.0	-47.8	-62.4	-61.1	-49.4	-53.0	-53.5	-53.3	-57.1	-55.2	-54.7	-56.0	-55.6
	T500N1	-42.8	-35.7	-38.2	-41.4	-44.8	-29.1	-40.7	-48.5	-43.2	-46.1	-46.1	-52.4	-57.3	-55.7	-54.1	-56.5	-56.8
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	22.0	9.7	-1.2	10.7	0.6	-3.5	5.6	8.5	43.7	30.7	27.8	35.8	15.9	18.6	10.1	6.7	15.4
	T100N1	2.4	15.0	15.6	11.0	-5.9	-3.3	-9.1	14.7	14.6	22.2	40.3	9.3	8.4	5.3	25.3	1.7	12.8
	T200N1	7.4	-1.0	10.3	-0.4	-6.5	-16.4	9.4	4.2	-5.6	14.5	-0.4	1.0	5.0	-4.8	5.2	0.2	0.5
	T500N1	5.5	-1.6	2.0	-5.1	-2.2	-2.7	-1.0	-2.3	-2.9	1.4	3.9	-0.2	3.9	7.0	1.9	-1.3	2.3
LN	T50N1	0.6	-1.8	9.2	13.9	-3.2	-4.0	-17.7	-39.3	-26.4	-6.8	3.4	-40.8	-43.4	-36.2	-41.0	-44.0	-44.9
	T100N1	4.3	14.1	5.2	4.5	-36.0	-30.1	-24.0	-35.7	-4.2	0.6	-9.7	-41.2	-43.4	-50.2	-44.9	-45.7	-42.8
	T200N1	8.4	0.6	13.0	4.5	-5.8	-19.5	5.7	1.8	0.8	18.8	1.7	-45.2	-43.0	-50.9	-38.5	-38.2	-43.0
	T500N1	1.7	3.2	1.5	1.9	-10.1	-14.1	-30.5	-30.1	-17.0	4.5	-16.1	-37.5	-29.7	-37.4	-34.5	-32.9	-38.0
CN	T50N1	36.7	-9.8	54.3	41.4	-14.6	5.2	8.3	-20.6	12.7	-10.2	27.4	9.5	-16.3	-0.9	4.1	10.0	-12.3
	T100N1	-6.5	-1.5	-0.5	-1.4	0.2	-16.1	-0.6	-10.6	11.1	2.5	5.8	-8.8	-2.4	-7.9	-7.8	-6.1	-7.1
	T200N1	-2.8	-2.5	-0.3	-7.1	3.4	15.6	-18.0	-7.5	10.0	5.1	-2.5	-3.7	-11.7	-8.1	-9.2	-9.0	-7.8
	T500N1	-7.0	-0.3	-4.0	-4.4	-9.8	12.0	-8.4	-18.5	1.7	4.6	-3.8	-4.0	-9.0	-6.1	-6.5	-8.0	-8.7
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	16.2	3.6	-6.2	3.5	-5.5	-4.9	4.0	4.8	34.9	23.1	15.7	27.4	9.6	12.4	-4.7	0.6	7.9
	T100N1	-0.8	11.6	11.2	7.6	-9.4	-6.8	-12.8	11.5	10.2	18.5	37.8	3.8	2.6	1.2	21.2	-3.6	8.3
	T200N1	4.6	-4.1	8.2	-3.6	-9.4	-18.0	-11.2	1.2	-7.0	12.4	-3.3	-1.9	2.1	-8.0	1.3	-3.8	-3.7
	T500N1	4.3	-2.7	0.6	-6.1	-5.3	-5.5	-3.5	-4.2	-4.7	-0.4	2.2	-1.9	1.6	5.1	-0.1	-3.5	-0.1
LN	T50N1	-6.7	-6.0	4.5	6.4	-1.8	-11.3	-24.7	-43.9	-31.2	-17.0	0.8	-43.8	-45.7	-40.7	-44.3	-47.4	-47.5
	T100N1	-0.7	7.1	0.6	-2.0	-37.4	-35.3	-25.6	-37.9	-7.6	-6.2	-13.6	-42.1	-45.2	-51.5	-46.0	-47.2	-44.7
	T200N1	1.4	-6.3	5.4	-2.7	-5.4	-21.8	-1.2	-2.2	1.0	13.1	-1.4	-44.8	-43.5	-51.2	-37.6	-38.7	-43.1
	T500N1	-5.9	-3.0	-5.8	-5.8	-16.3	-21.0	-35.6	-34.0	-19.3	-2.0	-18.5	-35.8	-29.0	-36.9	-32.5	-31.8	-37.3
CN	T50N1	28.3	-14.3	41.5	30.6	-18.2	-9.1	7.5	-26.3	1.8	-14.5	17.5	0.1	-21.8	-16.8	-2.9	3.4	-20.1
	T100N1	-9.3	-5.4	-3.2	-4.4	-8.0	-20.3	-7.4	-14.7	6.8	-0.7	2.6	-13.9	-10.4	-13.6	-11.5	-9.8	-8.3
	T200N1	-3.7	-4.8	-3.0	-7.7	0.1	12.0	-20.5	-11.8	7.9	3.0	-3.9	-4.9	-13.0	-8.8	-10.1	-10.9	-9.9
	T500N1	-2.9	2.6	-1.3	0.0	-13.3	6.5	-12.8	-21.7	1.1	4.3	-3.8	-3.3	-9.2	-7.0	-5.7	-8.5	-9.1

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.44

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-18.0	-13.4	-13.9	-17.9	-17.5	-9.5	-13.4	-17.7	-24.0	-5.5	-18.4	-16.3	-1.7	-3.2	-11.9	-1.8	-1.9	
	T20N25	-9.4	8.6	6.1	-5.4	-4.6	-0.9	-18.0	-19.0	-6.0	-3.8	-7.1	-0.5	-0.6	1.1	-2.8	-5.1	0.7	
	T25N20	-3.7	19.2	19.3	-1.4	-5.4	-0.9	-6.4	-8.3	0.0	-1.5	5.6	-1.8	4.3	0.4	-3.8	0.0	-1.9	
	T50N10	2.3	18.2	16.1	6.9	-2.0	-1.2	-6.5	-0.5	-0.6	0.7	3.6	-0.3	0.7	2.3	0.0	-3.7	-2.6	
LN	T10N50	-56.8	-49.8	-50.4	-51.0	-80.3	-77.0	-83.7	-81.7	-66.5	-27.6	-46.1	-81.7	-79.0	-81.3	-79.6	-78.5	-83.3	
	T20N25	-37.5	-43.5	-32.2	-37.0	-68.9	-82.2	-68.7	-75.3	-33.1	-15.0	-53.3	-85.8	-85.4	-83.5	-78.5	-82.1	-84.5	
	T25N20	-33.3	-19.7	-28.7	-30.6	-70.5	-77.2	-70.8	-48.6	-33.5	-17.5	-35.2	-85.8	-85.2	-83.6	-80.1	-85.0	-87.3	
	T50N10	-29.6	-17.1	-16.9	-24.4	-88.0	-65.9	-90.7	-68.1	-20.7	-11.0	-26.4	-85.9	-83.6	-85.6	-82.8	-79.7	-85.3	
CN	T10N50	-49.8	-38.8	-43.8	-48.2	-61.2	-67.2	-69.9	-64.8	-47.6	-43.0	-50.5	-48.2	-53.2	-56.3	-51.8	-56.3	-54.9	
	T20N25	-38.9	-26.4	-29.4	-36.2	-67.1	-62.5	-60.4	-63.6	-53.8	-47.5	-53.4	-50.8	-56.1	-54.3	-52.7	-55.8	-59.1	
	T25N20	-32.2	-17.8	-20.0	-29.1	-48.0	-58.7	-60.8	-46.0	-45.2	-44.3	-47.8	-50.3	-54.3	-53.1	-50.7	-56.2	-55.0	
	T50N10	-27.2	-14.7	-15.3	-29.9	-46.5	-36.1	-60.6	-33.6	-48.0	-41.4	-37.7	-52.9	-55.2	-51.7	-50.3	-54.6	-55.5	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-5.2	28.3	26.9	-4.7	-35.0	-27.1	-31.4	-35.3	-27.9	-11.5	-21.7	-18.3	-5.0	-6.3	-13.2	-4.8	-5.6	
	T20N25	-3.1	42.7	37.9	-0.3	-27.6	-25.9	-38.4	-39.8	-9.6	-9.1	-10.1	-0.9	-3.4	-2.4	-2.7	-7.8	-2.1	
	T25N20	-0.1	48.0	47.1	1.5	-27.9	-24.5	-29.5	-30.9	-3.1	-4.9	2.7	-2.1	1.8	-2.0	-3.8	-2.5	-4.5	
	T50N10	3.0	31.4	29.0	7.2	-19.9	-19.3	-23.8	-18.6	-2.7	-0.9	1.6	-0.8	-1.1	0.6	-0.4	-5.5	-4.3	
LN	T10N50	-47.3	-23.9	-25.9	-40.0	-83.0	-79.9	-85.4	-83.6	-64.6	-31.9	-49.8	-80.9	-79.4	-81.7	-80.5	-78.7	-83.5	
	T20N25	-33.3	-28.4	-15.4	-34.3	-76.2	-85.0	-76.1	-80.9	-35.5	-19.4	-54.7	-85.9	-86.0	-83.7	-78.5	-82.6	-84.9	
	T25N20	-30.0	-1.1	-13.3	-28.1	-76.8	-81.9	-77.7	-60.8	-36.6	-20.9	-37.1	-86.0	-85.5	-83.9	-80.2	-85.4	-87.6	
	T50N10	-30.7	-9.4	-10.0	-25.4	-88.2	-71.5	-89.1	-72.9	-23.4	-12.4	-29.2	-86.0	-83.9	-85.9	-83.1	-79.8	-85.7	
CN	T10N50	-37.8	-4.3	-12.8	-36.7	-67.3	-69.7	-73.9	-71.1	-45.4	-48.0	-52.9	-45.9	-55.8	-56.7	-53.4	-57.4	-57.1	
	T20N25	-28.8	1.4	-1.6	-25.0	-74.0	-71.5	-69.5	-70.6	-56.1	-52.3	-53.9	-51.6	-57.8	-56.3	-52.4	-57.4	-60.1	
	T25N20	-25.7	6.7	3.8	-21.9	-60.8	-68.0	-70.2	-60.0	-49.1	-49.2	-51.1	-51.8	-55.9	-54.4	-52.1	-57.9	-57.2	
	T50N10	-26.5	-6.0	-5.6	-28.5	-58.8	-50.0	-69.0	-47.9	-51.9	-45.0	-41.7	-54.4	-56.7	-53.2	-51.8	-56.4	-56.8	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-9.6	-13.6	-13.5	-9.4	-6.7	-1.1	-5.0	-6.8	-11.4	6.7	-8.2	-5.8	1.8	-0.1	-4.3	0.9	2.2	
	T20N25	-8.1	-7.3	-7.2	-2.3	1.0	11.5	-11.7	-12.3	1.3	5.4	-0.4	3.4	1.6	5.8	0.6	-3.3	2.8	
	T25N20	-4.7	1.0	1.1	-1.5	-2.0	2.4	-1.7	-3.1	3.4	4.6	9.0	-0.1	5.9	2.0	-2.4	1.4	-0.7	
	T50N10	-0.3	4.7	2.4	4.7	1.6	2.4	-2.9	3.2	-0.4	2.8	4.3	0.7	1.7	2.9	0.2	-3.1	-0.9	
LN	T10N50	-26.0	-28.2	-27.2	-20.4	-59.2	-52.7	-65.2	-67.1	-29.1	-0.4	2.1	-26.2	-15.2	-23.6	-21.2	-20.4	-33.6	
	T20N25	-15.2	-33.4	-20.5	-11.8	-49.5	-71.8	-50.1	-53.3	-5.4	2.0	-31.8	-39.1	-31.1	-32.3	-25.8	-24.8	-32.1	
	T25N20	-10.8	-10.5	-18.6	-6.4	-53.8	-57.6	-42.8	-25.7	-0.6	-1.7	-9.7	-37.3	-31.2	-31.4	-27.4	-30.1	-39.3	
	T50N10	-11.7	-4.2	-12.1	-6.5	-81.1	-48.0	-83.3	-46.9	-2.7	-4.0	-3.9	-37.4	-30.4	-32.9	-33.4	-18.6	-29.3	
CN	T10N50	-16.7	-7.6	-12.6	-13.3	-2.8	-30.1	-26.7	-20.9	7.2	13.7	3.1	9.7	14.1	-2.7	4.0	-0.3	-0.2	
	T20N25	-12.4	-8.6	-9.6	-8.8	-35.5	-27.2	-29.0	-37.3	-13.6	1.2	-19.4	-2.2	0.7	1.9	-7.7	-4.9	-12.7	
	T25N20	-3.4	-1.3	0.5	0.6	-11.9	-31.8	-27.4	-1.1	-1.2	5.8	-5.5	-0.8	-0.2	0.8	-1.2	-3.3	-1.8	
	T50N10	1.8	3.5	3.1	-5.8	-8.5	-0.8	-34.1	2.5	-8.1	6.2	3.8	-3.3	-1.8	1.3	-2.7	-4.8	-5.5	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-0.3	-3.9	-3.9	0.3	-1.9	3.5	-0.3	-1.4	-6.6	9.5	-2.2	-2.9	1.7	1.0	-0.5	1.4	1.9	
	T20N25	-5.1	-4.4	-4.0	-0.2	0.9	12.7	-11.0	-11.0	2.6	7.0	1.3	4.5	1.7	5.7	1.6	-4.4	2.8	
	T25N20	-3.3	2.9	2.6	0.1	-2.1	2.5	-1.2	-3.1	4.1	5.4	9.5	0.6	5.5	1.2	-1.9	2.0	-1.5	
	T50N10	-0.3	4.0	2.2	4.7	0.2	1.3	-3.6	2.6	-0.9	2.6	3.1	0.1	0.0	2.7	-1.6	-3.5	-1.7	
LN	T10N50	-21.8	-18.2	-19.3	-14.1	-56.9	-51.1	-65.3	-63.9	-20.9	4.5	13.0	-23.6	-14.0	-22.1	-16.0	-19.9	-32.8	
	T20N25	-17.3	-32.1	-16.8	-16.0	-50.2	-75.0	-48.0	-52.6	-4.5	3.9	-30.2	-36.9	-29.9	-31.4	-21.9	-22.9	-31.0	
	T25N20	-14.1	-9.9	-16.2	-10.9	-52.2	-55.7	-40.6	-29.3	1.9	-1.7	-9.6	-34.8	-29.9	-29.7	-23.3	-28.6	-38.4	
	T50N10	-14.8	-6.7	-14.5	-8.9	-78.7	-47.8	-80.6	-46.7	-2.7	-6.3	-0.8	-35.3	-28.8	-31.6	-30.5	-16.2	-27.6	
CN	T10N50	-7.5	2.8	-2.3	-5.1	-1.2	-28.4	-25.6	-18.7	10.8	17.7	5.5	13.0	13.9	-3.0	5.9	-0.7	0.2	
	T20N25	-6.8	-3.4	-3.9	-5.9	-36.2	-27.8	-30.7	-38.3	-10.9	3.6	-19.2	1.0	0.2	1.6	-6.9	-5.8	-13.0	
	T25N20	1.1	3.0	4.8	5.2	-13.8	-33.3	-28.3	-3.6	-0.6	8.1	-3.6	1.1	-0.9	-0.1	1.5	-3.6	-2.0	
	T50N10	6.9	6.8	6.1	-0.4	-7.0	-3.9	-35.4	-1.0	-7.3	8.3	4.7	-1.3	-1.2	2.0	-1.3	-4.2	-5.8	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.45

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-8.5	-5.4	-2.9	-6.8	-22.0	-17.1	-16.6	-14.5	-6.0	-3.3	-2.7	-5.5	-6.1	1.1	1.1	-2.4	-3.6	
	T100N1	-9.0	-4.2	-10.9	-9.1	-22.4	-31.1	-27.5	-29.4	-14.8	-5.4	-7.5	-3.4	-8.6	-2.5	-1.0	-10.8	-6.4	
	T200N1	-7.7	-12.6	-1.1	-14.8	-15.4	-22.0	-26.1	-19.7	-12.2	1.7	-11.6	0.1	2.7	-6.2	-0.1	-1.2	-6.9	
	T500N1	-5.9	-4.5	-2.6	-8.6	-11.4	-7.9	-4.9	-2.3	-3.1	-4.5	-2.0	-2.5	1.3	5.0	1.8	-3.3	0.2	
LN	T50N1	-15.1	-3.4	-1.8	-14.7	-33.2	-17.5	-13.7	-17.7	-42.2	5.4	-17.2	-71.2	-66.4	-67.1	-67.9	-72.7	-68.8	
	T100N1	-19.3	-14.2	-7.0	-19.6	-24.9	-31.3	-35.3	-28.4	-26.5	-6.8	-31.3	-72.3	-74.8	-75.7	-72.3	-77.2	-72.5	
	T200N1	-18.5	-6.1	-7.5	-14.4	-18.8	-12.9	-12.1	-13.0	-21.5	-10.0	-31.1	-70.6	-77.1	-77.3	-76.4	-77.6	-76.1	
	T500N1	-14.1	-8.6	-10.4	-11.2	-22.4	-5.9	-15.3	-16.8	-18.0	-1.1	-14.5	-78.8	-80.5	-80.5	-78.9	-78.9	-80.0	
CN	T50N1	-25.3	-9.6	-22.8	-24.4	-41.3	-40.2	-32.0	-36.4	-40.1	-51.3	-36.7	-27.1	-42.0	-38.2	-43.3	-33.0	-46.3	
	T100N1	-34.0	-32.0	-31.9	-37.0	-50.4	-41.8	-39.2	-42.9	-40.9	-49.1	-36.6	-46.8	-51.7	-49.9	-45.2	-47.4	-50.4	
	T200N1	-37.0	-35.3	-37.7	-37.2	-47.9	-46.2	-52.4	-54.9	-42.6	-48.3	-46.8	-48.7	-54.7	-52.8	-46.4	-51.1	-53.3	
	T500N1	-34.4	-34.4	-26.6	-35.1	-27.9	-26.1	-36.9	-25.8	-41.3	-42.6	-42.5	-50.7	-56.1	-54.3	-53.1	-56.0	-56.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-15.3	-19.7	-20.2	-14.1	-52.8	-49.7	-46.8	-47.6	-24.2	-16.4	-23.0	-18.0	-14.6	-7.0	-11.6	-12.0	-13.9	
	T100N1	-15.7	-18.0	-22.4	-17.4	-48.5	-53.8	-51.3	-52.8	-29.5	-16.0	-22.2	-12.5	-14.9	-9.0	-9.0	-16.5	-12.4	
	T200N1	-14.6	-21.1	-9.4	-21.0	-33.9	-38.8	-42.0	-36.7	-20.4	-5.5	-20.7	-4.1	-0.5	-9.1	-4.9	-4.3	-9.5	
	T500N1	-12.9	-10.6	-8.8	-15.0	-19.6	-16.4	-13.5	-11.5	-7.8	-7.6	-6.4	-4.2	0.2	3.9	0.2	-4.4	-0.9	
LN	T50N1	-6.0	12.0	-6.7	-7.7	-56.8	-47.9	-43.6	-48.6	-49.2	-6.4	-29.5	-73.2	-68.6	-69.9	-70.0	-74.4	-71.0	
	T100N1	-26.2	-24.5	-19.4	-26.7	-46.3	-52.5	-55.1	-50.0	-36.6	-15.7	-39.8	-74.1	-76.0	-76.9	-73.8	-78.4	-73.9	
	T200N1	-24.7	-15.2	-16.2	-21.6	-36.1	-31.1	-30.1	-30.6	-29.1	-16.0	-37.5	-71.9	-77.7	-77.9	-77.3	-78.1	-76.6	
	T500N1	-20.2	-14.8	-16.4	-18.1	-30.1	-14.7	-23.5	-24.7	-21.5	-4.5	-18.4	-79.1	-80.8	-80.7	-79.2	-79.1	-80.2	
CN	T50N1	-37.5	-33.9	-37.3	-37.8	-64.5	-64.0	-58.0	-61.7	-51.1	-59.3	-48.7	-37.4	-46.7	-45.3	-50.5	-41.9	-52.2	
	T100N1	-43.9	-48.0	-46.0	-47.3	-66.9	-60.9	-58.7	-60.5	-50.8	-56.5	-48.0	-52.1	-55.9	-54.2	-50.8	-51.4	-54.4	
	T200N1	-46.5	-46.4	-49.9	-46.4	-61.8	-61.0	-65.1	-67.0	-52.0	-55.4	-54.8	-53.3	-57.4	-56.4	-50.9	-54.8	-56.1	
	T500N1	-40.6	-40.6	-32.8	-41.4	-37.2	-35.6	-44.8	-35.4	-46.0	-46.7	-47.2	-52.4	-57.1	-55.4	-54.8	-57.0	-57.3	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																			
N	T50N1	30.3	24.1	31.0	25.9	6.2	20.9	24.8	26.9	35.8	35.4	58.9	26.0	10.5	26.7	46.3	27.0	24.9	
	T100N1	13.8	20.9	7.1	17.8	1.1	-8.9	-8.6	-10.9	14.7	19.8	24.2	16.5	3.1	11.2	17.8	0.0	5.7	
	T200N1	7.6	-0.5	11.6	-0.9	-1.4	-8.8	-14.7	-9.3	1.6	15.9	4.5	8.4	8.2	-1.6	8.9	3.7	-3.3	
	T500N1	3.8	3.3	5.6	0.4	-7.6	-3.7	-1.1	2.0	3.4	1.3	4.2	-0.3	2.2	6.6	4.1	-2.3	1.5	
LN	T50N1	8.0	17.9	26.9	10.1	-5.1	17.3	16.0	16.6	-18.2	32.5	13.7	-41.2	-26.4	-29.2	-36.0	-42.5	-32.6	
	T100N1	0.6	3.4	14.4	0.8	-6.1	-12.1	-13.4	-7.6	-0.3	10.5	-9.0	-37.0	-36.2	-37.5	-35.6	-41.3	-30.1	
	T200N1	-1.0	11.8	9.1	5.4	1.9	7.1	2.7	3.8	-0.2	4.2	-7.6	-22.9	-29.5	-31.4	-37.5	-32.9	-29.0	
	T500N1	0.2	3.9	2.8	4.9	-11.3	4.2	-0.8	-4.6	-5.7	6.7	0.2	-30.0	-30.0	-27.4	-29.6	-23.5	-27.1	
CN	T50N1	13.5	39.5	13.5	22.0	-5.3	0.1	68.4	51.9	10.6	0.1	24.6	21.0	-12.4	-0.1	-0.8	19.7	-8.5	
	T100N1	2.3	15.1	3.1	-1.2	-7.3	13.2	7.2	-3.4	11.6	-0.6	16.0	-3.3	-13.1	-9.0	-5.9	-8.6	-12.1	
	T200N1	7.7	6.7	7.2	7.5	-1.8	6.1	-11.6	-15.3	18.2	10.1	2.7	1.7	-11.2	-3.5	1.2	1.2	-8.0	
	T500N1	-4.3	-6.5	2.2	-4.1	4.8	7.9	-8.2	6.7	0.5	5.3	-1.9	-3.4	-8.8	-5.3	-6.6	-8.6	-9.0	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	31.0	22.9	31.3	25.9	2.9	13.3	26.1	23.9	27.1	32.7	62.2	18.4	5.8	21.9	46.9	26.7	18.3	
	T100N1	9.9	16.9	3.4	14.3	-2.7	-13.2	-11.3	-13.9	11.8	16.5	20.0	13.0	-3.0	7.0	12.6	-5.3	2.0	
	T200N1	5.7	-4.4	8.3	-4.0	-4.8	-10.5	-17.8	-11.5	-1.4	13.7	3.4	4.4	4.4	-5.1	6.2	-0.2	-7.4	
	T500N1	2.9	2.8	4.3	0.1	-10.2	-6.6	-3.6	-0.1	2.3	-0.2	2.3	-1.6	0.2	4.7	2.1	-4.3	-0.8	
LN	T50N1	2.7	9.3	22.2	6.0	-9.8	12.8	3.3	7.6	-24.2	20.8	7.6	-45.4	-30.5	-32.5	-38.9	-45.7	-36.3	
	T100N1	-3.3	-1.1	10.4	-5.2	-10.0	-12.3	-16.0	-11.3	-3.2	6.8	-10.7	-38.1	-37.9	-39.2	-36.5	-42.8	-31.8	
	T200N1	-6.3	6.2	2.8	0.8	-0.4	1.5	-4.1	-3.6	-2.7	-0.8	-11.5	-22.4	-29.8	-32.0	-37.3	-33.5	-29.0	
	T500N1	-4.5	0.1	-1.6	0.6	-16.3	-2.8	-8.0	-11.5	-8.1	2.7	-2.9	-28.0	-29.4	-26.6	-27.5	-22.2	-26.1	
CN	T50N1	9.1	27.6	12.9	19.9	-10.2	-5.1	50.4	38.4	3.7	-9.5	6.0	13.7	-19.2	-7.6	-9.6	9.6	-14.8	
	T100N1	-0.6	8.9	-0.1	-3.5	-11.5	7.2	2.7	-8.1	6.9	-3.6	11.9	-8.5	-17.5	-13.5	-9.7	-12.1	-17.0	
	T200N1	8.8	6.2	8.3	9.7	-3.3	7.2	-12.2	-15.1	14.9	8.5	0.8	0.0	-12.7	-2.3	-0.3	0.5	-9.3	
	T500N1	-0.8	-4.6	4.3	-0.6	0.2	2.5	-11.7	2.3	0.5	4.7	-2.9	-2.4	-9.2	-6.1	-5.6	-9.2	-9.4	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.46

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-39.4	-38.4	-38.1	-39.5	-25.9	-26.5	-25.4	-31.2	-33.5	-15.3	-32.5	-27.7	-1.8	-5.7	-27.9	-3.1	-9.2	
	T20N25	-20.9	-17.9	-22.5	-26.1	-17.0	-24.0	-13.0	-12.8	-30.4	-15.5	-19.8	-16.4	1.9	-3.0	-6.0	-0.6	-2.4	
	T25N20	-12.3	5.2	7.9	-11.3	-7.6	-3.9	-9.4	-5.7	-17.6	-9.9	-17.4	-6.1	3.9	0.6	-8.4	-1.4	-1.7	
	T50N10	3.8	19.3	19.3	4.0	-4.1	-5.3	-2.6	-1.0	-3.2	4.3	2.9	-1.8	-2.4	3.0	-1.2	-3.0	-1.0	
LN	T10N50	-60.3	-58.4	-57.0	-59.0	-74.1	-64.6	-76.1	-75.6	-51.9	-31.0	-42.7	-68.0	-72.3	-75.3	-66.5	-71.2	-80.9	
	T20N25	-40.0	-39.4	-39.8	-42.7	-60.5	-78.5	-44.2	-61.9	-42.0	-24.3	-52.8	-75.9	-80.0	-79.3	-67.0	-75.5	-79.6	
	T25N20	-29.8	-22.5	-23.1	-29.7	-61.3	-71.5	-63.5	-47.6	-43.0	-20.5	-34.6	-77.9	-79.7	-81.4	-70.9	-80.6	-81.9	
	T50N10	-13.3	-4.3	0.1	-15.1	-62.7	-36.0	-72.1	-30.7	-21.4	-5.4	-13.6	-78.5	-80.4	-81.3	-76.0	-77.1	-80.1	
CN	T10N50	-60.0	-57.6	-58.5	-59.8	-62.3	-64.3	-67.1	-60.2	-44.9	-46.4	-54.3	-45.5	-56.0	-56.7	-53.2	-55.8	-54.9	
	T20N25	-50.1	-46.6	-46.7	-51.3	-63.8	-60.8	-69.0	-62.4	-54.5	-50.1	-54.4	-52.6	-57.9	-55.1	-51.6	-58.7	-59.6	
	T25N20	-40.6	-32.7	-33.5	-40.5	-59.7	-55.6	-55.0	-61.2	-51.5	-46.9	-57.9	-50.7	-55.6	-54.6	-54.4	-57.3	-56.9	
	T50N10	-30.2	-15.8	-19.4	-31.1	-49.6	-30.7	-53.8	-43.8	-39.4	-42.3	-46.8	-52.4	-55.7	-52.1	-52.5	-54.3	-56.2	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-21.5	4.3	3.6	-21.8	-42.7	-41.8	-42.8	-47.1	-40.7	-20.1	-39.9	-34.5	-6.7	-10.1	-35.5	-7.8	-14.4	
	T20N25	-13.2	11.7	2.9	-20.2	-49.0	-52.7	-46.7	-46.8	-37.8	-22.6	-27.3	-19.6	-2.6	-7.1	-9.2	-4.4	-6.2	
	T25N20	-7.2	34.5	36.1	-7.8	-44.7	-42.4	-46.0	-44.3	-24.7	-15.6	-24.2	-9.0	0.2	-2.9	-10.6	-4.9	-5.4	
	T50N10	4.7	34.5	35.3	5.1	-35.9	-36.9	-35.4	-34.2	-8.6	1.5	-2.8	-3.5	-4.9	0.5	-2.8	-5.6	-3.5	
LN	T10N50	-43.7	-24.9	-23.5	-40.1	-77.7	-70.2	-79.1	-78.5	-51.5	-35.8	-46.1	-67.9	-72.9	-76.4	-68.2	-71.6	-81.3	
	T20N25	-32.7	-19.4	-21.9	-38.3	-74.0	-84.4	-63.9	-75.5	-46.9	-30.4	-54.7	-76.8	-80.9	-79.9	-67.2	-76.5	-80.4	
	T25N20	-25.3	-1.7	-4.0	-26.3	-74.5	-81.4	-76.2	-66.5	-43.6	-25.3	-40.3	-77.7	-80.3	-82.0	-71.9	-81.2	-82.5	
	T50N10	-12.6	6.5	11.2	-14.9	-75.1	-57.6	-80.4	-54.0	-26.2	-8.3	-19.2	-78.9	-81.0	-81.9	-76.6	-77.6	-80.7	
CN	T10N50	-38.4	-18.1	-17.0	-39.0	-66.6	-67.5	-69.9	-66.7	-40.8	-51.4	-54.7	-41.9	-57.3	-58.0	-53.5	-56.9	-57.4	
	T20N25	-38.9	-21.1	-20.3	-39.8	-74.3	-71.5	-76.0	-72.5	-56.7	-55.6	-57.4	-53.4	-60.0	-56.8	-53.2	-59.7	-61.1	
	T25N20	-32.4	-11.1	-11.1	-32.7	-72.5	-71.1	-70.7	-73.5	-52.6	-52.2	-59.5	-50.4	-57.9	-56.6	-54.6	-58.9	-58.3	
	T50N10	-24.6	-2.1	-5.2	-25.9	-67.7	-55.8	-70.2	-62.9	-45.8	-46.4	-52.4	-54.4	-57.4	-54.0	-54.8	-56.4	-57.9	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-18.0	-22.4	-21.2	-17.9	-5.5	-8.2	-2.6	-10.2	-2.7	6.3	-0.9	1.5	6.4	2.2	2.1	5.5	0.4	
	T20N25	-11.2	-21.3	-22.3	-15.4	-5.7	-14.6	-2.8	-2.7	-14.9	0.7	-4.8	-7.0	5.7	0.5	3.3	1.8	0.5	
	T25N20	-8.0	-7.6	-3.5	-5.3	-1.8	2.2	-3.0	1.8	-6.7	0.8	-8.6	0.0	6.1	3.0	-4.1	0.1	0.4	
	T50N10	0.9	1.6	1.3	1.3	-0.6	-1.7	1.9	2.9	-2.3	7.7	3.9	-0.6	-1.2	3.6	-0.7	-2.4	0.6	
LN	T10N50	-33.5	-37.8	-37.6	-36.0	-53.9	-34.1	-56.7	-58.7	-11.8	2.2	-4.7	-9.5	-14.3	-20.0	-10.1	-15.7	-35.4	
	T20N25	-17.2	-26.4	-23.3	-17.5	-41.2	-66.3	-7.5	-43.1	-15.3	-3.0	-26.3	-24.3	-25.9	-29.9	-11.7	-18.3	-27.1	
	T25N20	-5.4	-18.7	-13.0	-9.7	-46.5	-57.9	-47.8	-30.5	-23.4	-3.0	-7.8	-29.4	-25.0	-33.1	-16.8	-27.2	-31.0	
	T50N10	2.5	-0.6	1.0	-1.0	-43.3	-11.7	-61.4	-13.4	-7.8	2.8	0.6	-27.9	-30.8	-28.8	-27.5	-23.7	-25.4	
CN	T10N50	-26.6	-27.8	-28.5	-25.4	-13.1	-18.8	-16.8	-4.5	22.4	16.8	-0.1	21.9	0.9	0.4	2.8	2.9	1.8	
	T20N25	-20.8	-24.4	-24.7	-23.1	-26.9	-22.7	-35.9	-24.1	-10.5	3.1	1.0	-4.4	-4.1	0.0	9.1	-10.4	-11.4	
	T25N20	-4.8	-8.6	-9.1	-8.5	-24.8	-13.8	-14.8	-29.1	-1.6	5.9	-22.0	5.4	1.8	3.5	-8.8	-4.5	-8.2	
	T50N10	-1.1	4.5	-0.3	-3.4	-15.1	9.9	-18.3	-9.6	3.6	4.9	-10.0	-4.4	-2.9	0.8	-6.3	-3.1	-6.7	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-7.2	-11.7	-10.5	-7.2	-0.2	-4.0	2.1	-5.8	2.1	11.5	4.8	4.3	7.3	3.3	6.2	6.8	0.8	
	T20N25	-5.0	-15.9	-16.1	-10.6	-4.3	-12.9	-0.5	-0.3	-11.7	4.4	-1.3	-5.3	6.1	0.5	5.2	1.1	0.8	
	T25N20	-4.9	-3.7	0.0	-2.4	-1.0	2.8	-2.5	2.4	-4.2	3.1	-6.9	2.0	5.8	2.2	-3.2	0.2	-0.2	
	T50N10	1.9	1.9	1.7	2.0	-1.2	-2.0	1.0	2.1	-2.0	8.1	3.3	-0.7	-2.7	3.4	-2.4	-2.5	0.2	
LN	T10N50	-24.0	-26.9	-27.3	-27.2	-52.4	-31.9	-58.0	-56.2	-7.7	11.6	0.8	-8.5	-14.1	-18.9	-6.4	-15.7	-35.2	
	T20N25	-14.5	-21.4	-17.1	-15.6	-42.1	-66.8	-6.7	-42.5	-12.4	1.4	-22.5	-21.0	-24.6	-28.9	-6.5	-16.5	-25.9	
	T25N20	-5.9	-15.2	-8.9	-10.9	-47.4	-58.2	-49.6	-32.6	-21.1	-1.8	-6.5	-26.3	-23.6	-31.8	-12.4	-26.1	-30.0	
	T50N10	1.6	0.2	0.4	-0.8	-42.4	-14.5	-61.4	-15.6	-7.8	3.7	0.2	-25.1	-29.3	-27.5	-25.0	-21.5	-23.6	
CN	T10N50	-15.6	-16.3	-17.3	-14.6	-11.9	-16.5	-15.4	-3.0	27.2	23.9	2.5	25.8	-0.2	0.6	3.9	3.0	2.0	
	T20N25	-14.0	-17.2	-17.7	-17.3	-26.5	-22.7	-34.9	-23.3	-7.4	7.4	4.0	-1.3	-4.4	-0.9	11.6	-10.7	-11.0	
	T25N20	1.5	-1.6	-2.6	-2.6	-25.6	-15.0	-15.9	-29.6	2.8	9.9	-19.1	9.4	1.9	2.6	-6.1	-4.9	-8.2	
	T50N10	4.9	8.6	3.2	2.5	-14.9	6.8	-19.9	-12.4	4.1	7.4	-7.6	-2.6	-3.0	1.6	-4.2	-3.0	-6.7	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.



TABLE 1.47

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	-1.3	-9.4	4.6	-7.8	-8.4	-17.7	-19.5	-10.1	12.2	-0.1	-9.9	0.4	1.6	-6.4	-11.1	-3.8	-7.5	
	T100N1	-9.7	5.1	2.2	-7.3	-16.8	-19.3	-9.7	-23.1	-6.2	-2.4	-12.7	-6.3	-6.8	-3.4	-5.0	-5.0	-4.8	
	T200N1	-7.5	-6.6	-1.3	-12.0	-14.4	-14.3	-14.6	-8.2	-12.0	1.1	-10.2	1.2	1.6	-7.2	-2.1	-2.2	-2.2	
	T500N1	-9.4	-2.9	-7.3	-8.4	-4.9	-1.0	-5.8	-1.6	-2.4	-3.8	-7.2	-0.5	-0.1	4.1	0.8	-2.5	0.3	
LN	T50N1	-13.5	-11.7	-3.6	-18.2	-22.2	-42.2	-22.7	-24.1	-31.3	-4.9	-10.2	-51.0	-61.9	-61.9	-62.1	-69.3	-59.3	
	T100N1	-17.1	-5.6	-8.9	-20.2	-31.1	-13.8	-28.9	-24.7	-30.4	-2.9	-21.6	-67.4	-64.3	-69.4	-63.6	-73.3	-74.1	
	T200N1	-12.9	-9.0	-9.5	-15.4	-15.9	-9.5	-14.0	-12.0	-19.3	-3.1	-20.4	-65.5	-72.7	-74.1	-74.9	-70.2	-71.6	
	T500N1	-12.5	-11.5	-12.0	-13.9	-16.9	-1.3	-9.2	-11.8	-8.9	-2.9	-11.0	-72.3	-71.9	-73.2	-69.7	-71.2	-71.7	
CN	T50N1	-29.0	-22.7	-19.5	-25.9	-42.7	-48.1	-40.4	-34.7	-46.1	-51.3	-31.9	-41.3	-39.0	-35.7	-48.0	-36.5	-37.6	
	T100N1	-38.2	-28.5	-29.8	-37.6	-49.4	-38.2	-45.6	-45.4	-43.8	-50.6	-42.1	-44.6	-49.7	-50.1	-44.5	-48.5	-47.8	
	T200N1	-36.1	-29.7	-25.1	-36.0	-43.1	-37.2	-44.3	-46.7	-42.8	-43.8	-44.9	-47.8	-54.0	-53.2	-49.7	-54.6	-52.6	
	T500N1	-34.5	-29.1	-27.7	-33.5	-26.0	-34.2	-24.2	-25.5	-42.2	-41.9	-42.8	-50.8	-55.7	-54.7	-53.0	-55.2	-55.9	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T50N1	-12.9	-26.2	-11.7	-18.0	-52.1	-56.7	-59.7	-53.8	-13.1	-16.9	-28.9	-12.6	-14.7	-15.0	-20.5	-16.6	-19.8	
	T100N1	-14.6	-7.0	-10.0	-13.7	-52.0	-51.8	-47.1	-55.1	-24.2	-14.2	-28.9	-15.5	-14.4	-9.2	-14.2	-11.4	-11.3	
	T200N1	-14.8	-17.0	-12.2	-19.4	-42.0	-41.0	-41.2	-36.4	-23.7	-6.2	-22.0	-5.0	-2.9	-10.6	-7.9	-6.4	-5.5	
	T500N1	-17.7	-12.2	-15.2	-17.6	-19.8	-16.2	-20.2	-16.6	-8.9	-7.6	-13.0	-2.7	-1.6	2.6	-1.3	-4.0	-1.1	
LN	T50N1	-18.2	-22.0	-18.0	-22.9	-61.4	-71.1	-58.9	-58.6	-44.5	-19.6	-30.1	-56.0	-65.4	-64.7	-65.8	-71.7	-65.5	
	T100N1	-23.7	-21.8	-23.1	-28.6	-58.4	-48.5	-57.3	-55.1	-42.8	-12.8	-39.5	-70.1	-66.6	-71.2	-67.9	-74.9	-75.8	
	T200N1	-19.4	-18.0	-20.1	-22.5	-42.9	-37.4	-40.8	-39.0	-29.8	-11.1	-30.2	-67.5	-73.8	-75.1	-76.1	-71.2	-72.5	
	T500N1	-21.5	-20.5	-20.4	-23.0	-30.0	-16.5	-23.2	-25.5	-15.0	-7.4	-17.3	-73.0	-72.4	-73.6	-70.4	-71.7	-72.1	
CN	T50N1	-42.7	-42.3	-40.4	-39.1	-67.1	-71.2	-67.2	-64.9	-56.1	-59.2	-44.1	-48.1	-47.5	-42.6	-53.5	-43.1	-44.2	
	T100N1	-45.9	-39.5	-43.7	-44.2	-71.2	-63.6	-67.8	-67.9	-55.1	-58.8	-54.0	-51.0	-55.3	-54.5	-51.6	-52.9	-53.3	
	T200N1	-44.3	-42.3	-39.3	-44.7	-62.3	-58.3	-63.7	-65.6	-52.5	-51.9	-54.5	-52.5	-56.7	-56.2	-54.4	-57.8	-55.9	
	T500N1	-41.7	-37.9	-36.0	-41.5	-39.7	-46.8	-38.6	-39.5	-47.7	-46.2	-48.6	-52.8	-56.9	-56.0	-55.0	-56.4	-57.1	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																			
N	T50N1	88.5	35.2	69.4	61.7	78.4	39.4	17.2	38.8	211.9	56.3	44.8	109.4	101.3	19.7	15.1	25.7	36.6	
	T100N1	12.4	27.4	25.2	17.3	12.0	0.4	14.3	-2.6	30.2	25.4	19.6	15.3	6.6	6.6	16.9	7.1	6.6	
	T200N1	9.1	6.6	13.7	3.5	-0.8	-2.8	-1.6	4.9	5.7	15.3	7.0	11.5	7.2	-2.7	7.9	3.9	1.8	
	T500N1	1.2	8.0	1.3	3.7	-0.4	3.3	-1.8	2.7	4.8	1.7	-0.9	2.1	1.0	5.5	3.2	-1.1	1.5	
LN	T50N1	30.4	16.7	27.0	20.8	10.2	-22.0	-0.1	-5.3	-2.7	33.0	43.6	-15.3	-21.1	-25.7	-27.6	-39.1	-22.6	
	T100N1	5.3	25.3	15.5	6.5	-10.7	10.7	-5.5	-4.4	-4.6	21.1	28.8	-33.6	-23.6	-29.8	-17.3	-40.2	-39.2	
	T200N1	10.6	9.9	9.5	7.6	4.2	9.1	3.2	3.9	4.7	15.0	0.7	-21.6	-27.6	-31.5	-40.7	-25.3	-26.5	
	T500N1	5.8	5.1	2.9	6.0	-3.3	8.7	2.4	-1.2	4.1	6.7	4.2	-25.7	-19.6	-19.8	-19.6	-16.2	-18.3	
CN	T50N1	6.9	15.7	14.8	6.3	-4.7	-15.3	1.8	19.2	-8.0	-11.4	14.9	-9.1	-2.4	-1.9	-16.5	-4.2	-9.1	
	T100N1	2.3	12.3	13.1	-2.5	-3.6	16.8	-1.4	0.3	11.0	-0.7	11.1	-0.3	-5.3	-8.6	-1.3	-10.8	-9.0	
	T200N1	4.8	13.7	19.6	5.2	-0.5	10.3	0.8	-2.0	8.0	16.3	4.9	-1.3	-10.6	-8.4	-4.6	-8.9	-6.5	
	T500N1	-1.8	2.5	4.7	0.0	4.8	-6.0	9.2	5.0	-1.0	5.8	-0.3	-3.4	-7.6	-5.9	-5.8	-6.4	-8.2	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	100.8	34.2	74.0	72.1	79.0	46.0	14.2	44.9	257.1	52.8	46.0	129.2	110.3	14.5	10.2	18.2	41.0	
	T100N1	10.3	23.7	22.6	13.7	12.7	-2.5	11.4	-5.9	28.2	20.4	18.1	11.3	4.6	3.2	13.4	1.4	1.1	
	T200N1	6.8	4.1	10.3	1.4	-1.6	-5.7	-5.1	0.2	4.5	12.3	4.2	8.0	6.0	-6.6	4.6	-0.2	-2.3	
	T500N1	-0.5	6.4	-1.0	2.0	-2.8	0.7	-4.4	-0.3	2.9	-0.2	-3.2	0.1	-1.2	3.7	1.0	-3.7	-1.2	
LN	T50N1	28.1	10.1	21.8	13.3	3.1	-26.2	-2.2	-6.9	-8.1	25.5	32.0	-19.7	-23.9	-29.6	-29.5	-40.6	-25.2	
	T100N1	-2.5	16.6	5.5	1.0	-16.9	5.6	-11.1	-11.3	-9.8	15.1	20.1	-35.3	-27.0	-31.7	-21.0	-42.2	-41.6	
	T200N1	5.9	5.6	5.8	3.0	1.6	4.7	-1.0	-0.7	2.5	11.2	-2.4	-21.7	-28.2	-32.1	-40.1	-26.0	-27.0	
	T500N1	2.6	1.6	-0.6	3.1	-6.7	1.8	-2.4	-6.6	1.7	2.9	2.2	-23.6	-18.9	-19.1	-17.5	-14.8	-17.3	
CN	T50N1	0.3	8.1	5.2	-1.1	-11.3	-22.9	-6.3	-1.1	-15.0	-16.8	8.8	-13.3	-10.3	-8.8	-20.7	-8.7	-19.6	
	T100N1	-0.7	9.7	9.5	-3.8	-9.2	10.0	-5.3	-3.9	7.5	-3.8	9.9	-3.3	-10.7	-13.3	-3.9	-14.2	-12.9	
	T200N1	6.2	13.5	19.0	6.2	-4.2	6.0	-2.6	-5.7	6.1	14.0	2.5	-2.3	-13.0	-10.1	-6.2	-10.7	-7.7	
	T500N1	2.0	4.8	7.2	4.1	1.3	-9.6	4.2	0.2	-0.4	5.8	-0.5	-2.1	-7.6	-6.8	-5.1	-7.1	-8.5	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

TABLE 1.48

RELATIVE BIAS $\times 100$  OF SE ESTIMATORS OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\Lambda_{21}$	$\Lambda_{31}$	$\Lambda_{52}$	$\Lambda_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	-50.0	-51.0	-50.9	-51.2	-30.9	-18.2	-26.5	-23.6	-33.0	-19.7	-32.9	-30.4	-17.7	-6.7	-30.1	-6.9	-8.6	
	T20N25	-38.3	-35.9	-37.8	-39.4	-24.7	-21.8	-23.0	-14.5	-39.6	-26.6	-41.2	-25.3	-0.7	-2.7	-25.5	-5.4	-2.9	
	T25N20	-20.9	-14.2	-16.0	-21.7	-17.0	-12.0	-9.8	-3.6	-42.1	-15.9	-30.3	-25.4	-0.5	-1.0	-16.5	-1.4	-0.8	
	T50N10	1.4	21.0	22.3	4.6	-5.7	-1.0	-8.0	-3.4	-1.3	-3.7	1.7	-0.2	-0.6	1.1	-1.1	-5.1	-1.1	
LN	T10N50	-65.8	-65.4	-63.7	-64.5	-67.8	-51.0	-69.1	-62.4	-44.0	-34.7	-38.0	-58.6	-63.6	-67.6	-55.6	-63.7	-72.5	
	T20N25	-49.2	-49.2	-51.3	-52.1	-43.7	-63.8	-48.7	-56.7	-49.0	-35.6	-53.1	-66.6	-73.0	-71.2	-59.8	-67.3	-71.9	
	T25N20	-32.9	-26.5	-29.5	-33.5	-33.8	-62.7	-36.2	-14.8	-42.5	-20.3	-46.1	-69.4	-71.5	-72.1	-63.2	-71.9	-76.0	
	T50N10	-10.6	-4.7	4.0	-11.8	-62.2	-14.1	-70.7	-14.3	-21.9	-11.8	-11.5	-71.0	-72.2	-73.2	-67.4	-69.1	-72.6	
CN	T10N50	-68.1	-68.2	-68.0	-69.0	-60.9	-58.4	-56.5	-53.2	-46.2	-50.5	-55.0	-44.6	-54.7	-52.3	-52.8	-52.4	-49.1	
	T20N25	-56.1	-55.4	-55.7	-55.2	-65.2	-62.5	-63.0	-61.9	-57.6	-54.2	-58.4	-53.1	-58.0	-55.9	-53.0	-58.2	-59.2	
	T25N20	-46.9	-42.6	-44.9	-46.5	-59.7	-60.2	-54.9	-58.9	-59.3	-51.0	-60.1	-53.0	-54.9	-55.2	-53.9	-57.4	-56.9	
	T50N10	-33.5	-17.6	-21.8	-31.8	-55.4	-45.5	-40.3	-30.6	-42.8	-44.0	-53.8	-50.1	-55.3	-53.5	-53.2	-54.0	-54.8	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	-6.3	23.9	20.4	-8.7	-43.8	-31.8	-39.6	-37.4	-41.9	-22.2	-41.2	-39.5	-22.0	-11.1	-39.3	-11.3	-13.9	
	T20N25	-28.7	-9.7	-14.3	-31.2	-58.9	-57.4	-58.4	-54.1	-47.7	-34.8	-47.5	-29.7	-5.7	-7.3	-28.9	-9.4	-7.2	
	T25N20	-14.0	10.9	7.8	-15.2	-59.1	-57.1	-56.3	-53.5	-46.9	-22.0	-37.5	-27.7	-4.7	-5.1	-19.7	-5.5	-5.1	
	T50N10	3.7	37.5	38.7	6.7	-49.7	-47.3	-51.2	-48.5	-9.2	-7.2	-6.2	-2.8	-3.9	-2.0	-3.5	-8.3	-4.1	
LN	T10N50	-33.1	-11.9	-12.0	-28.4	-73.1	-57.9	-72.9	-66.9	-47.4	-38.3	-43.3	-61.1	-65.3	-69.3	-59.3	-64.7	-73.3	
	T20N25	-39.6	-28.4	-32.1	-44.5	-66.0	-77.4	-69.1	-73.3	-52.4	-41.1	-55.4	-67.6	-74.4	-72.5	-60.3	-68.8	-73.1	
	T25N20	-26.7	-4.8	-12.1	-29.1	-65.2	-80.9	-67.6	-57.2	-47.7	-26.0	-48.5	-70.6	-72.6	-73.5	-63.4	-73.3	-76.9	
	T50N10	-8.8	6.3	15.9	-10.5	-79.0	-54.1	-83.6	-54.1	-29.0	-15.5	-19.2	-72.0	-73.1	-74.2	-68.4	-70.3	-73.5	
CN	T10N50	-35.9	-18.9	-18.0	-37.8	-67.5	-70.3	-66.8	-59.7	-32.5	-53.8	-49.3	-32.6	-56.7	-54.8	-48.1	-57.8	-50.9	
	T20N25	-41.3	-30.0	-27.0	-39.1	-75.7	-75.2	-75.2	-73.4	-57.0	-59.2	-57.9	-51.8	-59.2	-57.7	-51.9	-59.9	-60.6	
	T25N20	-37.1	-22.0	-24.4	-37.7	-75.5	-76.6	-73.3	-73.3	-59.7	-56.4	-61.5	-52.4	-57.5	-57.2	-54.1	-59.1	-58.5	
	T50N10	-29.3	-6.8	-10.1	-27.2	-75.7	-71.3	-68.8	-63.8	-50.1	-48.6	-59.8	-52.8	-57.1	-55.7	-56.1	-56.4	-56.9	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T10N50	-45.3	-53.4	-53.0	-45.9	-9.1	5.6	-6.4	-1.1	10.9	-2.4	1.8	12.5	-8.4	4.0	4.0	2.3	3.1	
	T20N25	-24.0	-30.4	-30.1	-23.4	-12.0	-9.2	-11.4	-2.1	-18.4	-0.5	-21.5	-11.2	4.3	1.7	-11.9	-1.9	1.0	
	T25N20	-13.8	-22.4	-23.8	-15.2	-9.7	-3.2	-1.9	6.1	-30.8	-3.0	-19.7	-17.1	2.0	2.2	-10.8	0.5	1.4	
	T50N10	0.2	2.0	3.0	3.8	-2.1	2.7	-4.2	0.4	-0.4	0.1	2.7	0.5	0.5	1.7	-0.9	-4.4	0.7	
LN	T10N50	-49.0	-60.0	-56.8	-54.4	-41.9	-23.3	-47.9	-44.6	3.5	-7.1	-3.1	3.6	-5.8	-14.5	-2.7	-10.1	-24.9	
	T20N25	-33.3	-40.6	-42.9	-34.1	-23.5	-46.2	-26.3	-40.3	-27.4	-16.4	-33.6	-20.3	-19.5	-19.3	-13.9	-12.1	-19.8	
	T25N20	-16.5	-25.5	-26.1	-16.9	-16.0	-41.0	-13.2	5.5	-19.5	-4.4	-28.5	-20.2	-16.5	-20.0	-15.4	-17.4	-24.6	
	T50N10	3.2	-7.6	1.2	-0.3	-50.9	7.9	-58.9	0.3	-4.1	0.7	4.0	-20.9	-21.4	-19.4	-18.9	-15.7	-17.4	
CN	T10N50	-49.6	-55.8	-53.6	-49.9	-5.0	8.0	16.8	13.0	21.9	7.9	1.6	27.6	5.9	16.7	8.2	17.2	18.3	
	T20N25	-32.2	-39.9	-38.6	-30.6	-33.5	-24.9	-25.3	-25.1	-15.5	-5.8	-20.2	-4.0	-5.5	-1.8	-4.1	-8.5	-10.1	
	T25N20	-21.2	-25.2	-28.5	-20.4	-17.8	-27.7	-17.1	-27.7	-24.5	-0.2	-25.3	-7.8	5.9	-1.0	-7.8	-5.7	-8.9	
	T50N10	-4.4	3.1	-2.3	-4.4	-24.7	-6.9	-2.0	7.7	-2.0	3.5	-18.1	1.4	-2.9	-2.0	-6.1	-1.9	-2.4	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	-40.3	-48.8	-48.6	-40.5	-5.6	8.6	-3.0	2.5	14.5	3.6	5.6	14.5	-7.7	4.3	6.3	3.6	3.4	
	T20N25	-18.0	-24.0	-23.4	-17.6	-10.3	-7.0	-9.3	0.4	-13.6	5.4	-18.0	-8.4	4.8	2.0	-9.7	-2.4	1.5	
	T25N20	-10.1	-18.7	-20.5	-12.0	-9.0	-2.3	-0.6	8.0	-28.6	-0.8	-17.1	-15.4	1.6	1.5	-9.2	1.1	0.9	
	T50N10	1.3	2.7	2.9	5.8	-2.9	2.1	-5.6	-0.6	-0.4	0.2	2.2	-0.1	-1.2	1.6	-2.2	-4.5	0.1	
LN	T10N50	-43.1	-54.0	-51.3	-48.7	-40.7	-22.1	-48.9	-42.7	7.6	0.8	0.6	4.9	-5.6	-13.9	0.0	-10.5	-24.9	
	T20N25	-30.1	-35.3	-37.7	-31.1	-23.6	-47.7	-26.5	-40.6	-25.1	-12.3	-31.6	-17.3	-18.2	-18.5	-10.7	-10.5	-18.8	
	T25N20	-14.8	-21.9	-22.4	-15.8	-17.0	-40.6	-14.2	1.2	-16.5	-2.1	-27.2	-16.3	-14.9	-18.2	-10.9	-15.9	-23.5	
	T50N10	4.3	-6.6	1.6	1.7	-50.7	4.3	-57.8	-4.2	-1.8	2.5	5.3	-17.5	-19.6	-18.1	-15.8	-13.0	-15.2	
CN	T10N50	-44.4	-50.8	-48.2	-43.9	-3.6	9.3	18.4	14.0	23.3	12.8	2.6	28.5	4.8	16.0	8.3	17.3	18.3	
	T20N25	-26.2	-34.1	-32.8	-25.1	-33.2	-24.7	-25.2	-25.2	-12.6	-1.5	-19.0	-1.0	-5.3	-2.0	-3.0	-8.9	-10.2	
	T25N20	-15.4	-19.5	-23.1	-14.0	-19.0	-28.4	-18.4	-28.7	-23.3	3.0	-23.9	-5.7	5.5	-1.5	-6.0	-6.1	-9.4	
	T50N10	1.4	8.0	1.5	1.1	-25.7	-7.7	-5.2	4.4	-0.8	6.0	-15.8	3.4	-2.8	-1.2	-4.3	-1.3	-2.4	

Note: The entries in the table equal relative bias $\times 100$ . The relative bias for the  $i$ th parameter is computed by  $rbias_i = M^{-1} \sum_{j=1}^M (\widehat{SE}_{i,j} - SE_{emp,i}) / SE_{emp,i}$ , where  $M$  is the number of converged samples and  $SE_{emp,i}$  is the empirical SE estimate.

### 1.3 Mis-Coverage Rates

#### 1.3.1 Using The Stationary Initial Setting

TABLE 1.49

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	6.0	5.2	7.1	6.3	5.0	4.5	6.8	5.8	8.6	6.5	9.9	7.0	9.1	8.4	6.0	8.4	7.9
	T100N1	4.3	7.5	4.7	4.5	4.1	6.5	5.8	4.2	7.6	5.3	7.4	5.4	6.5	7.2	6.9	6.3	7.6
	T200N1	4.8	5.3	5.3	5.7	5.5	6.5	4.8	6.1	5.9	5.3	4.8	5.0	5.9	6.6	5.0	6.0	6.1
	T500N1	3.9	5.8	6.4	5.3	4.6	5.0	4.8	6.2	4.8	4.4	4.7	6.2	4.7	4.3	4.8	5.9	4.8
LN	T50N1	5.7	5.1	4.9	6.8	6.5	6.3	5.2	4.9	35.4	10.3	36.6	21.2	27.2	25.7	19.7	26.2	29.2
	T100N1	6.1	6.8	5.5	4.7	6.1	6.2	4.5	6.0	35.7	6.1	34.8	21.4	28.8	26.0	23.1	27.2	27.8
	T200N1	5.8	5.6	6.1	5.7	5.0	6.0	6.2	5.2	31.8	3.8	36.4	21.0	24.2	27.6	22.3	25.3	28.4
	T500N1	4.7	4.4	3.6	4.0	5.1	4.8	3.3	4.9	39.0	3.5	36.1	24.2	25.3	26.9	19.8	27.3	27.7
CN	T50N1	10.1	6.9	10.2	7.1	10.8	8.7	8.8	10.2	29.7	24.7	25.0	35.1	34.5	35.6	31.5	33.6	36.1
	T100N1	5.5	6.2	6.6	6.9	8.6	8.4	6.7	8.9	26.6	27.4	29.8	33.8	36.9	34.9	34.7	35.2	37.6
	T200N1	7.3	5.4	5.3	6.4	9.7	8.1	8.4	8.4	31.3	25.9	32.7	32.9	42.9	38.1	34.3	38.0	40.7
	T500N1	6.5	6.2	4.6	5.7	7.8	7.7	8.6	8.0	26.9	26.2	31.1	32.1	37.1	36.6	31.4	37.1	37.9
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	6.5	5.6	7.5	6.7	5.4	5.4	6.7	5.8	9.7	7.2	10.0	7.2	9.6	9.1	6.3	9.1	8.8
	T100N1	4.5	7.4	4.7	4.3	4.2	6.7	5.7	4.2	7.9	5.5	8.0	6.0	6.9	7.8	7.2	6.9	7.5
	T200N1	5.0	5.5	5.1	5.9	5.5	6.5	4.9	6.1	6.1	5.8	4.7	5.0	5.9	7.0	5.2	5.9	6.1
	T500N1	3.9	5.8	6.3	5.4	4.7	5.1	4.9	6.3	4.9	4.6	4.9	6.3	4.9	4.1	4.8	5.9	4.8
LN	T50N1	5.8	5.5	5.4	7.5	6.5	6.8	5.4	5.1	36.2	10.5	37.1	22.8	28.5	27.2	20.6	27.1	30.9
	T100N1	6.2	6.7	5.6	5.0	6.1	6.9	4.4	6.1	35.4	6.2	35.0	22.0	28.8	26.6	24.4	27.8	28.1
	T200N1	5.7	5.7	6.3	5.8	5.0	6.0	6.4	5.1	31.9	3.9	36.7	21.1	24.4	27.7	22.8	25.5	28.5
	T500N1	4.7	4.0	3.7	4.2	5.2	4.8	3.2	4.9	38.9	3.5	36.2	24.3	25.2	27.1	19.8	27.1	27.4
CN	T50N1	10.8	7.5	11.3	8.2	11.0	9.2	8.9	10.7	30.7	25.7	25.0	37.1	36.4	37.2	32.3	35.9	37.8
	T100N1	5.7	6.2	6.7	7.1	8.5	8.6	7.4	9.6	27.1	28.4	30.1	34.5	37.0	35.3	35.6	35.8	38.4
	T200N1	7.3	5.8	5.3	6.4	9.4	8.1	8.8	8.4	31.3	26.4	32.8	33.2	43.4	38.5	34.9	38.2	40.7
	T500N1	6.6	6.2	4.7	5.9	7.7	7.6	8.7	8.2	26.9	26.3	31.5	32.2	37.4	36.6	31.4	37.1	38.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																		
N	T50N1	7.7	6.5	8.1	7.9	5.7	6.3	7.5	6.5	10.7	7.0	11.0	7.8	9.1	9.7	7.7	9.6	8.6
	T100N1	4.7	7.0	5.7	5.0	4.9	6.9	6.9	4.9	8.3	6.0	8.2	6.2	7.5	8.2	7.4	7.0	8.0
	T200N1	5.9	5.8	6.3	6.4	5.4	6.7	5.2	6.1	6.5	5.5	5.4	5.5	6.4	7.5	5.0	7.2	6.1
	T500N1	4.2	5.7	6.3	6.0	4.9	5.2	4.8	6.2	4.7	4.7	5.1	6.3	5.0	4.7	4.5	6.1	5.4
LN	T50N1	6.9	6.9	7.2	6.8	7.2	6.0	6.2	6.0	26.5	11.1	29.5	16.5	19.7	19.2	14.8	18.3	22.0
	T100N1	5.3	5.6	6.3	4.7	6.5	6.2	4.1	6.1	21.6	7.3	22.2	12.2	16.4	15.2	15.1	14.9	17.2
	T200N1	4.4	5.4	6.4	6.1	4.5	6.1	5.4	5.5	14.2	4.7	15.5	11.4	11.3	12.6	12.2	12.3	11.9
	T500N1	3.6	4.6	3.9	3.6	5.2	4.2	4.0	4.7	12.0	4.9	12.1	8.8	9.2	7.8	9.4	9.6	10.8
CN	T50N1	10.7	8.1	8.4	7.1	6.8	7.4	4.8	4.8	19.9	11.4	17.7	23.7	24.0	24.4	22.5	24.0	27.0
	T100N1	5.0	6.8	5.6	6.1	5.3	3.1	4.8	5.6	14.1	11.1	16.6	20.5	20.1	20.6	20.6	22.2	24.7
	T200N1	6.4	5.1	4.8	5.7	4.2	4.4	3.2	4.4	12.0	9.9	14.4	12.7	19.0	17.2	16.2	16.4	16.7
	T500N1	5.1	5.5	4.2	4.6	4.1	3.7	4.9	4.2	7.4	7.1	9.2	10.2	11.5	11.6	9.2	9.9	10.8
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	15.2	13.0	15.2	16.4	13.1	13.5	12.3	13.6	16.9	12.7	16.3	12.3	14.5	13.5	13.6	14.5	11.7
	T100N1	12.7	11.6	9.6	10.2	9.2	11.8	11.9	9.9	11.8	8.2	11.3	10.0	9.6	12.6	10.9	10.2	12.1
	T200N1	8.9	7.3	9.6	8.6	8.7	9.6	8.4	10.1	8.8	8.5	8.2	7.7	8.5	9.6	7.4	8.8	8.6
	T500N1	5.2	6.2	8.0	6.8	6.9	7.6	7.1	8.1	5.7	5.4	7.2	7.2	6.9	5.5	6.3	7.5	6.2
LN	T50N1	18.3	12.0	13.2	15.7	12.5	12.9	12.9	13.1	29.8	17.2	31.8	19.7	22.5	21.8	18.0	21.5	24.9
	T100N1	15.3	11.4	12.3	11.6	11.5	11.8	9.7	11.7	21.9	11.0	22.6	15.8	17.9	16.7	17.0	17.0	18.3
	T200N1	10.3	10.1	8.9	11.3	9.0	9.4	9.7	9.7	14.5	8.3	16.6	11.0	12.4	13.7	13.6	13.1	13.6
	T500N1	7.3	7.0	6.6	7.0	7.7	6.6	6.4	6.3	12.9	5.4	12.7	9.8	8.7	7.7	8.9	9.7	10.3
CN	T50N1	19.2	14.9	15.0	16.3	11.1	12.6	10.5	11.5	22.8	17.6	20.8	27.3	27.4	27.4	25.5	26.7	31.5
	T100N1	13.3	12.0	10.3	12.9	12.6	10.2	9.1	10.7	16.4	13.4	17.8	21.8	23.4	22.4	23.0	24.4	25.6
	T200N1	12.2	11.2	9.7	10.5	7.7	8.5	5.9	9.3	13.3	11.3	15.4	14.2	19.7	18.8	17.6	17.9	18.3
	T500N1	8.2	6.8	6.8	6.9	7.0	5.7	7.0	6.8	8.3	8.1	9.8	9.5	12.2	12.5	9.1	10.4	10.8

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.50

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	5.7	4.6	3.2	5.3	5.2	4.0	4.0	4.6	6.2	3.8	5.7	5.7	5.6	7.8	7.7	4.6	5.7
	T20N25	4.8	5.3	5.3	5.1	6.1	4.3	4.5	5.0	6.2	6.8	4.8	5.9	7.1	5.9	5.5	5.0	6.0
	T25N20	5.7	4.4	5.4	4.6	4.6	5.3	4.7	4.3	5.3	4.8	4.6	7.3	4.3	3.5	5.7	5.0	5.5
	T50N10	5.9	6.4	6.7	7.0	5.1	5.9	5.2	5.1	5.8	5.2	6.0	5.3	6.8	5.5	5.2	4.6	5.1
LN	T10N50	13.4	8.8	6.9	13.1	4.8	6.3	4.9	3.9	38.4	5.4	34.4	23.5	26.6	33.2	23.0	24.4	25.7
	T20N25	8.6	7.1	5.3	7.3	5.5	5.2	5.1	5.6	37.7	5.8	39.6	23.2	30.9	26.7	17.0	28.0	29.7
	T25N20	8.7	7.3	6.0	8.6	5.6	4.8	4.8	5.1	36.6	4.8	36.7	23.4	26.6	24.3	20.2	29.4	25.7
	T50N10	5.8	7.1	6.2	7.9	5.0	5.6	5.7	5.4	38.6	4.1	36.2	24.1	26.6	25.5	20.5	25.7	29.6
CN	T10N50	9.4	6.0	4.7	6.8	9.5	8.7	9.7	9.9	29.0	24.9	29.1	36.6	38.2	36.8	32.2	34.0	35.7
	T20N25	7.7	7.2	7.1	7.5	9.4	10.0	9.4	9.6	25.7	27.3	29.1	33.1	39.2	34.2	33.1	35.9	36.0
	T25N20	6.5	5.1	7.2	7.8	8.6	8.7	8.2	8.0	29.1	28.6	29.2	34.0	36.4	36.9	31.7	35.6	37.5
	T50N10	7.3	7.0	6.2	7.2	7.9	6.4	9.0	10.7	30.8	28.5	28.4	33.2	37.8	36.5	32.9	36.8	34.7
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	5.6	4.7	3.0	5.5	5.2	4.1	3.9	4.5	6.2	3.8	5.8	5.7	5.6	8.0	7.8	4.6	5.7
	T20N25	4.9	5.4	5.3	5.0	6.1	4.4	4.7	5.1	6.3	6.8	4.7	5.6	7.1	6.1	6.0	5.2	6.1
	T25N20	5.6	4.4	5.3	4.8	4.7	5.4	4.7	4.7	5.3	4.9	4.6	7.3	4.3	3.6	5.8	5.2	5.7
	T50N10	6.0	6.3	6.6	7.0	5.1	6.0	5.3	5.1	5.7	5.2	6.0	5.6	7.0	5.3	5.5	4.6	5.6
LN	T10N50	13.4	8.7	7.0	13.3	5.0	6.2	4.8	4.3	38.2	5.3	34.4	23.8	26.6	33.3	23.2	24.4	25.7
	T20N25	8.1	7.1	5.3	7.6	5.5	5.3	4.9	5.6	37.8	5.9	39.7	23.9	31.0	26.8	17.0	28.0	29.7
	T25N20	9.1	7.3	5.9	8.5	5.5	4.8	4.8	5.2	36.7	4.9	36.4	23.4	26.6	24.4	20.6	29.3	25.7
	T50N10	6.4	7.3	6.1	7.8	5.1	5.7	5.7	5.5	39.0	4.1	36.5	24.2	26.5	25.5	20.5	25.9	29.6
CN	T10N50	9.4	5.9	4.8	6.6	9.3	8.5	9.6	9.7	29.6	24.8	29.7	36.5	37.7	37.1	33.2	34.2	35.7
	T20N25	7.7	7.1	7.2	7.6	9.5	10.5	9.7	9.9	25.7	27.3	29.2	33.3	39.4	34.4	33.3	35.9	36.0
	T25N20	6.9	5.1	7.4	7.5	8.5	8.6	8.0	8.1	28.7	28.7	29.4	34.0	36.6	36.7	31.5	35.8	38.0
	T50N10	7.3	7.0	6.2	7.5	7.9	6.4	9.2	10.5	30.9	28.7	28.3	33.3	38.0	36.7	33.2	37.0	34.7
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T10N50	5.7	5.5	2.7	5.1	4.9	4.6	3.9	4.5	6.3	4.0	6.0	5.6	5.7	7.7	7.4	4.8	5.5
	T20N25	5.4	5.5	5.5	5.1	6.2	4.9	4.6	5.4	6.2	6.6	5.0	5.9	7.2	6.3	6.3	5.9	6.3
	T25N20	5.8	4.4	5.5	5.3	4.8	5.5	4.4	4.6	5.5	4.1	5.0	7.6	4.6	3.8	5.5	5.3	5.8
	T50N10	6.1	5.8	6.6	6.6	5.3	6.1	5.0	5.2	5.9	5.5	6.3	5.3	6.7	4.9	5.0	4.9	5.2
LN	T10N50	5.7	4.8	5.3	6.5	4.9	5.9	5.0	4.7	9.1	4.9	11.8	8.0	7.3	18.1	11.1	5.6	9.1
	T20N25	3.2	6.9	5.5	3.9	5.3	5.4	4.5	5.5	10.1	6.4	16.8	8.4	13.5	7.5	7.6	11.0	12.1
	T25N20	5.1	6.2	7.4	5.6	5.1	5.8	5.1	5.8	11.6	5.8	13.2	9.5	9.1	6.6	10.1	11.6	7.6
	T50N10	4.7	7.1	5.7	6.0	5.0	5.2	6.1	5.6	13.1	4.6	12.5	10.0	9.9	8.7	8.8	9.9	9.6
CN	T10N50	6.4	5.7	3.6	4.9	4.7	4.7	4.9	5.9	6.6	5.7	5.9	11.1	7.5	7.4	7.4	7.9	6.1
	T20N25	6.4	6.5	5.9	5.2	4.7	4.6	5.0	5.0	7.6	4.7	4.8	10.9	5.6	5.8	8.5	6.7	10.4
	T25N20	4.6	4.8	6.3	5.5	4.5	3.4	4.1	3.4	8.8	5.8	6.0	10.1	7.5	5.6	8.5	8.8	10.4
	T50N10	5.8	5.4	5.1	4.9	4.6	2.9	5.1	5.8	10.0	6.0	7.7	9.8	8.0	8.1	9.1	10.1	8.9
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	6.6	5.8	4.0	5.5	6.2	4.8	4.0	4.6	6.1	4.7	6.7	5.8	6.0	7.4	7.8	4.8	5.8
	T20N25	5.3	6.1	6.1	6.2	7.0	5.6	5.4	6.1	6.5	6.8	4.8	6.0	7.2	6.2	6.2	6.1	6.5
	T25N20	6.4	5.4	6.0	5.9	5.4	6.2	5.3	5.4	5.7	5.0	5.2	7.9	5.3	3.7	5.8	5.3	5.7
	T50N10	7.5	7.2	7.8	7.7	5.7	7.0	6.2	6.4	6.8	5.7	6.4	6.0	7.2	4.6	5.8	5.5	5.6
LN	T10N50	10.9	6.1	6.2	10.4	6.5	6.3	5.6	5.2	9.4	5.9	11.3	7.0	7.1	17.6	9.0	6.0	9.1
	T20N25	6.5	8.4	6.8	6.3	7.0	6.7	5.8	6.5	10.2	7.0	16.8	7.5	12.8	7.1	6.4	10.8	11.4
	T25N20	8.3	6.9	8.5	8.0	6.2	6.1	5.8	6.7	11.2	7.2	13.2	8.1	8.7	6.6	9.6	10.5	6.9
	T50N10	7.9	8.9	7.5	8.4	5.6	6.5	6.8	7.0	13.0	6.0	12.6	8.8	9.6	7.8	8.3	9.0	9.1
CN	T10N50	8.4	6.7	4.9	5.6	5.2	5.0	6.2	6.4	6.4	6.0	5.5	10.9	8.0	7.4	8.1	7.8	7.1
	T20N25	7.2	7.4	7.1	6.4	5.0	5.8	5.8	6.4	7.8	4.1	4.7	10.2	5.9	6.3	8.6	7.0	10.8
	T25N20	6.0	5.5	7.0	7.0	5.3	4.5	5.0	4.3	8.6	5.8	6.6	10.4	7.8	5.9	8.8	8.8	9.9
	T50N10	7.6	6.2	6.4	6.9	5.2	4.4	5.4	7.8	10.1	6.1	7.9	9.1	8.3	9.2	9.5	9.8	8.3

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.51

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	7.8	5.2	7.5	5.3	6.1	7.3	4.9	5.9	8.7	7.2	8.5	7.2	7.0	8.7	5.6	9.3	7.8
	T100N1	6.8	6.5	4.9	5.2	6.2	5.3	5.1	5.6	8.5	4.0	6.3	5.6	6.5	5.7	5.9	6.5	7.5
	T200N1	3.9	5.9	6.4	5.1	6.4	6.4	5.6	4.6	6.1	5.6	5.8	5.3	4.4	6.5	4.8	5.4	6.1
	T500N1	5.4	6.2	4.4	5.3	4.9	5.8	4.8	5.3	6.3	4.8	3.9	5.8	4.8	3.8	5.3	6.6	4.5
LN	T50N1	7.7	7.1	5.5	8.4	5.8	5.8	6.4	3.7	24.6	8.9	23.5	13.8	16.9	14.0	11.1	14.7	14.5
	T100N1	5.4	4.7	4.7	3.8	6.2	6.1	5.3	5.0	22.2	4.9	22.7	11.9	15.3	14.5	13.5	16.2	17.3
	T200N1	6.6	5.7	6.0	6.3	6.0	4.3	5.5	4.1	22.0	4.4	22.0	11.1	12.4	17.7	12.4	14.2	13.7
	T500N1	4.6	5.2	4.2	4.8	5.5	4.9	5.1	5.7	24.6	5.1	22.9	13.1	12.9	13.4	12.8	16.8	16.4
CN	T50N1	7.1	6.9	5.1	6.6	11.1	8.2	8.0	8.9	28.8	23.5	25.0	29.7	30.8	35.4	32.3	31.2	29.7
	T100N1	6.7	5.1	7.9	6.9	8.1	8.6	7.8	7.7	30.9	27.3	26.8	32.8	40.3	32.3	32.4	34.6	37.1
	T200N1	6.1	5.6	5.5	6.2	9.0	8.6	8.3	9.6	31.8	26.9	31.3	34.2	42.8	36.3	34.5	36.7	36.0
	T500N1	5.7	6.2	6.2	6.5	9.4	7.7	8.1	9.2	29.2	27.8	31.0	33.7	37.7	36.4	31.4	37.7	40.0
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	7.9	5.9	8.2	5.8	6.2	7.5	5.3	5.6	8.4	7.3	9.0	7.3	7.9	9.8	6.7	10.1	7.9
	T100N1	6.9	6.7	4.8	5.4	6.4	5.3	5.2	5.6	8.3	4.2	6.3	6.4	6.7	5.9	6.2	6.8	7.5
	T200N1	3.9	5.9	6.4	5.2	6.5	6.3	5.6	4.6	6.1	5.6	5.8	5.4	4.5	6.6	5.4	5.8	6.0
	T500N1	5.3	6.2	4.5	5.3	5.0	5.8	4.9	5.1	6.3	4.9	3.9	5.7	4.8	3.8	5.5	6.4	4.4
LN	T50N1	8.7	7.4	6.3	8.2	5.6	6.3	6.4	3.9	24.8	9.5	23.7	14.5	17.6	14.7	12.4	15.1	15.9
	T100N1	5.9	4.7	5.1	4.0	5.9	5.8	5.3	5.0	22.2	4.9	22.8	12.4	15.6	15.3	13.7	16.8	17.5
	T200N1	6.3	6.1	6.0	6.3	5.9	4.4	5.6	4.2	22.2	4.5	22.6	11.4	12.4	17.8	13.0	14.7	14.0
	T500N1	4.7	5.3	4.3	4.9	5.7	5.1	4.8	5.8	24.6	5.3	23.2	13.3	13.1	13.5	13.0	16.9	16.4
CN	T50N1	8.6	7.3	5.8	6.9	11.7	8.4	8.0	9.1	30.7	25.9	27.6	31.8	31.4	36.7	33.9	31.9	31.8
	T100N1	7.3	5.3	7.9	7.1	8.3	8.5	7.9	7.8	31.5	28.5	27.6	34.2	40.6	32.8	33.6	35.3	36.7
	T200N1	6.1	5.8	5.6	6.4	8.9	8.4	8.2	9.5	31.9	27.4	31.8	34.8	42.8	36.5	34.5	37.1	36.1
	T500N1	5.9	6.3	6.0	6.4	9.2	7.7	8.1	9.3	29.2	27.8	31.5	33.7	37.7	36.4	31.3	37.9	40.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	7.3	6.9	8.8	7.0	7.3	8.8	6.4	5.8	9.3	7.3	9.0	8.1	6.9	10.8	6.9	9.8	8.1
	T100N1	7.2	8.1	5.3	6.2	6.3	5.6	5.1	5.7	8.4	4.6	7.2	6.2	7.3	6.4	6.9	7.2	8.3
	T200N1	4.3	6.5	6.1	5.0	6.1	6.8	6.3	5.1	6.8	5.3	6.1	5.3	5.3	7.4	5.7	5.9	6.6
	T500N1	5.3	5.3	4.7	5.6	5.1	5.6	4.5	5.1	6.9	4.7	4.5	5.6	4.3	3.5	5.1	5.8	4.5
LN	T50N1	8.4	7.6	6.9	7.9	7.1	6.1	6.1	5.8	21.3	9.0	19.6	12.4	13.8	12.1	10.5	13.0	13.7
	T100N1	6.1	4.2	5.7	5.0	8.3	6.6	5.5	5.3	13.7	6.6	16.2	8.7	9.2	9.2	10.8	11.2	12.0
	T200N1	5.5	6.0	5.4	5.9	6.9	4.8	4.8	4.9	9.9	5.5	11.2	7.9	7.9	9.6	8.8	8.7	7.4
	T500N1	5.1	5.3	4.3	5.1	6.4	5.4	4.6	5.4	8.2	5.4	8.6	7.0	6.3	5.2	7.2	8.6	7.5
CN	T50N1	10.0	7.1	6.6	8.0	4.2	5.1	4.4	4.9	17.3	11.3	17.0	19.2	18.6	23.7	19.3	20.3	19.5
	T100N1	7.9	6.4	6.3	6.5	6.0	5.5	4.0	4.5	15.0	10.3	14.4	19.9	22.3	19.5	18.7	19.5	22.2
	T200N1	5.5	5.7	5.2	4.9	4.0	5.1	3.9	6.1	11.1	8.8	14.7	15.0	19.3	14.6	15.5	16.1	13.6
	T500N1	5.8	5.9	5.2	5.7	5.3	4.7	5.0	5.5	9.4	7.4	9.3	9.5	10.5	10.6	10.7	11.0	10.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	17.8	11.9	15.5	16.2	13.3	14.8	13.9	13.9	16.0	13.4	16.9	12.5	12.3	13.3	10.5	13.9	12.3
	T100N1	13.8	12.2	10.1	10.5	11.0	12.2	10.0	8.9	12.2	7.8	9.9	8.9	9.8	10.4	10.0	10.0	13.5
	T200N1	7.1	8.9	8.3	8.2	10.7	9.6	10.8	9.3	8.3	6.8	7.5	7.5	7.8	9.7	7.3	8.0	8.9
	T500N1	7.4	6.9	6.8	7.0	7.6	7.2	7.5	7.0	8.1	6.1	5.5	6.1	5.8	4.9	6.1	7.5	5.5
LN	T50N1	17.1	17.2	13.8	17.1	14.2	13.4	12.7	11.1	24.3	16.4	23.7	15.3	17.4	16.3	13.0	15.5	16.9
	T100N1	12.1	11.9	10.8	11.6	11.7	13.3	11.7	12.5	17.3	9.4	17.3	11.1	11.1	12.1	12.9	15.4	15.4
	T200N1	9.3	9.7	9.9	10.4	10.3	8.8	8.0	8.7	10.8	7.0	13.6	9.4	9.1	11.4	9.7	9.6	9.8
	T500N1	7.2	6.9	6.5	8.0	7.4	6.9	6.6	5.5	9.2	6.8	10.3	7.5	6.9	6.0	7.5	9.4	7.7
CN	T50N1	17.2	14.2	14.1	17.3	10.4	12.0	12.6	12.2	21.5	15.9	21.9	22.6	21.5	26.5	21.7	23.2	21.7
	T100N1	14.4	11.0	12.4	12.9	11.9	9.4	7.4	8.2	17.3	12.1	16.5	23.1	25.9	20.8	21.3	21.0	24.5
	T200N1	10.0	8.9	9.4	10.0	7.5	9.2	7.9	8.2	13.0	11.4	16.5	15.2	20.0	16.7	16.7	16.2	15.1
	T500N1	9.1	8.1	8.3	7.2	7.6	7.0	8.0	7.8	10.3	8.3	10.1	10.1	10.5	12.3	11.2	11.0	11.4

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.52

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	5.9	5.7	5.2	5.9	5.8	5.1	4.8	5.4	5.4	4.2	4.6	6.0	5.7	6.7	8.1	5.2	5.4
	T20N25	5.4	5.3	4.9	5.4	4.3	6.0	5.6	4.6	6.2	6.0	4.4	4.9	6.1	4.7	4.3	6.2	5.4
	T25N20	7.0	5.8	6.2	6.0	4.8	6.2	3.7	4.2	5.3	3.6	4.8	6.9	4.0	4.5	5.8	6.0	4.6
	T50N10	5.8	5.3	8.3	5.8	5.6	4.7	5.2	4.6	6.7	5.7	4.3	6.2	5.3	5.1	4.4	4.3	6.4
LN	T10N50	9.9	8.2	5.8	11.0	5.0	4.9	5.1	5.6	27.5	5.0	19.4	14.3	13.2	22.0	13.5	13.5	14.0
	T20N25	9.3	6.0	5.4	7.5	5.0	4.2	5.1	6.7	22.6	7.1	23.9	12.9	20.1	14.4	10.4	17.0	17.0
	T25N20	7.4	7.1	5.9	8.1	6.0	6.6	5.1	4.8	22.4	3.8	21.7	11.8	15.2	13.7	12.9	14.2	16.1
	T50N10	6.3	6.7	6.2	6.7	5.7	5.3	4.7	3.3	22.7	4.5	21.9	13.3	15.8	14.4	10.5	13.4	16.6
CN	T10N50	9.3	5.4	5.9	8.7	10.5	9.5	9.2	8.7	26.4	28.1	30.3	36.1	39.4	35.2	33.3	35.3	38.4
	T20N25	6.6	7.2	7.9	7.6	8.1	8.6	9.4	10.0	28.2	28.8	32.1	37.0	39.2	36.1	34.8	36.0	37.3
	T25N20	6.7	5.5	7.2	6.2	8.8	9.0	7.7	8.5	30.2	28.0	28.5	34.4	37.1	37.4	32.0	37.0	37.6
	T50N10	6.0	6.2	6.6	5.6	7.7	8.9	9.1	7.0	31.0	26.8	28.2	35.2	38.3	36.8	32.8	36.8	34.8
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	6.0	5.8	4.9	5.8	5.8	4.9	4.8	5.4	5.5	4.2	4.6	6.3	5.5	7.0	7.9	5.3	5.3
	T20N25	5.2	5.3	4.9	5.3	4.6	6.0	5.7	4.4	6.2	6.3	4.7	5.1	6.1	4.7	4.2	6.2	5.4
	T25N20	7.0	5.8	6.3	6.4	5.2	6.3	3.7	4.2	5.6	3.7	4.7	6.9	4.0	4.5	5.9	5.8	4.6
	T50N10	5.8	5.4	8.3	5.9	5.6	4.7	5.3	4.6	6.6	5.7	4.1	6.3	5.3	5.0	4.4	4.1	6.5
LN	T10N50	10.0	8.2	5.7	11.1	5.0	5.1	5.1	5.5	28.0	5.0	19.6	14.3	13.2	22.3	13.7	13.5	14.0
	T20N25	9.3	6.1	5.1	7.8	5.5	4.0	5.0	6.9	22.6	7.1	23.7	13.0	20.2	14.6	10.4	16.8	17.0
	T25N20	7.7	7.0	5.8	8.5	6.1	6.7	5.1	4.8	22.5	3.8	21.4	12.1	15.2	13.6	12.6	14.6	16.2
	T50N10	6.7	6.7	6.2	6.9	5.8	5.7	4.8	3.3	22.9	4.5	22.2	13.2	15.8	14.5	10.8	13.7	16.8
CN	T10N50	9.2	5.4	5.8	8.7	10.5	9.2	9.0	8.6	26.5	28.5	30.2	36.3	39.4	35.3	33.7	35.6	38.4
	T20N25	6.7	6.8	7.9	7.9	8.0	8.7	9.5	9.6	29.1	28.8	31.9	36.8	39.6	36.0	35.0	36.3	37.5
	T25N20	7.1	5.6	7.2	6.6	8.8	9.1	7.6	8.6	30.2	28.1	28.5	34.3	37.0	37.6	32.1	37.2	37.6
	T50N10	6.0	6.2	6.7	5.9	7.8	8.9	9.0	7.0	31.2	27.3	28.2	35.6	38.4	36.7	33.0	37.1	34.9
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	5.8	6.1	4.9	5.7	5.8	4.9	5.1	5.2	5.2	4.1	4.6	6.7	5.8	6.9	8.3	5.4	5.4
	T20N25	5.1	5.8	4.7	5.3	4.6	5.7	5.8	4.7	6.5	6.5	4.4	5.2	6.5	5.6	3.9	6.3	6.3
	T25N20	7.5	6.8	6.2	6.3	5.1	6.4	3.6	4.8	5.6	3.6	5.6	6.5	4.5	4.6	5.9	6.4	5.2
	T50N10	6.2	5.7	8.4	6.4	5.9	5.2	5.3	5.1	6.9	5.7	4.7	6.5	5.2	5.1	4.9	4.4	6.4
LN	T10N50	6.3	5.2	5.2	7.5	5.4	5.1	4.6	5.7	6.7	5.0	5.7	7.7	5.2	15.5	8.5	4.5	6.9
	T20N25	6.1	6.5	5.9	5.5	5.0	4.2	5.8	7.1	7.7	7.7	10.3	6.4	11.9	5.5	6.6	8.1	8.8
	T25N20	6.0	6.4	6.0	5.6	5.9	6.6	5.4	5.3	8.8	3.7	8.1	7.2	6.7	4.9	7.7	8.6	7.1
	T50N10	5.4	6.8	6.7	5.8	6.0	5.6	5.1	4.4	9.8	4.7	8.3	8.9	7.1	6.4	5.9	6.3	8.5
CN	T10N50	6.9	4.9	5.7	4.9	5.9	5.1	3.9	5.4	7.0	7.4	5.5	10.5	6.3	8.1	8.2	7.6	6.3
	T20N25	5.9	6.7	6.4	6.0	4.2	4.6	4.6	4.5	8.4	5.1	5.3	11.8	6.2	6.4	7.4	6.7	10.3
	T25N20	5.1	4.9	5.2	5.0	4.0	4.0	4.4	4.4	7.1	6.3	5.6	10.1	7.7	6.0	7.2	9.2	10.5
	T50N10	4.0	4.4	5.6	4.3	4.1	4.0	5.2	3.8	8.5	6.1	6.9	9.7	7.8	8.6	8.2	9.4	7.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	7.2	7.1	5.8	6.0	7.3	5.3	5.3	5.9	4.6	4.3	4.7	6.7	5.9	7.1	8.4	5.3	6.1
	T20N25	5.7	5.4	5.8	6.8	5.2	6.6	5.8	4.6	6.7	6.0	4.6	4.9	6.7	5.7	4.3	6.8	6.5
	T25N20	7.6	6.4	6.9	6.9	5.6	7.4	4.0	4.6	6.0	4.7	5.6	6.6	5.2	5.2	6.4	6.4	5.3
	T50N10	7.0	5.9	9.1	7.7	6.2	6.5	6.9	5.9	7.3	5.9	5.4	7.1	5.7	5.2	5.9	5.3	7.1
LN	T10N50	7.7	5.7	6.1	8.8	6.3	6.2	5.6	6.4	6.7	5.5	6.3	7.4	4.8	14.6	7.5	4.3	6.8
	T20N25	7.8	7.7	7.3	7.5	6.0	5.1	6.4	7.2	8.3	8.1	11.0	5.9	11.9	6.1	6.4	7.7	8.8
	T25N20	7.5	6.5	7.4	6.1	6.2	7.8	5.6	5.1	8.3	4.7	8.2	6.6	6.1	4.2	6.9	8.2	7.7
	T50N10	7.3	8.0	6.5	7.3	7.0	6.4	6.5	4.7	9.7	5.8	8.6	8.5	7.5	5.9	5.8	5.9	8.2
CN	T10N50	8.2	6.8	6.1	6.9	7.4	6.1	5.1	6.4	7.3	6.4	5.4	10.1	7.3	8.2	8.3	7.8	6.8
	T20N25	6.6	7.3	7.3	9.0	5.3	4.7	5.3	5.2	8.6	5.2	5.4	11.1	6.2	6.5	8.0	6.8	10.1
	T25N20	5.9	5.6	6.6	6.4	5.5	5.7	4.5	5.9	7.0	6.4	6.0	9.3	8.3	6.4	7.6	8.7	10.5
	T50N10	6.2	5.6	7.5	6.0	4.6	5.9	6.1	4.3	9.0	5.8	7.0	9.4	7.9	8.6	8.6	9.6	7.4

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.53

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	6.7	6.0	6.7	7.7	5.1	6.0	4.0	4.6	9.2	5.8	8.3	8.3	6.3	7.2	7.7	8.1	6.5
	T100N1	6.1	6.2	5.1	4.7	7.0	7.2	6.1	5.9	9.1	3.9	7.3	6.9	7.7	7.0	5.8	7.2	7.8
	T200N1	5.6	5.0	6.3	4.6	4.6	4.6	5.6	5.1	4.0	5.0	5.2	6.0	4.9	8.2	3.7	5.5	6.0
	T500N1	5.2	5.2	5.3	6.0	3.3	5.5	5.2	5.0	5.5	4.5	4.8	6.5	5.2	4.2	3.9	6.7	4.7
LN	T50N1	7.2	6.6	7.9	9.5	5.5	4.7	7.0	6.2	18.3	8.1	16.1	11.5	12.9	12.5	10.2	11.0	12.5
	T100N1	5.9	5.1	5.2	5.2	5.8	5.4	5.1	6.2	16.3	3.6	12.4	8.7	13.2	12.4	12.5	12.1	14.0
	T200N1	5.0	5.3	5.0	5.0	4.5	4.9	5.0	4.1	13.7	4.4	13.9	8.0	9.0	12.2	8.9	11.8	9.1
	T500N1	4.7	5.3	4.2	4.7	4.9	4.9	4.9	6.2	16.6	4.7	13.2	9.8	8.8	8.8	10.7	11.2	9.8
CN	T50N1	6.8	7.5	7.2	9.2	8.6	8.6	8.8	9.3	26.9	26.0	29.3	30.7	32.3	39.1	33.4	34.8	37.3
	T100N1	7.6	5.5	7.3	7.9	8.9	8.9	7.9	9.0	29.3	27.2	32.2	33.6	35.8	32.3	30.0	36.0	35.4
	T200N1	6.8	6.2	7.1	6.2	7.9	7.7	8.4	7.8	28.7	25.5	33.4	31.7	43.8	37.8	33.8	37.9	39.2
	T500N1	6.2	5.7	5.7	4.7	8.9	9.6	5.9	7.9	29.1	27.8	31.1	32.4	35.1	37.0	32.7	38.5	39.7
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	7.0	6.3	6.9	7.9	5.6	6.5	4.2	5.1	9.0	6.5	8.5	9.2	6.3	7.7	8.3	8.5	6.9
	T100N1	6.2	6.4	5.1	5.0	7.0	7.2	6.2	6.1	9.7	4.3	7.2	7.3	7.7	7.2	6.2	7.2	7.8
	T200N1	5.8	5.0	6.1	5.0	4.7	4.5	5.6	5.0	4.1	5.0	5.0	6.1	5.0	8.3	4.1	5.6	6.3
	T500N1	5.2	5.2	5.7	6.0	3.3	5.5	5.2	4.9	5.5	4.7	4.8	6.4	5.2	4.2	4.0	6.7	4.7
LN	T50N1	7.9	7.0	8.5	9.1	5.3	4.9	7.0	6.2	19.7	9.5	16.4	12.1	12.9	13.6	11.3	11.0	13.6
	T100N1	6.2	5.1	5.2	5.4	6.0	5.1	5.2	6.3	16.3	3.8	13.0	8.7	13.6	12.5	12.6	12.5	14.6
	T200N1	5.1	5.5	5.0	5.0	4.5	4.9	5.0	4.3	13.7	4.5	14.2	8.0	9.1	11.9	9.1	11.7	9.5
	T500N1	4.7	5.2	4.2	4.8	4.7	4.7	5.1	6.2	16.8	4.6	13.2	9.8	8.8	8.8	10.8	11.3	9.8
CN	T50N1	7.5	7.9	8.4	10.1	9.3	8.4	9.0	10.1	28.0	28.0	30.0	33.2	33.0	41.1	34.1	35.7	38.4
	T100N1	8.3	5.7	7.9	8.2	9.5	9.0	8.6	9.3	29.7	27.8	32.6	34.8	36.1	33.0	30.6	36.4	35.7
	T200N1	7.1	6.1	7.0	6.5	7.9	7.7	8.3	7.8	29.1	25.7	33.4	31.7	44.0	38.1	33.8	38.3	39.6
	T500N1	6.1	5.9	5.9	4.7	8.9	9.6	6.0	7.9	29.3	27.8	31.1	32.5	35.3	37.1	32.9	38.5	39.8
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																		
N	T50N1	7.2	6.7	7.7	9.2	7.4	6.5	5.5	6.5	9.9	7.6	8.5	9.0	7.9	8.5	9.2	7.7	7.7
	T100N1	7.4	6.5	5.9	5.9	6.9	7.8	6.1	6.2	9.5	4.9	8.0	7.3	8.6	7.8	6.8	7.2	8.0
	T200N1	5.5	5.4	6.9	5.2	4.5	5.1	6.4	5.4	4.9	4.9	5.5	6.4	5.5	8.3	4.2	5.8	7.2
	T500N1	4.7	5.3	5.7	5.4	3.4	5.5	5.4	5.3	6.2	4.3	5.0	6.4	5.4	4.8	3.8	6.8	4.4
LN	T50N1	8.5	8.1	8.1	10.0	5.7	5.7	8.1	6.4	16.3	11.3	13.8	10.8	11.5	11.2	9.8	9.1	12.5
	T100N1	5.9	5.9	6.7	6.0	5.5	6.7	5.2	6.9	13.3	5.6	9.8	7.3	10.9	9.1	10.6	10.3	11.7
	T200N1	4.8	5.8	5.4	4.5	4.5	5.4	4.9	4.5	8.5	5.1	8.1	6.5	5.9	8.3	7.9	8.3	6.8
	T500N1	5.1	5.7	4.1	4.8	5.3	5.8	5.1	6.1	7.4	4.6	7.2	7.4	4.9	4.6	7.4	6.3	6.5
CN	T50N1	7.9	7.9	8.3	8.1	5.0	4.8	5.2	5.6	16.5	14.0	19.2	20.1	22.3	27.6	22.8	23.9	25.1
	T100N1	7.1	5.7	5.5	7.0	4.1	4.8	5.2	6.1	13.7	11.4	16.9	16.4	17.2	17.3	16.3	20.4	19.8
	T200N1	5.8	5.8	6.0	5.6	3.4	3.8	4.7	4.3	10.4	9.0	14.3	12.6	17.4	16.4	15.3	15.2	14.8
	T500N1	5.6	5.4	5.2	4.2	5.5	5.0	3.3	4.5	9.1	7.7	9.6	10.6	11.0	9.7	8.2	9.6	10.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	11.3	11.8	14.3	19.0	13.7	15.8	9.7	12.3	14.6	12.7	14.6	13.7	11.8	11.8	14.1	11.8	11.4
	T100N1	12.7	11.6	10.1	11.9	12.2	12.7	11.5	10.8	12.8	7.2	10.3	10.1	10.7	11.4	9.1	12.4	12.7
	T200N1	10.0	8.6	9.1	7.3	8.3	7.2	9.7	9.6	6.0	6.9	8.4	8.2	6.8	10.4	6.6	8.7	9.3
	T500N1	6.8	5.7	8.2	6.4	4.3	8.2	6.7	7.2	7.3	6.3	6.2	6.9	6.8	5.3	5.7	8.1	6.5
LN	T50N1	14.9	15.3	13.8	18.3	11.2	12.3	14.7	14.4	20.6	16.8	20.2	15.3	15.3	14.7	14.7	13.4	16.8
	T100N1	10.4	9.9	9.9	11.3	10.9	11.8	11.0	12.0	15.1	8.9	12.9	9.3	12.6	11.3	14.4	14.8	15.1
	T200N1	9.3	8.0	8.3	9.9	7.8	8.3	7.8	10.7	9.4	6.8	9.5	8.5	6.9	9.9	9.8	9.9	8.9
	T500N1	6.7	7.0	5.3	6.9	6.2	8.4	7.1	8.6	8.5	6.0	8.0	8.5	5.3	5.6	7.9	6.0	7.5
CN	T50N1	16.3	13.1	16.3	18.7	12.4	9.9	13.1	14.0	20.5	18.0	23.2	24.8	27.1	30.7	25.7	25.9	28.5
	T100N1	13.5	11.6	13.0	15.1	10.5	9.6	11.1	10.9	16.0	13.8	19.4	19.1	19.9	19.9	20.1	21.4	21.3
	T200N1	9.9	8.7	9.4	10.0	6.5	6.1	7.8	7.3	12.5	10.6	15.7	14.8	18.2	17.8	17.0	15.5	16.1
	T500N1	7.5	7.4	7.0	6.6	6.5	7.5	5.5	6.5	8.9	7.7	9.9	10.8	11.7	11.2	8.9	10.1	11.1

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.54

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	5.0	5.7	4.2	7.1	4.2	3.2	5.3	4.9	4.6	3.2	6.1	4.8	4.9	7.5	6.0	4.8	5.8
	T20N25	5.7	4.4	4.8	5.2	5.7	4.7	5.2	4.9	4.9	6.0	7.0	5.3	7.7	4.8	5.8	6.0	4.8
	T25N20	5.3	4.8	6.0	5.4	4.1	5.5	6.2	5.0	4.5	5.4	5.1	4.6	3.7	5.3	6.9	6.3	5.0
	T50N10	6.0	6.6	6.0	6.9	6.1	6.4	6.4	5.3	5.6	5.9	5.4	4.9	5.1	4.4	5.0	4.4	5.0
LN	T10N50	9.3	8.1	5.1	9.5	4.6	3.9	4.7	4.7	16.1	4.1	15.4	8.6	8.9	15.9	8.6	9.3	10.2
	T20N25	6.1	5.8	4.7	6.1	4.7	4.6	6.0	5.7	14.2	5.8	16.3	8.5	13.7	9.9	6.7	12.2	12.2
	T25N20	7.0	5.8	5.6	6.4	6.0	6.6	7.5	5.0	15.0	4.9	13.4	11.1	11.5	8.1	9.1	11.8	10.3
	T50N10	6.8	4.5	5.9	6.0	4.5	5.6	6.1	5.9	14.7	4.0	17.6	10.5	9.6	8.7	7.9	10.5	11.4
CN	T10N50	8.1	5.3	6.3	8.7	11.3	8.8	8.1	9.1	26.3	26.4	31.4	36.7	37.3	37.1	32.2	33.6	37.1
	T20N25	7.3	7.6	7.7	9.7	9.6	8.4	9.1	9.0	28.5	26.6	28.8	36.6	39.4	36.2	34.2	36.2	35.7
	T25N20	7.0	6.4	8.9	8.0	9.7	9.5	9.2	9.4	29.4	28.3	28.2	35.1	34.9	34.7	32.0	35.8	36.6
	T50N10	8.4	5.9	6.9	7.4	9.0	7.5	7.4	9.0	30.1	26.6	28.6	35.1	34.2	34.3	35.6	35.5	34.6
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	4.9	5.6	4.4	6.9	4.1	3.2	5.4	4.8	4.6	3.3	6.2	4.8	4.9	7.8	6.0	4.9	6.0
	T20N25	5.8	4.2	4.9	4.9	6.0	4.6	5.2	5.1	4.8	6.0	7.1	5.5	7.9	4.9	6.1	6.0	4.8
	T25N20	5.4	4.9	6.0	5.5	4.1	5.4	6.3	5.0	4.2	5.4	5.1	4.6	3.7	5.3	7.1	6.7	4.9
	T50N10	6.1	6.8	6.0	6.6	6.1	6.5	6.4	5.3	5.3	5.8	5.6	5.0	5.1	4.4	5.3	4.4	5.1
LN	T10N50	9.1	8.1	5.1	9.7	4.4	3.8	5.1	4.7	16.3	4.1	15.0	8.4	9.0	15.8	8.8	9.4	10.2
	T20N25	6.4	5.8	4.7	6.4	4.7	4.6	5.8	5.6	14.1	6.0	16.3	8.5	13.9	10.4	7.2	12.2	12.3
	T25N20	7.0	6.1	5.6	6.5	6.0	6.6	7.6	5.0	15.0	4.9	13.4	11.1	11.4	8.3	9.6	12.1	10.5
	T50N10	6.9	4.5	5.9	6.0	4.5	5.6	6.2	6.1	14.8	4.0	17.9	10.7	9.6	8.8	8.0	10.6	11.0
CN	T10N50	7.6	5.3	6.5	9.0	11.0	8.6	8.1	8.6	26.5	26.5	32.1	36.6	37.6	37.2	32.7	33.8	37.1
	T20N25	7.6	7.7	7.5	10.0	9.5	8.7	9.4	9.1	28.5	27.2	28.4	36.5	39.4	36.5	34.3	36.2	35.6
	T25N20	6.9	6.4	8.7	7.8	9.6	9.5	9.1	9.6	29.9	28.7	27.8	35.2	34.9	34.9	32.1	36.3	36.6
	T50N10	8.7	5.9	7.0	7.7	8.9	7.7	7.5	8.7	30.3	26.8	28.7	35.1	34.7	34.7	35.8	35.6	34.8
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	6.0	6.5	5.0	7.0	3.7	3.2	5.8	5.0	5.0	3.4	6.6	4.6	5.3	7.5	6.2	4.9	5.6
	T20N25	6.0	4.1	5.5	4.7	5.3	3.9	5.6	4.7	4.8	5.8	6.3	5.1	7.4	5.1	5.6	6.0	5.1
	T25N20	5.5	5.1	6.3	5.3	4.1	6.0	5.9	5.3	4.6	5.5	5.5	4.8	4.5	4.6	6.7	7.1	5.1
	T50N10	6.3	7.2	6.1	6.3	6.1	6.1	5.8	5.5	6.0	5.4	6.1	5.4	5.4	4.4	5.4	4.9	5.0
LN	T10N50	7.1	6.5	4.6	6.4	4.4	3.7	6.0	5.2	4.3	4.2	7.0	5.8	5.3	11.8	6.6	5.0	5.8
	T20N25	5.3	5.8	5.5	5.3	4.2	4.8	6.1	6.5	6.1	6.0	8.9	5.3	9.5	6.4	4.6	8.0	6.9
	T25N20	6.4	5.8	5.5	5.4	5.4	6.8	6.9	5.0	6.6	5.3	6.3	8.5	6.0	3.8	7.3	7.5	6.0
	T50N10	5.9	4.8	6.0	5.5	4.6	5.5	6.5	6.2	7.8	4.6	7.7	7.5	5.7	5.5	5.0	6.2	6.5
CN	T10N50	5.2	4.8	5.2	5.2	5.9	4.7	4.5	4.6	7.4	6.4	6.7	11.5	6.9	6.5	7.9	6.5	6.2
	T20N25	5.3	7.0	6.6	7.2	5.5	3.4	4.8	4.7	8.4	6.7	6.0	10.6	5.3	4.3	7.1	6.3	9.3
	T25N20	5.0	5.4	6.9	6.3	5.5	4.6	5.0	5.4	7.9	6.2	6.5	8.6	6.5	5.7	8.7	7.5	9.2
	T50N10	6.1	4.6	5.2	4.7	4.1	4.0	4.6	3.5	8.6	5.7	7.2	9.7	8.1	8.9	8.0	9.1	9.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	5.6	6.6	5.3	7.4	4.8	4.2	6.3	5.4	4.9	3.7	6.3	4.6	5.7	7.5	6.3	5.2	6.1
	T20N25	6.1	5.2	6.3	5.1	6.1	5.5	6.3	5.5	5.1	6.1	6.7	5.6	7.7	5.3	5.7	7.1	5.6
	T25N20	5.1	5.1	6.7	6.7	4.8	6.0	6.9	5.7	5.4	6.3	6.0	5.0	5.1	4.9	7.1	6.9	5.7
	T50N10	8.0	7.9	6.6	7.9	7.0	6.3	6.3	6.4	6.0	6.6	6.4	5.8	6.4	4.9	5.8	5.3	5.1
LN	T10N50	8.1	7.1	4.8	8.4	5.8	5.1	6.5	5.1	4.4	4.7	7.8	6.0	4.4	11.1	6.2	4.3	6.1
	T20N25	6.1	6.4	6.2	5.6	5.5	5.5	6.5	6.9	5.8	5.8	9.1	4.7	9.8	5.5	4.7	8.1	6.7
	T25N20	7.1	6.4	6.6	6.9	7.3	6.0	7.8	6.3	6.8	6.3	6.8	7.8	6.6	3.4	7.0	7.8	6.3
	T50N10	7.1	5.5	6.8	7.1	5.4	7.0	7.5	8.3	8.0	5.0	7.5	7.8	5.9	5.4	5.6	6.1	6.4
CN	T10N50	7.0	5.7	5.9	7.3	6.2	6.1	5.3	6.3	7.5	6.1	6.9	11.5	7.3	6.8	7.8	6.8	6.4
	T20N25	7.3	7.9	7.9	8.4	6.5	4.1	6.1	5.4	8.2	7.2	6.4	9.7	5.1	4.8	8.1	6.9	9.0
	T25N20	6.4	6.2	8.7	7.4	6.4	5.4	6.0	6.5	7.5	6.4	7.0	8.5	7.5	6.3	8.3	8.6	9.2
	T50N10	7.5	5.9	6.9	7.2	5.7	4.5	6.5	5.1	9.0	5.2	7.9	9.4	8.2	8.2	8.9	9.5	9.4

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.



TABLE 1.55

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	8.3	5.7	6.8	8.9	6.3	6.0	6.9	7.2	11.0	7.8	10.8	9.0	6.6	7.7	8.0	10.8	7.4
	T100N1	8.0	6.1	6.2	6.1	6.5	5.4	5.6	4.4	9.0	4.6	8.7	6.2	7.2	7.1	6.9	8.0	8.1
	T200N1	5.5	5.6	6.2	5.7	4.7	4.9	5.7	4.9	6.8	5.5	6.9	5.4	5.8	7.2	4.4	4.4	6.8
	T500N1	4.9	3.8	5.2	4.6	5.5	4.9	5.3	4.9	6.9	6.7	6.1	5.5	4.5	3.5	4.7	6.1	4.7
LN	T50N1	9.8	9.0	8.0	7.6	6.8	6.1	5.3	4.4	22.8	9.8	23.3	44.7	52.1	50.4	42.1	53.7	52.0
	T100N1	5.6	6.0	7.1	8.0	5.5	5.3	6.0	5.8	20.3	7.8	22.0	49.9	56.2	54.4	53.4	59.0	55.5
	T200N1	6.2	7.2	6.1	6.1	5.8	5.7	6.0	7.0	17.7	5.5	19.5	49.3	55.3	58.2	53.1	53.6	53.5
	T500N1	4.8	5.2	5.7	5.1	3.3	5.2	5.2	4.8	17.7	4.5	15.8	55.2	56.5	55.6	50.9	57.5	56.1
CN	T50N1	13.0	9.5	10.1	11.5	12.6	14.3	11.0	9.9	19.8	18.9	17.4	34.6	34.4	37.5	35.2	36.3	37.2
	T100N1	11.4	9.0	9.1	12.9	10.1	11.1	10.2	11.1	20.6	19.8	23.0	32.7	39.9	36.8	38.7	37.0	39.0
	T200N1	10.7	9.0	9.2	10.7	10.5	9.8	10.5	10.8	20.6	20.4	21.8	33.6	45.5	39.8	35.7	39.5	38.2
	T500N1	8.2	8.8	7.5	8.8	10.5	8.3	8.2	9.0	18.5	17.9	20.1	33.8	39.1	38.0	33.7	39.6	38.4
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	10.7	6.8	9.3	11.0	7.4	7.1	7.4	7.5	13.0	9.0	12.3	10.2	9.0	8.9	9.5	11.3	8.7
	T100N1	9.0	6.6	7.0	7.1	6.5	5.8	5.3	4.9	9.8	6.0	9.2	7.1	8.2	7.5	7.5	8.7	9.1
	T200N1	5.5	5.9	6.6	6.3	5.2	5.3	5.9	5.5	7.3	5.9	6.5	5.8	5.9	7.4	4.6	4.4	7.2
	T500N1	5.1	4.0	4.9	5.1	5.6	4.8	5.4	4.9	6.8	7.2	5.8	5.9	4.5	3.5	4.7	6.4	4.6
LN	T50N1	10.9	10.0	9.0	8.8	8.1	7.0	6.5	5.8	24.6	11.9	25.1	47.0	53.0	51.8	43.3	54.8	53.5
	T100N1	6.9	6.5	7.6	9.0	6.3	5.8	6.5	6.3	21.9	7.9	22.4	50.9	57.0	54.9	55.0	60.2	56.0
	T200N1	7.1	7.3	6.1	6.1	6.0	6.0	6.5	7.7	17.7	6.0	20.5	49.9	55.3	58.4	54.0	53.5	53.6
	T500N1	5.0	5.1	5.8	5.1	3.6	5.1	5.4	5.0	18.2	4.7	16.2	55.6	56.8	56.0	51.1	57.8	56.1
CN	T50N1	16.5	10.1	11.7	13.2	13.2	15.4	11.9	10.4	22.3	22.2	20.3	36.8	35.9	40.1	39.4	38.5	39.0
	T100N1	12.9	10.9	10.3	14.5	11.7	12.4	11.5	12.0	23.2	22.2	24.5	36.6	41.5	38.1	40.8	38.3	40.3
	T200N1	11.3	9.3	9.2	12.3	11.1	10.5	12.1	11.6	22.7	21.5	23.1	34.3	46.3	40.3	37.2	39.9	39.1
	T500N1	9.1	8.9	7.6	9.2	11.0	8.8	8.0	9.3	19.0	18.3	20.5	34.1	39.5	38.2	34.1	39.5	39.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	7.4	4.8	5.7	9.2	5.6	4.7	6.0	6.0	9.2	6.3	10.8	7.4	6.8	7.5	7.8	9.5	7.1
	T100N1	7.2	5.1	5.2	6.2	6.3	4.8	5.4	4.9	8.0	4.6	8.0	7.0	7.9	7.8	7.6	7.4	8.2
	T200N1	5.3	5.3	6.3	5.3	4.8	5.0	5.7	5.0	6.2	5.0	6.9	6.1	5.6	7.9	4.8	4.6	7.8
	T500N1	4.9	3.9	4.9	5.0	5.2	4.9	5.3	5.1	6.6	6.5	5.6	5.4	4.6	3.4	4.4	6.6	5.0
LN	T50N1	8.8	7.8	6.3	7.6	6.8	5.3	5.3	4.1	17.1	8.8	18.5	27.5	34.0	35.7	27.7	36.2	34.6
	T100N1	5.3	4.9	7.0	6.3	3.4	4.9	4.8	5.0	16.9	6.9	17.2	26.4	30.6	28.8	27.0	31.7	31.5
	T200N1	4.9	6.8	5.6	4.3	4.9	5.0	5.9	5.8	11.8	4.7	12.1	23.2	22.9	24.3	25.0	23.6	22.3
	T500N1	3.3	3.0	4.7	3.6	3.1	4.5	3.8	4.0	9.0	3.9	9.2	19.5	18.0	17.3	17.8	19.1	18.6
CN	T50N1	11.5	8.1	7.7	10.6	7.7	7.5	5.9	6.4	10.6	6.0	9.9	22.5	21.8	26.9	25.6	25.3	26.9
	T100N1	7.7	5.2	7.2	8.7	4.6	4.0	3.6	4.9	11.0	6.2	12.2	18.4	25.0	23.0	23.2	24.2	23.8
	T200N1	8.2	6.4	6.2	6.7	4.5	4.0	3.4	4.0	9.6	5.3	10.1	13.7	20.0	18.3	18.2	17.5	15.0
	T500N1	5.2	6.0	3.9	5.1	3.9	2.9	3.4	3.4	7.9	5.6	7.1	10.2	11.5	11.6	8.9	11.2	10.8
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	13.1	9.6	10.2	15.1	11.7	12.7	11.3	13.1	13.4	10.4	15.1	11.3	10.7	11.4	13.1	13.3	12.8
	T100N1	11.8	9.0	8.5	11.0	10.2	11.5	9.9	11.2	11.8	6.4	10.4	10.9	10.3	12.0	10.8	11.0	11.0
	T200N1	8.1	8.0	8.9	8.0	7.9	9.3	10.1	8.6	7.8	7.5	7.9	6.7	7.7	8.0	7.5	6.7	10.8
	T500N1	6.8	4.4	6.7	5.6	7.2	7.4	7.6	7.0	8.3	8.0	7.9	7.0	5.5	4.6	6.4	8.0	6.7
LN	T50N1	14.9	11.7	10.9	12.7	11.0	9.8	10.9	10.2	20.0	12.9	22.9	28.9	35.5	37.4	28.9	36.2	36.7
	T100N1	12.6	10.5	11.5	14.3	7.3	10.0	9.3	10.2	18.1	13.1	19.7	26.3	31.3	28.6	27.1	32.3	31.0
	T200N1	10.5	9.0	9.3	10.0	8.1	9.2	8.5	10.0	12.7	7.6	14.4	21.7	21.4	24.6	24.7	24.1	22.4
	T500N1	7.5	6.4	7.3	7.1	6.2	7.1	6.4	8.2	10.1	6.4	10.1	16.7	17.3	16.4	15.7	18.0	17.5
CN	T50N1	17.4	11.9	11.7	15.9	12.1	13.7	11.0	11.4	14.7	12.1	13.7	24.4	27.1	28.6	28.4	29.1	30.4
	T100N1	12.4	7.9	10.4	12.3	8.1	7.9	7.2	9.1	14.5	8.0	14.5	20.8	26.6	24.5	25.6	26.8	26.1
	T200N1	9.4	9.0	8.1	10.2	7.9	7.2	7.6	6.5	9.9	6.8	10.9	14.6	21.3	18.4	18.3	18.5	16.5
	T500N1	7.0	7.5	5.2	7.3	5.6	4.5	5.7	6.6	7.7	6.3	8.0	10.2	11.9	12.2	8.9	11.2	11.2

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.56

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	5.3	6.1	4.9	5.5	5.7	5.3	5.8	5.1	5.9	5.1	4.3	5.0	5.4	6.9	7.3	4.6	4.6
	T20N25	5.8	6.7	5.0	6.0	5.0	4.2	4.2	5.4	5.5	5.0	7.2	6.1	7.6	4.5	5.5	5.5	4.8
	T25N20	6.9	6.3	5.4	6.0	5.7	5.2	4.5	5.3	5.8	5.6	4.9	5.8	6.0	4.3	5.5	5.1	5.7
	T50N10	6.8	4.6	5.4	6.3	4.7	4.7	4.1	4.0	5.3	4.3	5.2	4.5	5.5	5.0	5.0	6.0	5.7
LN	T10N50	8.7	5.8	7.9	8.6	4.4	5.3	4.9	4.7	19.9	4.1	15.7	52.8	54.1	62.6	52.8	53.2	53.6
	T20N25	6.4	9.4	5.9	8.0	4.6	5.5	3.9	5.4	17.8	5.2	22.0	53.0	61.7	54.2	45.9	59.0	59.8
	T25N20	6.1	6.0	5.4	5.7	5.5	4.7	5.1	5.0	15.6	3.8	19.8	52.7	58.6	53.3	52.6	59.5	57.1
	T50N10	6.8	7.1	6.2	6.9	6.1	4.9	5.5	4.5	19.1	5.3	17.4	55.4	56.3	58.0	50.2	57.4	58.4
CN	T10N50	10.5	8.0	9.6	9.6	11.3	8.5	10.6	10.0	19.1	21.2	19.0	34.2	36.6	35.4	29.9	33.4	36.2
	T20N25	11.3	9.9	9.1	10.5	9.3	8.6	10.2	10.5	21.6	21.3	20.0	35.1	40.1	35.0	32.9	35.4	37.9
	T25N20	9.7	8.2	9.3	9.4	9.7	9.8	9.7	8.2	20.6	17.1	20.3	33.6	38.1	36.4	34.6	38.1	36.8
	T50N10	9.9	8.4	10.3	9.5	8.2	9.5	8.8	8.9	24.0	21.5	19.8	34.2	35.7	34.4	31.8	36.4	36.0
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	5.4	6.0	5.2	5.9	5.8	5.1	6.0	5.2	6.1	4.7	4.3	5.1	5.3	7.1	7.5	4.7	4.7
	T20N25	5.8	7.2	5.0	6.4	5.2	4.0	4.5	5.4	5.3	5.2	7.4	6.3	7.9	4.6	5.9	5.6	4.8
	T25N20	7.4	6.3	5.3	6.2	5.7	4.9	4.7	5.4	5.8	5.7	5.3	5.8	6.3	4.5	5.6	5.1	6.0
	T50N10	6.9	4.9	5.7	6.6	5.1	4.7	4.3	3.9	5.2	4.4	4.9	4.6	5.4	5.0	4.8	5.9	5.7
LN	T10N50	9.6	5.8	7.7	8.8	4.6	5.1	4.9	4.8	20.2	4.4	16.3	53.0	54.1	62.7	52.8	53.2	53.6
	T20N25	6.7	9.4	5.6	8.4	4.6	5.5	3.9	5.5	17.6	5.4	21.7	53.3	61.8	53.9	46.3	58.9	59.8
	T25N20	6.3	6.3	5.5	5.5	5.6	4.8	4.9	5.1	15.8	4.0	20.0	53.0	58.8	53.3	52.8	59.7	57.2
	T50N10	6.7	7.6	6.4	6.6	6.3	4.8	5.9	4.7	19.1	5.6	17.6	55.4	56.4	58.5	50.7	57.5	58.2
CN	T10N50	10.8	7.9	9.7	10.2	11.6	8.9	10.8	10.1	20.7	22.4	20.4	34.5	36.9	35.4	30.8	33.7	36.3
	T20N25	12.2	9.5	9.6	11.1	10.0	8.6	10.8	11.4	22.2	22.1	20.6	35.4	40.0	35.4	33.8	35.3	37.8
	T25N20	10.2	8.1	10.0	9.7	9.9	10.1	10.3	8.6	20.5	17.6	20.1	34.2	38.6	36.5	34.7	38.3	37.0
	T50N10	9.8	8.0	10.8	10.1	8.9	10.1	8.9	8.9	24.3	22.0	19.7	34.3	36.2	35.1	32.2	36.6	36.3
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T10N50	5.9	5.9	5.0	5.7	5.4	5.4	5.8	4.8	5.5	4.9	4.4	5.0	5.3	6.8	7.1	4.4	4.2
	T20N25	5.9	6.7	5.2	5.5	5.0	4.6	4.2	5.0	5.5	4.9	7.3	6.3	7.3	4.8	5.4	5.3	4.9
	T25N20	6.6	5.9	4.9	5.8	5.8	5.2	4.5	4.9	5.8	5.8	5.5	5.8	6.4	4.8	5.2	5.1	5.7
	T50N10	7.0	4.8	5.0	6.3	4.4	4.7	4.5	3.7	5.3	4.2	5.2	4.7	5.0	5.3	4.6	5.9	5.4
LN	T10N50	4.3	2.8	5.7	2.9	3.2	4.6	4.0	4.1	7.0	3.2	7.3	14.4	14.5	29.2	17.9	12.3	15.9
	T20N25	4.0	7.6	4.3	4.2	3.6	4.3	3.8	4.8	8.0	4.5	12.9	14.9	23.8	15.4	13.6	21.7	22.3
	T25N20	3.8	5.1	4.5	3.4	5.4	4.6	4.2	3.7	7.9	3.3	10.0	17.6	18.7	16.5	21.0	21.1	16.7
	T50N10	4.7	5.6	5.2	3.9	5.4	4.4	4.3	4.0	10.6	4.1	10.7	18.3	18.1	17.2	19.5	18.7	17.7
CN	T10N50	5.7	4.5	5.8	5.4	3.9	2.9	3.7	3.9	6.3	4.8	6.0	11.4	6.5	7.8	8.6	6.5	6.8
	T20N25	7.2	6.6	5.5	5.9	3.0	3.1	4.1	1.7	6.9	5.4	6.3	10.9	6.5	6.1	6.7	6.5	9.6
	T25N20	5.4	5.9	6.1	5.3	4.7	3.7	3.7	3.7	6.8	3.2	8.1	10.6	7.2	6.4	10.6	8.7	9.3
	T50N10	6.1	5.1	6.5	6.6	1.7	3.5	4.6	3.7	10.2	5.1	6.4	9.8	8.6	8.5	9.0	9.2	9.4
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	5.9	6.5	5.2	6.3	6.2	5.3	6.3	5.1	6.2	5.2	5.0	5.4	5.2	6.7	7.1	5.1	5.0
	T20N25	6.6	7.4	5.9	6.6	6.3	4.9	5.0	5.8	5.7	5.2	7.7	5.9	7.3	4.8	5.2	6.0	5.3
	T25N20	7.1	6.2	5.4	6.8	5.7	5.7	5.5	5.5	6.5	6.1	5.5	6.5	6.3	4.8	5.7	4.7	6.1
	T50N10	7.1	5.4	5.9	6.7	5.3	5.4	5.1	5.1	6.0	4.8	6.1	5.1	6.0	5.1	5.3	6.2	5.3
LN	T10N50	7.6	4.3	7.1	6.4	4.3	6.2	5.1	4.9	6.9	4.3	7.5	12.8	13.5	27.1	15.8	11.8	14.9
	T20N25	7.9	9.7	6.4	7.8	4.6	5.7	4.7	5.9	8.3	5.8	12.6	13.2	23.3	14.9	12.5	20.1	20.9
	T25N20	6.0	6.3	5.9	6.2	6.1	6.0	5.0	5.3	7.9	4.8	9.4	15.4	16.9	15.4	19.0	20.0	15.4
	T50N10	7.9	7.9	6.9	7.1	7.9	5.8	5.7	5.4	10.6	6.2	10.4	16.3	16.3	16.2	18.4	17.7	16.6
CN	T10N50	6.4	4.1	6.6	5.4	4.6	3.7	4.1	4.3	6.4	5.4	6.1	10.9	6.7	7.4	8.9	6.5	7.2
	T20N25	6.6	7.0	5.5	5.9	4.1	3.4	5.1	3.9	6.7	5.5	6.4	10.0	6.7	6.8	6.8	7.0	10.0
	T25N20	6.0	5.8	6.6	5.8	5.5	5.1	5.2	4.5	6.1	3.3	8.0	9.6	7.7	6.7	9.8	8.9	9.5
	T50N10	8.0	5.3	7.3	7.1	4.2	5.1	5.0	4.6	10.2	4.6	6.7	8.3	9.1	9.4	9.1	9.1	9.2

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.57

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	7.9	6.1	8.9	7.5	7.7	7.0	7.3	5.4	10.9	7.5	11.9	7.7	7.2	9.8	8.0	9.1	8.8
	T100N1	7.8	8.5	7.8	7.3	7.2	6.5	6.0	6.2	10.0	6.2	10.9	8.4	7.0	6.9	7.3	8.6	6.4
	T200N1	5.7	6.4	6.3	6.8	5.3	5.6	4.4	4.9	6.2	6.3	8.2	6.4	5.1	7.4	4.4	4.6	4.8
	T500N1	5.0	5.2	5.5	4.4	5.5	5.6	5.6	4.3	6.5	4.9	4.9	6.5	5.4	3.9	5.0	6.7	5.1
LN	T50N1	8.5	6.7	8.8	8.5	7.2	6.7	5.4	4.6	16.3	11.4	17.9	35.5	40.7	39.1	31.4	37.5	41.9
	T100N1	7.5	7.0	8.1	7.5	6.7	5.0	5.7	6.3	16.2	7.2	14.3	34.5	41.6	39.2	36.9	39.9	41.8
	T200N1	7.7	5.9	6.3	5.9	5.1	5.8	4.9	4.3	12.4	5.0	10.3	32.6	40.2	43.2	37.9	38.0	40.6
	T500N1	5.3	5.7	5.6	4.8	5.0	4.8	4.2	5.2	11.1	4.1	10.1	40.0	42.3	41.9	37.6	42.1	41.9
CN	T50N1	14.4	8.5	13.6	13.2	12.6	10.9	11.1	11.5	24.1	19.6	19.8	35.0	35.1	37.9	36.3	36.1	37.1
	T100N1	10.1	8.5	9.0	13.2	11.7	11.1	10.6	9.9	20.7	18.9	17.9	33.0	36.9	34.9	39.3	36.3	40.2
	T200N1	10.2	9.9	9.6	10.9	9.7	8.9	10.7	10.1	22.6	21.0	21.1	33.3	43.3	38.0	35.4	38.8	37.8
	T500N1	8.2	9.1	8.0	10.4	7.1	10.4	8.4	8.8	20.7	20.1	22.3	34.0	40.6	37.6	33.3	39.3	39.9
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	9.8	7.3	9.8	9.2	8.8	8.0	7.6	5.8	11.0	9.4	13.1	9.1	8.6	10.3	9.8	10.0	9.7
	T100N1	9.4	8.6	8.3	8.3	7.5	6.6	6.3	6.9	10.9	6.6	11.3	8.7	7.6	7.0	8.3	8.9	6.8
	T200N1	5.7	6.5	6.3	7.0	5.4	5.9	4.7	4.9	6.5	6.2	8.5	6.7	5.4	7.6	4.8	4.6	4.8
	T500N1	4.8	5.2	5.3	4.2	5.8	5.9	5.6	4.3	6.5	4.9	5.0	6.4	5.4	3.9	5.2	6.8	5.0
LN	T50N1	10.7	8.3	11.4	9.8	8.6	6.8	6.2	5.9	17.6	12.5	19.2	38.6	41.9	41.0	34.5	39.6	43.5
	T100N1	8.6	7.3	9.1	7.3	7.0	5.6	6.0	6.6	16.8	8.0	14.7	36.0	41.9	40.3	38.6	40.7	42.3
	T200N1	8.5	6.5	6.5	5.9	5.8	5.9	5.4	5.1	12.8	5.6	11.0	32.7	40.6	43.1	38.0	38.5	40.8
	T500N1	5.7	6.0	5.5	5.2	5.0	5.0	4.4	5.3	11.4	4.1	10.7	40.6	42.3	41.7	37.5	42.2	41.7
CN	T50N1	16.3	10.1	15.0	15.9	14.8	11.7	12.2	13.8	25.8	23.1	22.5	36.9	38.1	41.6	39.0	39.4	38.6
	T100N1	12.5	8.9	10.1	14.8	12.9	13.1	11.3	11.0	22.9	21.8	20.6	35.3	38.2	36.1	41.4	37.1	41.4
	T200N1	10.2	10.3	9.9	12.0	10.3	9.8	11.8	11.1	23.3	22.2	21.5	33.7	44.1	38.8	36.0	40.0	38.8
	T500N1	8.1	9.7	7.8	10.4	7.7	10.6	8.7	9.1	20.4	20.7	22.5	34.2	41.3	38.1	33.9	39.6	40.6
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																		
N	T50N1	7.5	4.9	7.2	7.7	6.9	6.4	7.7	4.2	9.7	6.7	11.0	7.6	7.7	8.6	8.6	9.1	8.8
	T100N1	7.5	8.1	8.2	7.5	6.6	7.7	5.8	6.5	10.2	5.9	10.2	7.2	6.3	7.7	6.6	8.8	7.0
	T200N1	5.5	6.4	6.1	6.8	5.5	5.1	4.6	5.5	6.3	6.5	7.9	6.5	5.7	8.1	5.4	5.5	4.7
	T500N1	4.3	5.0	5.9	4.5	5.2	5.5	4.9	4.6	6.5	5.0	5.1	6.2	5.6	4.0	5.2	6.9	5.3
LN	T50N1	8.0	7.0	6.7	8.8	6.4	4.9	5.2	4.2	13.7	8.6	15.5	23.5	29.0	27.5	19.1	24.8	26.4
	T100N1	7.3	5.7	7.5	6.7	6.7	4.3	5.0	5.6	13.1	7.0	12.5	17.7	22.8	20.7	18.5	20.4	22.5
	T200N1	6.6	5.5	6.5	4.7	4.8	4.7	4.7	4.6	8.6	4.0	8.8	13.8	16.3	18.7	18.0	17.4	17.3
	T500N1	4.0	4.6	4.3	4.3	3.9	3.7	3.7	4.7	7.6	3.6	6.8	14.1	12.1	11.8	12.9	13.5	12.3
CN	T50N1	10.5	7.2	9.5	10.9	5.6	4.9	6.2	5.8	12.2	8.0	10.7	26.2	24.9	24.5	24.1	25.8	25.0
	T100N1	8.0	5.3	6.5	8.5	3.9	5.1	4.3	3.9	10.7	5.9	8.4	18.2	21.7	20.6	23.7	22.3	25.0
	T200N1	6.7	6.0	6.7	7.3	3.1	3.5	3.4	4.0	10.4	6.2	9.9	14.3	18.7	18.9	17.1	15.6	15.6
	T500N1	5.0	6.3	5.6	6.5	2.9	4.6	3.3	3.6	7.1	4.3	7.1	10.8	11.9	12.5	9.6	11.5	11.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	11.6	8.9	11.5	15.5	13.1	11.6	14.2	12.4	14.5	10.9	14.2	10.7	12.7	14.5	12.5	13.4	14.0
	T100N1	12.9	12.0	11.2	11.9	14.1	12.6	9.8	12.5	12.4	9.7	13.6	10.5	10.4	12.1	10.6	11.3	11.7
	T200N1	8.9	8.9	8.7	8.6	9.1	9.0	7.7	8.7	7.7	8.5	10.8	8.9	8.5	9.7	7.2	7.7	8.4
	T500N1	6.0	5.4	6.4	5.5	9.2	7.6	6.9	6.2	6.3	5.9	6.7	7.2	6.3	4.8	6.2	8.5	5.8
LN	T50N1	15.5	12.2	13.5	16.3	12.7	12.4	11.6	10.9	17.4	12.5	18.7	25.6	30.6	29.0	21.8	26.7	28.2
	T100N1	13.0	10.3	11.5	12.9	12.2	10.1	9.5	10.1	16.9	10.4	14.1	18.5	22.8	21.5	19.1	21.0	22.4
	T200N1	11.0	8.5	10.1	10.3	8.1	8.5	7.3	8.6	10.9	7.5	9.6	14.1	15.5	18.9	17.2	17.0	17.0
	T500N1	8.6	6.7	7.4	6.4	6.1	6.2	5.2	6.5	8.2	6.3	7.8	13.1	12.0	11.4	13.1	12.6	13.0
CN	T50N1	15.0	11.7	13.4	16.1	10.5	10.3	11.8	10.5	15.1	14.2	13.0	29.9	28.7	28.5	28.3	29.7	29.3
	T100N1	12.7	10.4	10.0	12.5	8.9	9.5	8.4	7.6	14.3	7.2	10.6	21.0	23.9	22.6	25.4	24.8	25.9
	T200N1	10.4	8.4	9.6	9.5	6.3	5.9	6.3	7.0	12.6	7.6	10.4	15.2	20.3	20.2	18.1	16.9	17.1
	T500N1	5.9	8.6	5.9	8.0	4.2	6.7	6.1	6.1	6.9	4.7	8.6	10.7	11.9	13.8	9.5	12.3	10.8

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.58

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	4.7	5.5	5.3	6.6	5.2	5.0	5.6	5.3	5.7	5.0	6.4	5.3	6.0	7.2	6.7	5.3	5.5
	T20N25	5.1	6.2	4.3	7.0	5.0	5.0	6.3	5.0	5.4	3.5	8.3	6.1	6.8	4.5	5.1	6.4	5.2
	T25N20	5.7	4.1	5.2	6.4	4.8	5.1	4.8	4.8	4.6	4.4	6.0	6.6	5.2	3.5	5.0	4.7	5.6
	T50N10	5.3	6.2	5.7	6.4	5.9	5.4	5.4	6.2	7.4	5.0	6.4	5.1	5.9	4.5	5.0	6.1	5.2
LN	T10N50	5.8	5.3	5.7	7.7	6.2	4.7	5.2	4.6	12.5	6.2	10.8	38.7	39.5	47.0	37.1	38.1	38.1
	T20N25	6.0	7.6	4.3	6.0	5.5	4.8	4.0	6.2	10.6	6.2	12.8	37.7	48.1	41.4	29.9	43.3	43.1
	T25N20	5.2	6.5	5.2	6.1	5.5	5.9	6.1	6.5	11.3	4.3	10.4	36.3	43.8	40.7	37.8	44.3	42.1
	T50N10	4.5	5.4	6.9	5.0	5.1	4.3	5.6	4.8	13.4	5.8	11.2	39.4	41.1	41.2	37.5	41.6	47.7
CN	T10N50	10.3	8.3	7.6	10.7	11.5	9.1	10.6	8.3	22.5	21.4	20.7	35.2	35.6	37.4	30.7	31.6	35.5
	T20N25	11.6	9.3	9.1	11.1	10.5	10.8	10.2	9.8	19.4	20.7	20.7	35.5	38.3	34.2	35.2	36.8	38.5
	T25N20	11.5	8.7	8.8	8.8	8.7	8.8	10.4	8.7	19.1	21.3	19.0	35.0	38.6	34.4	31.9	38.2	40.0
	T50N10	9.4	6.6	9.6	10.2	9.7	10.1	7.7	10.0	20.3	20.1	22.4	34.2	34.6	36.2	35.7	36.9	35.7
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	4.7	5.5	5.2	7.1	5.4	5.1	5.8	5.5	5.6	5.1	6.8	5.4	6.0	7.5	6.8	5.3	5.7
	T20N25	5.5	6.3	4.7	7.9	5.3	4.7	5.8	5.1	5.8	3.8	9.0	6.2	7.4	4.6	5.2	6.6	5.4
	T25N20	5.8	4.1	5.2	6.6	4.9	5.6	4.9	5.0	5.2	4.5	6.0	6.9	5.4	3.5	4.9	4.7	5.6
	T50N10	5.6	6.1	5.9	6.3	5.6	5.1	5.4	6.3	8.1	5.1	6.4	5.6	6.0	4.6	5.0	6.1	5.2
LN	T10N50	5.8	5.2	5.7	8.5	6.5	4.7	5.0	4.7	12.7	6.3	11.2	39.3	39.2	47.2	37.4	38.4	37.9
	T20N25	6.2	7.5	4.3	6.6	5.5	5.0	3.9	6.6	11.1	6.2	12.6	37.8	48.3	41.6	30.1	43.6	43.2
	T25N20	4.9	6.5	5.2	6.2	5.9	6.0	6.2	6.3	11.7	4.4	10.6	36.8	43.9	40.8	37.9	44.9	42.6
	T50N10	4.6	5.5	7.1	5.3	5.4	4.5	5.6	5.1	13.8	6.2	10.8	39.7	40.9	41.1	37.5	41.4	47.6
CN	T10N50	10.9	7.9	7.9	11.5	11.9	9.5	11.1	8.8	23.2	21.7	21.1	35.2	36.2	37.2	31.1	31.8	35.9
	T20N25	11.9	9.7	9.4	11.2	10.8	11.0	10.7	10.5	20.6	21.9	21.4	36.2	38.4	34.8	35.9	37.1	39.0
	T25N20	11.7	8.7	8.8	9.3	8.5	9.7	10.9	8.8	19.9	21.9	20.0	35.8	38.8	34.5	32.1	38.6	40.6
	T50N10	9.7	6.6	9.5	10.4	10.2	10.5	8.2	10.4	20.2	20.8	23.1	34.7	34.9	36.1	36.1	37.2	35.9
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																
N	T10N50	5.0	5.2	4.8	6.7	4.7	5.2	5.8	4.8	5.7	5.3	6.0	4.7	5.6	7.4	6.8	5.5	5.7
	T20N25	4.8	6.3	4.1	6.7	5.2	5.0	6.0	5.3	5.2	3.9	8.0	6.1	7.4	4.9	5.7	6.8	5.4
	T25N20	4.8	4.2	5.1	6.5	4.9	5.6	4.6	4.2	4.4	4.3	5.6	6.5	5.8	3.6	5.0	5.1	5.4
	T50N10	5.4	6.0	5.6	6.4	6.0	5.7	5.0	6.3	7.2	4.8	6.3	4.9	5.6	4.4	5.0	6.2	5.0
LN	T10N50	4.0	3.5	4.3	5.3	5.4	3.9	4.5	4.4	5.4	5.2	6.9	10.3	10.9	20.6	12.6	7.9	10.8
	T20N25	4.9	6.8	3.5	4.3	4.0	4.2	3.7	5.2	6.2	5.8	9.7	11.1	19.5	11.1	10.0	15.0	15.6
	T25N20	3.5	5.6	4.4	4.0	4.9	5.4	5.3	5.8	7.6	4.0	7.2	11.5	12.5	12.4	15.4	16.4	13.4
	T50N10	3.6	5.0	6.4	3.9	4.4	3.6	4.5	4.4	9.1	5.3	6.9	13.5	13.5	11.3	13.1	13.7	13.9
CN	T10N50	6.5	4.8	4.3	6.4	4.8	4.2	3.9	2.3	6.7	4.8	5.2	11.7	6.2	8.6	7.0	6.0	7.2
	T20N25	6.6	5.9	5.5	6.3	3.7	4.2	3.1	3.9	8.1	5.3	6.6	12.4	5.0	5.7	8.3	7.2	9.7
	T25N20	6.2	5.7	5.7	5.4	2.8	4.1	4.2	2.1	6.9	4.3	7.0	9.6	7.7	5.7	10.2	8.8	11.6
	T50N10	6.1	4.0	6.0	5.1	3.4	3.1	2.9	4.7	7.6	4.5	7.3	8.6	9.1	9.0	10.6	9.4	9.2
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	5.4	5.6	6.4	7.3	5.6	6.5	6.7	5.1	5.6	5.1	6.2	5.4	6.1	7.8	7.3	5.4	6.1
	T20N25	5.2	6.5	5.0	7.4	6.4	6.0	6.6	5.9	6.2	4.5	8.3	6.5	7.6	4.8	5.2	7.4	6.0
	T25N20	6.0	4.7	5.4	6.9	5.6	6.1	5.0	4.8	4.5	4.8	6.3	6.5	5.8	3.9	5.1	5.2	5.9
	T50N10	6.5	6.1	6.5	6.4	6.6	6.8	5.9	7.4	7.5	4.8	6.7	5.4	6.2	5.1	5.7	6.8	5.4
LN	T10N50	5.6	4.8	5.7	7.7	5.5	4.7	5.6	5.3	5.7	6.2	7.2	8.7	10.3	18.6	11.1	7.1	10.3
	T20N25	6.7	8.0	5.8	6.6	5.3	5.4	4.4	5.8	6.2	6.8	9.6	9.4	18.5	10.0	8.2	14.0	14.3
	T25N20	5.7	5.9	5.7	5.6	6.5	6.3	5.7	6.8	7.1	5.6	6.6	10.2	11.4	11.3	13.6	14.9	11.9
	T50N10	5.7	7.2	7.4	6.1	5.8	4.6	6.4	6.2	9.6	6.0	7.5	11.3	12.7	10.9	11.5	13.3	13.4
CN	T10N50	6.1	5.2	4.4	7.2	6.3	5.6	6.0	3.0	7.3	4.8	6.2	11.4	6.1	8.8	7.5	6.2	6.9
	T20N25	7.1	6.9	5.7	6.8	4.4	5.9	4.5	4.5	7.3	5.9	6.7	11.8	5.9	5.9	8.8	6.8	9.8
	T25N20	5.7	5.9	5.8	5.5	4.5	5.8	5.3	2.9	6.7	4.5	7.2	8.7	8.1	6.0	9.7	9.3	11.1
	T50N10	7.0	5.2	7.2	5.7	4.5	4.5	4.8	5.9	7.3	5.3	7.2	8.1	9.2	8.9	10.8	8.8	9.4

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.59

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	8.4	6.1	6.3	7.7	5.4	8.4	6.6	6.4	12.0	7.5	12.3	8.2	9.5	8.9	7.7	8.8	9.3
	T100N1	6.5	7.5	6.0	7.6	6.6	5.1	4.7	4.0	9.5	5.3	10.0	6.3	6.1	6.5	7.3	7.0	7.3
	T200N1	6.1	6.3	6.4	5.1	6.2	5.7	5.7	4.9	6.6	6.8	7.5	6.3	4.9	6.7	5.9	6.3	6.4
	T500N1	4.6	6.4	4.6	5.1	4.3	5.3	3.7	4.8	6.5	5.4	5.4	4.7	5.1	4.3	4.9	5.9	4.6
LN	T50N1	7.9	7.9	9.5	9.2	6.6	6.2	4.4	6.4	11.5	7.9	14.8	25.1	30.8	28.0	23.1	28.0	28.6
	T100N1	6.0	7.2	7.7	8.1	7.2	6.6	6.5	5.7	12.3	7.0	11.4	25.0	29.2	27.8	27.3	30.9	28.9
	T200N1	7.0	6.0	6.0	6.3	6.0	4.6	5.5	5.1	10.8	3.9	9.9	23.2	27.7	31.9	24.5	27.2	28.3
	T500N1	6.9	6.6	6.0	5.8	5.3	5.3	4.3	5.9	8.1	5.3	8.0	25.4	29.0	28.2	25.6	28.2	30.5
CN	T50N1	12.3	10.5	9.1	10.3	12.3	11.6	10.0	11.9	20.1	18.9	19.2	35.2	28.5	35.6	35.2	33.1	37.7
	T100N1	9.5	8.7	9.0	13.2	10.6	9.7	12.1	11.2	24.2	20.2	21.9	33.6	36.9	33.8	35.0	37.5	38.3
	T200N1	10.1	9.4	7.5	9.9	12.3	9.9	10.8	11.0	20.5	20.3	22.8	34.4	41.4	39.0	33.6	37.5	37.2
	T500N1	7.9	8.5	7.0	8.9	10.0	9.5	9.6	11.3	19.6	19.6	21.1	31.9	38.8	35.2	32.3	40.4	39.0
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	9.3	6.8	7.2	9.1	6.8	10.0	7.3	6.4	14.5	7.9	12.7	9.5	10.2	10.6	8.9	9.8	9.7
	T100N1	7.6	8.4	6.5	8.7	7.5	5.4	4.9	4.5	11.1	6.4	10.8	7.7	6.4	7.2	7.6	7.6	7.1
	T200N1	6.6	7.2	6.3	5.5	6.6	5.9	5.3	5.3	7.2	7.1	7.6	6.4	5.3	7.0	5.8	6.5	6.7
	T500N1	4.9	6.4	4.7	5.0	4.2	5.3	3.7	5.0	7.1	5.6	5.1	4.8	5.1	4.2	5.3	6.0	4.7
LN	T50N1	8.1	9.0	10.3	10.6	7.0	6.8	5.3	7.9	12.5	9.7	16.3	26.6	32.4	29.5	25.3	29.3	31.3
	T100N1	6.5	8.6	8.3	9.8	7.3	7.6	7.6	6.5	12.5	7.3	12.2	26.0	30.3	28.6	28.1	31.6	29.7
	T200N1	6.8	6.4	6.0	7.6	6.3	4.8	6.0	5.1	10.7	4.5	10.3	23.8	28.0	32.0	24.5	27.3	28.5
	T500N1	6.3	6.9	6.2	5.5	5.2	5.6	4.5	5.9	8.5	5.6	7.5	25.6	29.0	28.0	26.0	28.3	30.5
CN	T50N1	14.6	13.2	11.4	13.7	13.7	12.3	11.6	13.0	21.7	20.1	19.6	38.4	33.3	37.7	39.3	36.1	38.6
	T100N1	12.2	10.2	11.1	14.6	11.8	11.3	13.0	12.6	25.8	23.9	23.8	35.0	38.5	35.6	37.7	40.3	39.7
	T200N1	11.0	9.6	8.1	10.0	12.7	11.0	11.9	12.2	21.0	21.4	23.9	35.4	42.1	39.7	34.9	38.9	37.4
	T500N1	8.8	8.9	7.2	9.2	10.3	9.4	10.0	12.0	20.6	20.2	22.1	32.3	39.3	35.7	32.9	40.4	39.1
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	9.1	5.2	5.9	7.5	7.0	7.5	6.6	6.3	10.7	7.5	11.1	6.8	8.8	9.1	6.6	8.9	9.3
	T100N1	6.3	6.5	6.0	7.1	6.1	5.8	5.2	4.3	9.5	5.2	9.0	6.1	7.1	7.3	7.1	7.5	6.9
	T200N1	6.3	6.8	7.4	5.3	5.4	5.8	5.9	5.1	6.6	7.1	7.5	5.6	4.6	7.1	5.9	5.9	7.0
	T500N1	5.3	6.7	4.7	5.8	4.5	5.4	4.4	5.3	7.5	5.7	5.4	4.8	4.8	4.5	5.2	6.6	5.0
LN	T50N1	5.7	6.6	8.4	9.3	5.9	6.6	5.3	5.5	11.0	7.7	11.9	15.8	20.5	20.0	15.4	17.9	20.0
	T100N1	5.1	6.3	5.5	7.3	7.1	6.3	5.5	6.3	11.6	5.1	9.4	13.7	15.9	16.4	15.5	18.0	15.8
	T200N1	6.2	6.2	6.1	5.1	4.7	5.2	5.7	4.3	9.4	3.0	8.2	10.6	11.7	15.2	12.3	11.8	11.4
	T500N1	5.8	5.9	5.7	5.5	5.3	5.1	3.5	5.3	6.2	4.5	5.9	8.9	9.3	7.9	9.4	9.3	10.9
CN	T50N1	10.3	7.8	6.6	6.6	4.6	6.8	5.9	6.2	10.3	5.5	10.3	22.4	21.9	22.4	21.9	23.7	26.0
	T100N1	6.1	4.3	6.4	8.1	4.5	5.1	4.2	3.7	12.1	6.7	9.9	19.6	20.2	17.8	19.2	22.3	22.9
	T200N1	6.5	7.1	5.0	6.7	5.0	4.7	4.3	4.0	8.4	5.0	9.9	13.8	17.0	17.4	16.6	14.6	14.4
	T500N1	5.0	5.5	4.2	5.9	4.3	3.5	3.8	4.5	6.9	5.5	7.2	9.9	10.4	11.1	8.7	10.6	11.4
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	13.1	10.6	11.4	12.5	14.1	12.9	12.7	11.1	15.2	12.2	16.1	11.6	14.7	13.6	12.7	15.2	13.8
	T100N1	10.8	10.8	8.3	13.0	12.2	11.8	9.9	9.2	13.3	7.8	11.7	9.6	8.8	11.3	11.6	11.9	11.6
	T200N1	8.3	8.0	9.8	8.1	9.8	8.1	9.5	8.4	8.3	9.8	8.6	8.3	7.2	9.4	8.5	8.5	9.8
	T500N1	6.3	8.1	5.3	7.7	6.1	8.0	6.2	7.6	8.0	6.9	7.3	6.1	6.4	5.3	7.2	7.4	6.3
LN	T50N1	13.0	8.8	11.7	13.9	10.3	10.4	11.0	10.8	14.1	11.4	14.8	20.1	24.5	23.8	17.9	20.3	21.4
	T100N1	11.3	9.3	8.1	11.4	12.8	11.6	8.8	10.9	14.0	8.1	13.0	15.3	18.0	16.6	16.5	19.5	16.9
	T200N1	10.5	9.5	9.5	10.4	10.1	8.9	9.7	6.9	10.5	5.7	9.8	11.4	12.4	15.4	12.7	13.0	12.4
	T500N1	7.9	7.9	7.5	8.5	6.9	7.0	5.8	8.4	7.3	7.1	6.9	9.1	9.6	7.4	9.4	9.6	10.7
CN	T50N1	15.1	11.0	11.2	14.2	10.0	13.5	10.0	10.5	14.4	9.6	15.8	26.5	24.2	27.2	24.7	26.9	29.0
	T100N1	10.9	7.9	10.9	12.3	8.1	8.0	6.5	7.9	13.6	8.8	11.7	20.9	21.9	19.6	20.6	23.7	23.4
	T200N1	9.9	9.0	8.0	10.0	8.3	6.4	7.5	6.0	9.2	6.9	11.4	14.9	17.7	18.0	17.4	15.8	15.7
	T500N1	6.2	7.6	5.5	7.4	6.4	6.2	7.0	7.2	7.2	5.8	7.0	9.8	10.7	11.5	8.7	10.0	10.9

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.60

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	4.9	5.4	5.4	5.2	5.9	4.6	4.8	3.5	6.8	5.3	4.7	6.5	4.6	7.8	6.6	4.6	5.4
	T20N25	5.8	5.7	5.3	5.5	5.8	3.8	3.9	6.3	5.4	6.1	6.1	5.2	7.9	4.2	6.1	5.0	6.0
	T25N20	5.2	5.0	4.1	4.6	6.4	4.7	4.7	4.4	7.0	4.4	6.6	6.2	6.1	4.2	5.9	4.8	4.7
	T50N10	5.4	6.2	6.3	5.1	4.8	5.3	6.1	4.8	6.0	5.4	5.5	6.7	5.9	4.7	5.5	4.9	4.7
LN	T10N50	6.3	4.6	6.2	6.6	5.6	4.4	5.0	4.7	8.4	5.4	8.5	27.8	26.2	37.7	26.7	26.0	25.5
	T20N25	5.6	7.4	5.0	6.2	5.0	5.6	6.3	6.3	7.7	5.7	11.2	26.3	33.2	28.1	19.7	28.5	30.3
	T25N20	5.2	6.4	4.7	6.4	4.6	6.1	6.0	3.2	10.2	4.5	8.9	26.5	31.8	26.7	24.5	31.9	29.1
	T50N10	6.3	5.2	5.4	5.7	5.4	7.0	5.6	5.1	9.3	5.3	8.0	28.0	29.8	27.9	25.4	27.7	30.4
CN	T10N50	10.8	9.9	8.9	11.9	12.1	9.0	10.6	9.4	19.8	17.0	22.6	34.4	35.2	34.0	30.6	34.4	37.2
	T20N25	10.3	10.1	9.3	10.9	10.5	10.8	10.1	10.0	19.3	20.8	17.8	36.7	39.6	35.1	32.6	35.6	37.0
	T25N20	9.9	8.1	9.4	8.1	9.2	9.6	9.1	8.9	21.2	20.8	19.9	33.7	35.2	35.8	30.8	37.4	36.0
	T50N10	8.8	10.8	10.7	9.7	8.2	9.2	8.1	8.4	20.8	18.3	21.3	34.6	34.9	32.7	32.4	36.2	36.4
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	5.2	5.3	5.6	5.1	5.9	4.6	4.8	3.5	7.0	5.5	4.9	6.5	4.8	7.8	6.8	4.6	5.4
	T20N25	6.2	5.7	5.0	6.1	6.2	4.0	3.9	6.0	5.4	6.2	6.1	5.2	8.2	4.2	6.1	5.2	6.0
	T25N20	5.7	5.5	4.2	4.8	6.0	4.7	4.8	4.5	7.5	4.7	6.3	6.2	6.3	4.2	6.1	4.7	4.8
	T50N10	5.0	6.2	6.4	4.9	5.1	5.7	5.9	4.8	6.4	5.3	5.2	6.7	5.7	4.8	5.5	5.0	4.9
LN	T10N50	6.2	4.8	6.2	6.8	5.6	4.3	5.0	4.8	8.3	5.5	8.5	28.2	26.5	37.6	26.9	26.2	26.0
	T20N25	5.4	7.7	5.1	6.8	5.4	6.0	6.5	6.3	8.0	5.9	11.4	26.6	33.1	28.5	20.0	28.6	30.4
	T25N20	5.1	6.5	5.0	6.5	5.0	5.8	6.3	3.2	10.3	4.6	8.9	26.6	32.2	26.8	24.6	32.3	29.8
	T50N10	6.6	5.0	5.9	5.6	5.1	7.3	5.7	5.4	9.5	5.6	7.8	28.6	29.8	28.3	24.9	27.9	30.4
CN	T10N50	10.8	10.6	8.9	12.8	12.7	8.9	10.5	9.8	20.6	17.4	23.4	34.9	35.8	34.0	31.1	35.1	37.5
	T20N25	10.9	9.8	9.5	11.6	11.0	11.1	10.8	10.1	20.0	21.3	19.1	36.7	39.7	35.1	33.2	35.6	37.5
	T25N20	9.9	8.0	9.8	9.5	9.8	9.9	9.7	9.1	21.2	21.3	20.5	34.0	35.3	36.0	31.0	37.8	36.5
	T50N10	9.1	10.7	11.1	10.0	8.6	9.4	8.7	8.2	20.9	18.6	21.8	34.4	35.0	33.3	32.7	36.4	36.4
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	5.2	5.8	5.2	5.1	5.6	4.8	4.7	4.2	6.6	5.1	4.8	5.6	5.3	7.5	6.3	4.5	5.8
	T20N25	6.4	5.8	4.7	6.0	5.8	3.8	4.4	5.8	5.8	5.7	6.1	5.2	8.0	4.5	5.7	5.5	6.5
	T25N20	5.1	5.5	4.6	4.5	5.9	4.8	4.7	4.9	6.5	4.7	6.6	6.3	5.9	4.1	6.4	4.7	4.7
	T50N10	5.4	5.8	6.3	5.1	5.1	5.7	6.3	5.0	5.5	5.3	5.5	7.3	4.9	4.7	5.8	6.1	4.4
LN	T10N50	5.0	4.2	5.5	5.4	5.4	4.0	4.6	4.4	4.9	4.9	6.2	7.5	6.8	16.0	9.8	5.9	7.6
	T20N25	4.2	6.6	4.2	4.8	5.0	5.3	5.6	5.9	5.6	5.6	9.1	7.7	14.0	8.5	6.5	9.9	12.0
	T25N20	4.5	5.1	4.1	5.0	4.5	6.0	5.7	3.3	7.1	4.1	7.2	9.7	9.9	6.5	9.7	12.1	9.3
	T50N10	5.6	5.0	4.8	5.2	4.8	6.5	5.1	5.4	6.1	4.5	6.5	9.3	9.5	8.2	9.0	9.2	10.0
CN	T10N50	5.8	6.8	5.6	6.2	4.1	3.2	3.6	3.4	7.6	3.2	5.8	11.1	5.8	6.8	5.9	6.4	7.2
	T20N25	5.5	6.3	5.1	5.0	4.9	4.8	3.9	2.9	6.3	3.3	5.5	11.3	4.9	6.4	5.9	6.1	8.4
	T25N20	5.5	5.3	5.4	5.0	3.6	3.2	3.5	3.3	7.8	3.7	6.5	8.5	6.9	5.3	8.3	8.2	9.7
	T50N10	5.6	7.5	6.9	7.4	4.1	3.5	3.8	4.1	6.8	4.1	8.2	8.4	7.7	7.9	8.0	9.0	7.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	6.0	5.6	6.2	5.6	6.0	5.8	5.5	4.2	6.6	5.8	5.2	6.6	5.4	7.4	6.6	4.3	6.2
	T20N25	7.3	6.6	4.9	6.1	6.3	3.9	5.3	6.4	5.5	6.1	6.3	5.0	7.8	4.9	6.0	6.2	6.6
	T25N20	5.4	6.0	5.0	5.1	7.4	5.4	5.2	5.8	7.1	4.7	6.4	6.3	6.7	4.3	6.2	4.8	4.4
	T50N10	5.7	6.5	6.2	5.9	6.2	5.0	6.8	5.8	6.4	5.9	6.0	7.8	5.5	5.0	6.2	6.3	4.8
LN	T10N50	6.0	5.2	6.3	6.0	7.4	4.7	5.0	4.7	5.5	5.7	6.7	6.6	6.3	16.0	8.3	5.5	6.7
	T20N25	4.7	7.7	5.9	5.6	5.8	5.9	7.0	6.9	5.8	5.9	9.5	7.1	13.5	7.7	5.2	9.7	10.6
	T25N20	5.9	6.5	5.4	5.7	5.7	6.6	6.9	4.1	7.3	5.4	6.9	8.2	9.2	5.4	8.0	10.9	8.5
	T50N10	7.0	6.5	6.3	6.4	6.0	7.0	6.4	7.3	6.5	5.7	6.9	8.9	8.9	7.2	8.2	8.7	9.1
CN	T10N50	5.4	7.4	5.8	6.2	4.4	4.7	4.7	4.2	7.4	3.5	6.2	10.1	5.7	6.7	6.0	6.4	6.8
	T20N25	5.7	6.6	5.5	5.0	5.5	5.8	5.4	4.0	6.4	4.0	5.5	10.8	5.4	6.4	5.8	6.5	8.5
	T25N20	6.3	5.4	5.5	5.6	4.7	4.2	5.0	4.1	8.0	3.9	5.8	8.3	7.5	5.5	8.5	8.3	9.9
	T50N10	6.1	7.6	6.8	7.4	4.6	4.8	4.7	5.7	6.3	4.7	8.2	7.9	8.0	7.6	7.6	8.5	7.3

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.61

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	12.8	14.4	9.1	12.8	13.4	17.1	13.9	15.0	4.3	6.7	9.1	10.2	8.0	9.1	9.6	10.7	10.7
	T100N1	17.7	12.6	13.3	13.9	10.3	8.3	8.8	8.8	14.6	6.7	11.4	5.6	6.7	7.7	7.6	8.1	8.3
	T200N1	10.6	10.8	10.6	13.1	5.6	7.3	6.7	6.0	13.5	8.7	14.4	5.6	6.0	7.1	5.4	4.6	7.3
	T500N1	8.4	8.4	6.4	8.5	5.9	7.5	5.6	5.4	11.0	7.7	11.4	6.3	4.4	3.7	5.6	6.2	5.1
LN	T50N1	17.3	11.5	11.5	11.5	14.4	11.5	12.5	6.7	11.5	3.8	14.4	63.5	71.2	75.0	67.3	76.9	64.4
	T100N1	12.1	9.2	7.9	13.2	9.2	7.7	7.7	8.7	18.5	7.9	15.8	64.4	74.1	73.6	73.1	74.7	71.5
	T200N1	14.2	10.1	9.2	13.2	6.4	6.8	7.3	7.7	15.0	6.9	16.2	71.2	72.2	75.6	73.0	75.0	71.8
	T500N1	9.1	9.4	8.7	9.9	5.9	7.7	4.7	4.9	11.9	6.0	12.6	76.1	76.5	78.1	71.1	74.3	76.5
CN	T50N1	17.6	12.8	11.2	16.8	21.6	19.2	18.4	15.2	16.0	17.6	9.6	36.8	42.4	35.2	40.8	35.2	43.2
	T100N1	23.7	13.1	17.4	24.2	17.4	16.6	17.4	18.9	21.4	20.7	15.6	36.3	40.6	42.8	39.0	40.1	42.6
	T200N1	22.8	15.4	13.6	23.9	13.5	12.3	16.1	14.8	20.2	21.5	23.5	35.0	44.2	39.2	36.5	41.0	39.2
	T500N1	17.6	13.4	13.4	18.4	8.7	9.4	10.6	10.4	23.7	23.1	24.3	33.7	40.0	37.3	34.9	39.1	41.3
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	13.9	15.5	9.6	13.4	15.5	18.2	17.1	16.0	5.9	2.1	9.6	10.7	9.6	10.7	11.8	11.2	11.8
	T100N1	17.5	14.2	14.2	15.9	12.8	11.4	9.7	10.6	14.8	7.6	12.1	8.5	8.1	8.6	9.2	9.2	10.5
	T200N1	12.4	11.9	12.5	14.2	6.6	8.0	7.0	6.5	13.6	9.5	15.2	6.8	6.9	7.7	5.4	5.1	7.7
	T500N1	9.2	8.8	7.4	9.8	6.6	7.8	5.8	5.9	11.9	8.1	11.7	6.4	4.7	4.0	5.6	6.7	5.2
LN	T50N1	19.2	12.5	11.5	12.5	14.4	14.4	12.5	8.7	13.5	3.8	15.4	65.4	72.1	75.0	68.3	76.9	65.4
	T100N1	15.0	11.3	8.7	15.3	9.5	9.2	9.2	9.8	19.3	9.2	17.2	66.2	74.7	74.1	73.1	74.9	72.6
	T200N1	14.6	10.7	10.4	14.8	7.3	7.6	8.0	8.4	15.9	7.3	18.0	71.6	72.8	75.8	73.8	75.0	72.4
	T500N1	10.4	10.4	9.8	10.6	6.1	8.1	5.3	5.4	12.5	7.2	13.5	76.1	76.5	78.5	71.2	74.5	76.7
CN	T50N1	18.4	14.4	13.6	17.6	25.6	20.0	18.4	16.0	20.0	19.2	13.6	43.2	44.0	37.6	43.2	40.0	48.0
	T100N1	26.2	14.4	19.6	27.5	19.9	18.1	19.4	21.2	24.4	22.7	18.1	40.8	43.1	44.6	42.6	42.6	45.1
	T200N1	27.0	16.8	16.1	28.6	16.1	14.8	18.3	17.3	23.5	26.5	26.9	36.7	45.5	41.7	39.1	42.3	40.8
	T500N1	20.6	14.5	15.3	21.5	10.4	11.6	12.3	11.5	25.6	24.5	26.5	36.4	41.1	38.1	36.2	40.8	41.8
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	10.7	11.8	4.8	9.6	10.2	10.2	10.7	11.2	3.2	4.8	8.0	5.9	8.0	8.0	8.6	9.6	9.1
	T100N1	14.4	8.3	10.3	10.8	8.3	5.4	5.8	7.6	11.9	5.4	7.6	5.6	5.0	6.5	6.3	7.6	6.7
	T200N1	9.5	8.4	9.0	10.4	4.0	6.5	5.6	4.9	11.0	7.1	12.6	4.8	5.5	7.0	3.8	4.2	6.9
	T500N1	7.7	7.1	5.9	8.1	5.4	6.2	5.0	4.8	9.7	7.3	9.5	5.5	4.6	3.6	5.3	5.8	5.2
LN	T50N1	9.6	8.7	10.6	12.5	9.6	6.7	8.7	4.8	7.7	5.8	11.5	37.5	50.0	52.9	47.1	52.9	51.9
	T100N1	11.9	6.6	7.1	10.6	7.1	6.3	5.3	5.5	12.7	5.0	14.0	39.1	41.4	44.1	43.5	45.9	44.1
	T200N1	12.0	8.9	7.5	10.1	4.1	4.5	5.2	4.8	11.5	5.6	11.3	33.1	33.2	38.2	37.2	35.4	35.1
	T500N1	6.1	7.5	6.1	7.0	4.5	4.9	3.2	3.4	9.3	4.5	9.7	30.2	30.0	26.8	29.2	29.3	28.9
CN	T50N1	12.8	7.2	8.0	14.4	14.4	9.6	8.8	8.0	4.8	4.0	3.2	26.4	28.0	27.2	25.6	29.6	30.4
	T100N1	15.9	7.6	9.6	14.9	8.6	7.3	7.3	6.0	9.3	2.5	6.0	22.7	25.7	26.2	23.9	26.2	25.7
	T200N1	11.2	8.4	7.0	13.9	4.4	4.6	7.0	6.2	9.6	5.1	10.9	15.4	21.8	18.1	17.2	17.7	17.2
	T500N1	9.0	6.4	6.6	9.4	2.7	3.3	3.9	3.6	10.5	5.3	11.2	11.2	11.3	12.2	9.7	11.5	9.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	14.4	13.4	8.0	15.0	16.6	15.0	15.0	17.1	6.4	8.0	11.2	11.8	10.2	9.6	14.4	14.4	15.5
	T100N1	16.9	9.5	12.6	14.2	10.5	10.1	9.0	11.7	14.2	7.0	10.3	8.1	7.7	9.7	8.8	10.5	9.5
	T200N1	11.5	9.2	10.6	12.8	6.4	9.0	7.6	7.1	11.5	9.2	13.3	6.9	7.6	8.6	7.1	7.5	7.6
	T500N1	9.6	7.8	7.9	9.5	7.4	8.1	6.0	6.5	10.9	7.2	11.1	6.2	5.8	4.3	5.7	6.9	6.8
LN	T50N1	16.3	8.7	11.5	18.3	13.5	12.5	12.5	10.6	10.6	7.7	13.5	43.3	51.0	54.8	51.0	54.8	54.8
	T100N1	15.3	11.3	10.0	14.5	12.1	9.0	10.6	9.8	15.3	8.7	15.6	38.5	42.7	45.4	42.0	47.8	43.5
	T200N1	14.8	11.7	10.1	13.6	7.1	8.1	8.4	8.4	12.8	7.6	13.8	33.0	32.8	37.5	36.8	36.4	35.9
	T500N1	9.5	9.1	8.9	10.3	6.7	7.3	5.6	6.2	10.3	6.0	10.6	28.4	29.9	26.8	27.8	28.4	27.4
CN	T50N1	17.6	12.0	10.4	16.8	18.4	12.0	13.6	10.4	7.2	6.4	4.8	28.0	33.6	32.0	27.2	32.8	36.0
	T100N1	20.4	9.8	11.1	18.1	11.8	11.1	10.3	10.1	12.1	4.3	7.8	26.4	26.2	28.5	24.9	26.7	28.5
	T200N1	14.1	9.1	8.6	15.2	7.5	7.1	9.8	8.8	11.1	5.9	12.1	16.6	22.8	19.7	18.7	17.9	17.9
	T500N1	9.1	6.6	6.8	9.3	3.4	5.1	5.4	5.3	11.4	5.9	11.9	11.2	11.1	12.6	10.2	12.3	10.8

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.62

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																
N	T10N50	8.7	5.5	8.8	7.6	5.6	4.4	5.6	4.8	9.0	6.3	7.9	4.9	5.4	8.1	5.5	6.0	4.8
	T20N25	9.8	9.6	6.3	9.2	5.3	4.5	5.1	5.9	7.0	6.2	14.3	5.7	6.7	4.7	5.1	6.1	4.4
	T25N20	8.9	4.9	6.5	7.3	6.2	5.5	5.4	5.3	8.2	5.3	8.6	5.8	4.6	4.3	5.7	4.6	6.0
	T50N10	8.5	6.9	7.2	6.7	4.5	4.7	5.6	5.7	9.2	7.4	8.7	5.2	4.6	4.4	5.2	6.1	6.3
LN	T10N50	12.1	8.2	11.7	11.7	6.2	7.3	6.3	6.0	13.5	7.6	13.9	72.4	74.5	78.2	73.8	75.0	73.6
	T20N25	12.6	11.1	7.2	11.8	6.0	4.9	5.1	4.2	11.2	6.5	18.6	72.2	78.8	73.0	71.7	75.8	76.9
	T25N20	8.8	6.5	9.2	10.6	6.2	6.2	5.7	6.3	13.2	5.6	14.8	75.4	78.8	74.4	74.3	78.8	73.0
	T50N10	10.8	9.1	9.6	9.9	6.5	6.2	4.9	4.6	12.4	6.9	13.8	75.0	76.0	75.8	73.6	75.5	77.5
CN	T10N50	22.9	13.0	13.6	20.3	11.0	10.3	12.0	10.1	25.9	23.5	21.9	34.4	35.8	36.5	31.7	35.1	39.0
	T20N25	21.5	16.5	14.2	21.9	11.0	9.9	10.7	10.4	23.3	24.8	23.1	32.9	38.8	33.7	33.1	36.3	37.7
	T25N20	21.6	12.7	15.2	18.2	9.8	10.2	10.4	9.0	23.4	21.9	22.2	36.9	37.6	35.3	37.0	38.5	39.6
	T50N10	18.6	14.3	14.7	19.6	9.3	7.9	9.1	10.8	24.2	21.9	24.4	36.3	36.7	36.0	34.5	37.0	35.8
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																
N	T10N50	10.9	5.7	10.1	9.0	6.1	4.2	5.5	5.3	10.3	7.4	9.5	5.3	5.5	8.4	6.2	5.9	5.0
	T20N25	11.3	11.0	7.8	10.6	5.7	5.1	5.7	5.7	8.1	6.6	15.2	6.1	7.3	4.8	5.2	6.5	4.6
	T25N20	9.3	5.5	8.0	7.7	6.4	5.7	5.5	6.1	9.3	5.8	9.4	6.4	4.7	4.4	6.1	4.7	6.4
	T50N10	9.2	7.7	7.8	7.4	4.9	4.9	6.2	5.4	10.4	7.5	8.9	5.6	4.8	4.6	5.3	6.3	6.4
LN	T10N50	13.8	8.9	12.9	13.2	7.0	8.0	7.1	6.7	14.2	7.6	15.4	72.9	74.6	78.4	74.8	75.0	73.7
	T20N25	13.2	12.5	9.0	13.4	6.3	5.6	5.3	4.5	12.9	7.3	19.1	72.4	79.0	73.2	72.2	75.8	77.3
	T25N20	10.3	7.3	10.4	11.6	7.1	6.6	6.6	6.2	15.2	6.5	14.8	75.5	79.0	74.6	74.5	78.9	73.1
	T50N10	11.5	9.9	10.4	10.6	7.1	6.4	5.4	4.7	13.2	7.8	14.8	75.1	76.4	75.9	73.9	75.7	77.5
CN	T10N50	25.9	14.9	16.3	23.9	13.5	11.9	13.6	11.4	28.3	26.0	25.2	35.6	36.8	37.5	33.3	35.9	39.4
	T20N25	23.1	18.4	16.2	24.9	13.1	11.7	12.8	11.9	25.2	27.5	26.2	34.4	39.7	34.6	34.4	37.0	39.0
	T25N20	24.6	14.2	16.1	20.7	11.6	11.8	12.5	11.0	25.8	24.9	23.2	37.9	38.5	36.4	37.8	39.7	41.0
	T50N10	20.2	16.7	15.5	22.2	11.4	10.0	10.5	12.8	26.6	24.2	25.6	37.5	37.3	36.7	35.8	38.1	36.8
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																
N	T10N50	7.2	5.0	7.9	7.4	4.8	4.2	4.6	4.4	8.0	5.2	6.4	4.3	5.3	7.7	5.2	6.0	5.0
	T20N25	8.2	9.0	5.2	7.2	4.6	3.9	4.3	5.2	5.6	5.3	12.4	4.6	7.0	5.0	4.6	6.2	4.5
	T25N20	8.2	4.4	5.8	5.8	5.0	4.9	5.1	4.5	7.3	4.3	7.2	5.4	4.3	4.3	5.7	4.2	5.8
	T50N10	8.1	6.1	6.5	6.1	3.9	4.2	5.3	4.9	9.0	6.0	8.1	5.1	4.5	4.2	3.9	5.7	5.9
LN	T10N50	7.8	4.2	9.1	7.0	3.7	3.1	3.4	3.4	8.2	5.7	10.2	23.3	23.2	36.7	27.2	25.3	29.4
	T20N25	8.2	7.7	4.3	7.7	4.7	2.8	3.8	2.8	8.2	5.2	14.9	24.2	34.2	25.8	26.2	31.6	33.8
	T25N20	6.0	4.1	6.7	6.4	5.0	3.9	3.9	3.5	9.5	4.1	10.1	26.0	30.4	27.0	32.1	29.9	27.8
	T50N10	7.9	6.8	7.2	7.9	3.9	3.0	3.1	3.8	10.2	5.3	11.6	28.5	29.4	26.8	30.8	29.6	27.6
CN	T10N50	12.5	5.6	6.8	9.4	3.6	4.1	3.0	2.3	10.5	6.1	7.2	9.9	7.1	8.6	7.3	7.7	7.4
	T20N25	10.9	8.4	5.9	11.4	3.0	2.4	2.6	2.6	9.6	5.8	10.6	11.3	6.3	6.6	7.1	7.2	9.1
	T25N20	10.5	6.3	6.5	9.3	1.9	2.6	3.6	2.7	11.0	5.9	10.2	9.3	6.6	6.2	10.0	9.1	10.9
	T50N10	9.6	6.4	6.1	11.0	3.0	1.8	3.3	3.3	12.7	6.0	10.5	9.3	8.6	8.7	9.7	10.4	10.3
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																
N	T10N50	6.9	5.2	7.9	7.0	5.2	5.2	5.6	4.5	8.7	6.1	6.6	4.8	5.0	6.9	5.7	6.1	5.7
	T20N25	9.0	9.1	5.4	8.1	5.4	4.5	4.3	5.9	6.8	5.5	12.3	4.9	7.0	4.7	4.5	6.5	4.4
	T25N20	8.3	5.6	6.0	6.6	6.0	4.9	5.3	5.2	7.2	4.5	7.5	5.3	4.6	4.7	5.8	4.2	5.8
	T50N10	8.8	6.3	6.6	6.2	4.5	5.3	6.3	5.8	9.5	6.5	8.7	5.5	4.8	4.5	5.6	6.0	6.4
LN	T10N50	7.3	5.5	9.8	8.4	4.6	4.4	4.8	4.5	7.8	6.1	9.7	21.9	22.2	35.4	25.9	23.8	27.9
	T20N25	9.2	8.8	5.2	8.7	5.4	4.7	4.8	3.2	7.8	6.2	14.7	23.3	33.0	24.8	24.3	30.3	32.9
	T25N20	8.1	4.8	7.7	7.5	6.4	6.0	4.5	4.7	9.9	5.8	10.2	25.1	29.1	26.2	29.9	28.5	26.7
	T50N10	10.1	7.9	8.6	9.4	4.7	5.5	5.1	4.9	10.6	6.9	11.5	26.6	27.6	26.3	29.9	28.3	26.6
CN	T10N50	11.4	5.8	6.5	8.7	4.5	4.8	3.9	2.8	11.1	5.7	7.4	9.4	7.0	8.8	7.9	7.5	7.4
	T20N25	9.1	8.2	5.4	10.4	3.7	2.6	3.2	3.5	9.4	6.3	10.8	10.1	6.0	6.1	7.3	7.6	9.5
	T25N20	9.1	6.0	5.5	8.9	2.6	3.2	4.0	3.5	11.3	5.8	10.6	9.1	7.4	6.2	9.9	9.4	10.5
	T50N10	8.8	7.0	5.7	9.9	3.7	2.6	3.7	4.2	13.0	5.7	10.4	8.0	8.2	8.6	9.8	10.0	10.2

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.



TABLE 1.63

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	12.9	11.0	8.4	13.5	18.7	15.5	10.3	12.3	5.2	2.6	6.5	10.3	11.0	9.7	7.1	10.3	9.0
	T100N1	14.5	8.9	12.1	12.0	9.8	8.8	8.0	8.0	11.6	5.5	9.6	7.0	7.1	6.6	6.8	9.6	8.0
	T200N1	10.4	11.8	9.6	13.4	5.5	8.3	6.5	6.6	14.6	6.8	12.1	5.9	4.5	8.3	4.3	5.7	7.5
	T500N1	8.7	8.0	6.4	7.9	4.6	5.8	6.0	4.6	9.2	8.7	8.8	5.4	5.2	4.1	4.6	5.5	5.5
LN	T50N1	16.0	11.4	9.7	18.3	12.0	12.6	7.4	7.4	13.1	4.0	10.3	56.0	60.0	61.1	58.3	56.6	67.4
	T100N1	16.6	9.8	9.4	15.6	7.0	11.8	8.4	8.0	14.2	7.6	13.8	55.8	63.6	60.6	65.4	66.2	61.2
	T200N1	13.8	9.7	8.8	13.7	6.2	7.1	6.5	7.1	14.0	7.5	12.7	59.8	61.6	65.8	63.3	63.6	62.2
	T500N1	9.3	8.3	6.3	9.3	4.9	5.7	6.4	5.4	11.7	6.6	11.3	65.4	63.7	66.7	59.9	65.2	67.3
CN	T50N1	22.6	10.1	10.1	19.5	17.0	17.6	13.2	16.4	10.7	14.5	15.1	38.4	40.9	39.0	41.5	37.1	45.9
	T100N1	20.4	10.4	14.6	23.8	14.4	16.9	15.7	17.1	14.1	17.1	16.7	41.0	43.1	41.7	41.4	39.1	43.8
	T200N1	21.0	12.6	12.0	20.5	14.5	14.0	13.4	14.7	21.0	21.9	20.8	33.8	45.1	40.7	36.9	41.4	43.1
	T500N1	19.4	15.1	12.0	18.9	10.9	11.1	9.6	9.7	25.5	22.8	24.9	34.7	39.7	37.0	34.8	39.7	40.7
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	14.2	12.9	10.3	12.9	20.0	16.8	13.5	13.5	7.7	1.3	7.1	12.3	12.3	10.3	10.3	13.5	9.0
	T100N1	17.5	10.0	13.4	15.0	11.6	11.6	10.0	9.8	11.6	8.6	11.1	8.4	7.9	8.0	8.0	10.2	8.9
	T200N1	12.7	12.2	10.9	14.4	6.6	8.3	7.2	7.7	15.4	8.3	12.9	6.3	5.1	8.7	5.5	6.3	7.6
	T500N1	10.4	8.9	7.3	9.3	5.6	6.4	6.3	5.2	8.9	9.7	9.7	5.6	5.5	4.2	4.7	5.5	5.7
LN	T50N1	20.6	12.0	10.3	19.4	12.6	13.1	8.6	9.1	13.7	5.1	12.0	57.7	61.7	61.7	58.9	58.9	69.1
	T100N1	19.0	11.4	10.8	17.8	8.4	13.0	9.2	9.4	15.0	9.8	15.4	58.4	63.8	62.0	66.8	66.8	62.6
	T200N1	15.3	11.2	10.1	16.3	7.4	8.1	7.7	8.4	15.9	9.3	14.6	60.9	62.1	66.4	64.3	64.2	63.0
	T500N1	10.7	8.9	8.1	10.2	5.9	6.2	6.6	5.5	12.0	7.9	12.0	65.7	63.7	66.9	60.6	65.4	67.4
CN	T50N1	25.2	14.5	11.3	20.8	21.4	18.2	15.7	21.4	11.9	14.5	18.2	40.9	42.8	40.3	45.3	42.1	47.2
	T100N1	25.2	11.6	18.1	27.5	16.2	19.4	18.1	17.8	18.5	20.8	18.8	43.8	45.8	43.1	46.5	42.8	45.6
	T200N1	26.6	16.1	15.1	24.4	15.7	15.5	15.0	16.9	24.9	26.0	24.2	37.7	46.9	43.1	39.5	42.7	43.5
	T500N1	21.8	16.8	13.9	21.0	12.7	12.8	11.1	11.3	27.8	24.6	26.1	36.1	40.5	37.4	35.8	40.4	42.3
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	9.0	6.5	7.1	14.2	12.9	9.7	10.3	8.4	3.2	2.6	4.5	7.1	10.3	8.4	7.1	7.7	9.0
	T100N1	12.1	7.0	8.4	10.2	7.3	6.1	6.1	5.9	8.9	4.5	7.5	4.1	6.2	6.8	5.7	8.0	6.4
	T200N1	8.6	9.6	7.7	11.4	4.2	6.9	5.3	5.1	12.5	6.6	10.8	4.3	4.1	7.2	3.7	4.5	6.2
	T500N1	8.0	7.1	5.9	7.9	4.7	4.8	5.2	4.9	8.2	7.0	7.5	5.3	5.2	4.3	4.2	5.6	5.6
LN	T50N1	16.0	10.3	6.3	16.0	10.3	12.6	7.4	6.9	10.9	4.0	10.9	42.3	37.1	43.4	34.3	37.1	41.1
	T100N1	13.6	7.4	6.6	13.6	7.6	8.0	5.8	4.4	11.6	5.2	11.8	30.6	34.6	32.2	37.2	36.4	35.0
	T200N1	13.2	8.1	7.8	10.7	3.7	5.4	4.6	5.5	12.2	6.0	10.0	24.6	25.0	28.6	31.0	28.5	27.0
	T500N1	6.9	7.8	4.7	6.5	3.6	4.2	3.5	3.9	8.8	5.1	8.5	23.5	22.8	20.1	20.6	22.2	20.8
CN	T50N1	19.5	8.8	6.9	17.0	11.9	10.7	10.1	10.1	2.5	3.1	5.0	32.1	34.0	30.2	34.0	28.3	37.1
	T100N1	13.9	6.2	9.0	18.1	5.6	5.1	6.9	8.1	5.8	4.4	7.6	24.3	25.5	27.5	25.0	25.2	27.3
	T200N1	11.7	6.8	6.2	12.3	5.5	6.2	2.8	5.5	10.3	3.7	9.6	16.8	21.9	20.2	17.8	17.8	16.8
	T500N1	10.1	7.5	6.0	11.3	3.2	3.4	2.6	3.3	11.4	5.3	11.7	11.4	12.1	11.6	9.3	11.2	11.4
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	14.8	10.3	11.0	17.4	16.1	15.5	11.6	12.9	5.8	5.2	7.1	11.6	12.9	12.3	7.7	12.9	8.4
	T100N1	14.5	9.5	10.9	12.3	12.0	11.1	9.1	10.4	12.3	5.7	9.1	6.6	10.0	9.6	8.6	10.4	9.8
	T200N1	10.4	10.9	8.3	12.9	7.1	8.9	8.3	8.2	14.4	7.2	12.9	6.3	6.8	8.5	6.7	7.4	8.5
	T500N1	8.6	7.6	6.8	8.8	6.8	7.3	7.6	6.5	9.5	9.0	9.5	5.6	5.9	4.3	5.9	6.8	7.3
LN	T50N1	20.6	13.7	10.3	22.9	17.7	19.4	10.9	10.3	16.0	7.4	14.9	44.0	40.0	45.7	37.7	38.9	41.7
	T100N1	16.2	10.4	9.6	17.6	10.8	11.0	8.8	7.8	13.0	8.8	14.0	31.6	35.4	32.8	36.0	38.6	35.4
	T200N1	16.0	9.2	10.2	12.6	6.8	7.2	8.0	8.1	13.7	8.1	12.8	24.9	25.4	28.9	29.6	30.0	26.5
	T500N1	9.7	9.0	5.7	9.2	5.3	6.3	7.5	5.9	8.9	6.8	10.5	21.6	22.6	20.0	20.2	22.2	20.8
CN	T50N1	23.3	13.8	11.3	22.0	17.0	15.1	13.2	14.5	5.7	7.5	6.9	36.5	36.5	34.0	34.6	34.0	36.5
	T100N1	17.8	7.6	10.6	20.6	7.6	9.0	9.3	10.0	7.9	4.9	8.8	26.6	28.0	31.2	26.2	26.9	29.9
	T200N1	11.9	8.1	7.6	13.8	6.8	8.6	4.5	7.9	11.0	3.8	11.4	17.4	21.6	20.2	19.8	17.8	17.8
	T500N1	10.1	7.0	6.4	9.5	4.4	5.3	4.4	4.7	11.7	5.7	12.4	11.4	12.6	12.1	10.1	11.6	11.1

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.64

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	9.3	5.9	9.4	8.1	5.4	4.5	6.0	4.3	9.5	6.1	8.0	5.1	5.7	8.6	5.5	4.3	5.0
	T20N25	9.3	10.4	5.7	9.5	4.6	5.5	3.3	4.5	7.8	6.2	13.2	5.5	7.1	4.6	5.0	6.1	5.2
	T25N20	9.5	5.1	5.4	7.2	4.9	5.6	5.0	3.9	8.6	5.5	10.4	5.2	4.2	3.7	5.3	5.4	5.9
	T50N10	9.3	6.5	8.3	7.4	5.3	5.9	5.3	5.0	9.3	5.7	7.7	6.4	5.4	4.7	5.3	4.8	5.7
LN	T10N50	9.9	5.6	11.4	8.2	6.4	5.5	6.5	5.9	9.9	6.1	11.2	62.5	62.7	70.0	65.3	63.2	62.9
	T20N25	10.2	10.7	7.0	9.6	6.0	6.0	5.5	6.8	9.3	5.6	14.6	61.3	71.5	64.5	58.5	67.9	67.3
	T25N20	8.5	7.8	8.5	9.0	5.6	5.3	4.3	4.9	9.0	6.1	11.9	63.8	68.1	63.3	62.2	69.0	64.1
	T50N10	8.7	8.9	8.4	7.0	6.7	5.2	4.5	5.3	10.8	6.0	10.5	63.2	66.1	65.3	61.5	66.8	69.4
CN	T10N50	23.1	15.0	16.1	21.3	12.8	10.3	12.1	10.0	26.2	23.3	24.1	34.7	37.2	36.7	34.7	34.8	36.7
	T20N25	22.2	15.3	12.9	23.5	11.3	10.9	10.3	9.8	24.1	22.5	24.2	34.9	38.5	35.5	36.8	36.8	39.1
	T25N20	21.5	13.0	15.2	18.2	10.2	11.1	11.4	10.1	24.2	24.9	23.3	35.7	37.5	36.1	35.2	40.8	39.2
	T50N10	18.2	13.9	14.7	18.6	9.9	8.7	9.0	10.9	23.4	23.2	24.6	38.4	38.0	35.4	34.7	37.0	36.2
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	10.9	6.8	10.1	9.4	5.5	4.5	6.5	5.0	11.2	7.0	8.4	5.3	5.8	8.9	6.1	4.3	5.3
	T20N25	11.0	12.7	6.8	11.4	5.4	5.7	3.5	5.2	9.2	7.4	14.2	5.9	7.3	4.7	5.4	6.2	5.6
	T25N20	10.0	6.0	6.9	8.5	5.5	6.0	5.6	4.3	9.2	6.2	10.8	5.6	4.4	3.9	5.3	5.6	6.0
	T50N10	10.1	7.5	9.5	7.9	5.6	6.7	5.8	5.4	10.0	6.6	8.7	7.0	5.8	5.0	5.7	5.3	5.9
LN	T10N50	11.7	6.9	12.1	10.4	6.8	6.8	7.0	6.4	10.8	6.8	11.9	62.9	62.9	70.7	65.9	62.9	63.2
	T20N25	11.4	12.0	7.4	10.5	6.2	6.0	5.9	7.0	9.5	6.7	15.4	61.1	71.5	64.6	59.5	68.2	67.9
	T25N20	9.5	8.7	9.1	10.0	6.5	6.1	4.9	5.6	10.7	6.7	12.9	64.0	68.3	63.5	62.4	69.8	64.7
	T50N10	10.1	9.6	9.4	7.7	7.3	5.7	4.8	5.3	11.4	7.1	11.3	64.1	66.0	65.4	62.0	66.9	69.4
CN	T10N50	24.8	17.8	17.6	25.5	14.2	11.6	14.7	11.6	29.2	26.0	26.7	37.2	37.5	37.6	36.0	35.7	37.1
	T20N25	23.8	17.9	15.3	26.2	13.5	12.5	12.3	11.9	25.6	25.2	26.3	37.1	39.9	36.2	37.8	38.5	39.3
	T25N20	24.7	14.7	17.3	22.1	11.6	12.5	14.9	11.4	27.1	26.7	24.7	36.9	38.7	37.3	36.5	41.4	39.9
	T50N10	19.2	15.1	15.9	21.1	11.3	11.1	11.2	13.2	25.3	24.2	26.7	39.9	38.8	36.5	36.2	37.5	37.6
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																		
N	T10N50	8.3	5.0	8.5	6.8	4.5	4.4	5.1	3.5	8.3	4.7	7.1	4.6	4.6	7.8	5.0	3.9	5.0
	T20N25	7.6	8.2	5.4	8.6	3.6	4.3	2.8	3.8	6.4	5.2	11.9	5.2	6.8	4.7	4.2	5.5	4.1
	T25N20	7.1	4.8	5.0	6.9	4.8	5.6	4.1	3.8	8.2	4.5	8.5	4.9	4.1	3.9	4.6	5.3	5.8
	T50N10	8.2	5.9	7.6	7.6	4.8	5.1	5.0	4.7	9.4	4.8	7.3	5.5	5.3	4.4	4.9	4.8	5.7
LN	T10N50	5.6	3.8	8.9	5.9	4.6	2.6	4.6	4.7	7.1	4.2	9.0	16.7	17.5	31.8	23.2	15.7	19.7
	T20N25	7.7	7.7	4.8	6.8	4.1	3.5	4.0	4.7	7.6	5.6	12.1	17.4	27.6	18.9	17.5	24.9	27.1
	T25N20	6.3	5.4	6.7	7.0	3.8	4.1	3.1	3.5	7.2	3.9	9.7	19.9	22.0	19.4	23.2	24.8	20.6
	T50N10	7.6	7.3	6.8	6.9	4.7	4.2	4.0	4.2	8.0	5.4	9.1	21.9	22.8	19.1	24.0	22.1	21.7
CN	T10N50	11.6	5.4	7.3	9.8	4.5	3.0	3.6	2.5	9.9	5.0	9.6	10.2	7.0	7.9	7.3	7.2	6.4
	T20N25	10.8	7.2	4.8	11.7	2.9	2.8	2.3	2.6	11.5	5.0	10.3	10.6	6.1	6.8	7.7	6.2	9.5
	T25N20	9.9	5.2	6.0	8.2	3.0	3.0	3.8	2.7	11.8	6.2	10.2	9.2	7.3	6.5	11.1	10.2	11.8
	T50N10	9.5	7.1	8.2	11.3	2.9	2.4	2.3	3.0	12.9	6.7	12.1	10.5	9.9	9.5	10.5	9.4	10.8
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	8.9	5.4	8.8	7.5	4.6	5.1	6.1	3.9	7.9	4.9	7.1	5.0	5.6	7.8	4.7	4.0	5.2
	T20N25	7.9	8.6	5.8	9.3	5.0	4.6	2.8	4.1	6.4	5.5	11.9	5.2	6.5	4.7	4.5	5.8	4.2
	T25N20	7.4	4.5	5.5	7.3	5.3	6.1	4.6	4.0	8.4	4.9	9.1	5.0	4.7	4.7	4.8	5.3	5.8
	T50N10	9.0	6.5	7.4	8.4	5.8	6.3	5.8	4.4	9.6	4.6	7.6	6.0	6.5	5.0	5.8	6.2	5.5
LN	T10N50	6.4	4.3	9.7	7.3	5.7	4.6	5.2	4.9	7.4	4.6	8.4	15.8	17.1	30.0	20.6	15.4	18.8
	T20N25	8.7	9.7	5.1	7.5	4.8	3.8	4.4	5.6	7.5	5.8	11.9	16.9	26.6	18.5	15.6	24.1	25.2
	T25N20	7.4	6.1	6.8	8.0	5.0	4.4	3.7	4.0	7.2	5.1	9.9	18.8	20.5	18.4	21.9	24.1	20.0
	T50N10	9.0	9.0	8.2	9.5	5.6	5.9	4.7	4.8	7.9	6.0	8.9	20.8	21.5	18.4	22.9	21.7	20.5
CN	T10N50	9.7	5.3	6.2	8.9	5.4	3.6	4.7	3.4	9.9	5.2	9.4	9.8	6.8	7.7	7.7	7.2	6.2
	T20N25	9.1	7.4	4.5	12.0	3.5	3.3	2.8	3.0	11.1	5.6	10.6	10.8	6.3	7.4	8.3	7.0	9.9
	T25N20	9.2	4.6	6.0	8.0	3.7	3.0	5.0	3.3	11.8	6.6	9.8	9.5	7.8	6.8	10.4	9.8	12.0
	T50N10	8.9	7.1	8.4	10.2	3.6	3.4	2.6	3.9	12.0	5.7	11.5	9.8	9.9	8.9	10.0	9.5	10.8

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.65

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	8.5	6.1	9.0	7.2	5.7	6.6	6.9	5.5	9.3	4.9	7.6	4.1	5.1	7.8	6.0	4.8	5.6
	T100N1	9.0	11.1	5.0	9.6	4.3	3.8	4.5	5.6	7.1	7.2	16.2	6.0	6.7	4.7	5.0	5.8	4.8
	T200N1	10.5	6.3	7.6	7.9	6.3	4.4	5.6	4.1	9.9	5.1	10.8	5.1	5.7	4.6	6.6	5.4	7.0
	T500N1	9.6	7.6	8.5	7.6	5.5	5.7	4.9	5.6	9.4	7.0	9.5	6.0	4.3	4.6	5.7	5.8	5.3
LN	T50N1	11.5	5.8	11.4	8.7	5.9	4.0	6.3	6.5	9.6	6.9	9.7	53.4	52.8	60.2	53.0	52.4	52.5
	T100N1	8.7	12.0	6.6	10.8	6.3	6.2	4.8	4.2	8.3	6.4	14.5	53.9	60.9	53.3	47.1	58.0	59.1
	T200N1	7.8	8.5	8.0	8.4	5.9	5.5	5.1	5.0	8.1	4.4	10.5	52.3	57.3	53.3	51.8	57.0	54.3
	T500N1	8.3	7.3	8.8	8.3	5.6	5.4	7.2	4.8	10.1	6.8	9.4	57.0	56.5	55.8	53.4	53.9	58.6
CN	T50N1	24.1	13.1	16.0	23.4	14.1	9.9	13.1	9.6	27.3	23.0	23.5	37.2	34.3	36.0	32.6	35.6	34.7
	T100N1	20.2	14.7	13.9	21.0	10.9	11.1	10.6	9.8	24.2	24.4	23.4	34.0	37.4	35.8	33.3	35.9	37.6
	T200N1	19.9	11.9	14.1	18.4	9.2	12.7	11.4	8.8	22.4	20.5	21.5	36.3	38.0	37.2	35.2	38.6	39.5
	T500N1	19.2	13.0	15.9	18.7	8.1	7.7	8.8	11.0	25.2	22.1	23.2	33.6	37.6	35.9	35.0	36.6	36.4
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	10.4	7.1	10.6	7.9	6.3	6.1	7.9	5.8	11.3	5.5	8.1	5.2	5.3	8.0	6.7	4.8	6.2
	T100N1	10.1	13.2	6.5	11.2	4.3	3.9	5.1	6.3	7.4	8.0	16.6	6.3	7.1	4.8	5.3	5.8	5.0
	T200N1	11.3	7.6	9.6	9.4	6.9	4.7	6.2	4.4	10.4	6.7	11.5	5.7	5.8	4.7	7.0	5.4	7.1
	T500N1	10.3	8.8	9.7	7.9	6.0	6.2	5.1	6.0	10.4	7.6	10.6	6.2	4.3	5.0	5.9	6.2	5.6
LN	T50N1	13.3	6.8	13.0	9.7	6.2	4.1	6.6	6.9	11.8	8.4	10.5	54.5	53.0	60.9	53.5	52.9	52.5
	T100N1	10.1	12.2	8.0	11.9	7.1	6.8	4.9	4.5	9.6	6.8	15.6	54.0	60.6	54.0	48.3	58.4	59.4
	T200N1	9.5	9.2	8.9	10.4	6.3	6.2	5.7	5.5	8.6	5.4	11.4	52.9	58.0	53.5	52.2	57.5	54.4
	T500N1	9.9	8.1	9.1	9.4	6.8	5.6	7.3	5.8	10.4	8.3	10.4	57.5	56.9	56.0	53.6	54.8	58.9
CN	T50N1	28.1	15.4	18.7	27.1	16.3	11.0	15.3	10.8	30.5	25.9	26.0	39.4	35.3	37.0	35.1	37.1	35.3
	T100N1	22.6	17.5	15.6	23.5	12.9	12.7	13.2	11.1	26.3	26.7	26.6	35.9	38.9	36.5	35.8	36.8	38.4
	T200N1	22.4	13.1	15.0	19.7	11.1	14.6	13.2	10.6	24.0	22.9	22.5	37.8	38.9	38.6	37.0	40.0	40.3
	T500N1	22.8	14.9	16.8	21.6	10.6	9.7	9.6	12.8	26.2	23.9	25.1	34.3	38.6	37.1	36.6	37.2	37.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	7.2	4.3	8.1	6.5	5.0	6.0	6.2	5.4	7.9	3.5	6.2	3.6	4.5	7.2	5.6	5.2	6.2
	T100N1	7.7	9.4	4.1	8.7	3.9	3.6	3.9	4.6	6.6	6.2	15.0	5.7	6.2	4.8	4.8	6.0	4.3
	T200N1	9.5	6.2	5.8	7.2	4.8	3.7	4.1	3.6	8.3	4.5	9.6	4.8	5.5	3.9	6.6	5.1	6.9
	T500N1	8.3	6.6	7.7	6.8	4.8	4.8	4.5	5.0	7.7	6.1	7.8	4.9	4.0	4.9	5.4	5.5	5.4
LN	T50N1	8.1	4.0	9.2	6.6	3.8	3.4	5.2	4.1	7.4	5.2	7.7	12.9	12.9	25.4	16.6	10.9	13.1
	T100N1	7.0	9.6	5.2	8.2	4.5	4.2	4.1	3.4	6.4	5.0	11.8	15.3	22.6	14.7	12.3	18.7	22.4
	T200N1	6.7	6.3	6.4	6.3	4.9	4.4	3.3	3.7	6.5	4.0	8.1	16.3	15.1	13.7	18.6	18.7	15.3
	T500N1	7.8	6.1	7.6	6.6	4.6	4.5	5.9	3.6	8.5	5.6	8.3	17.6	17.5	16.3	18.2	18.0	16.5
CN	T50N1	12.3	5.8	6.8	10.2	3.9	2.8	3.7	3.0	12.0	4.4	8.0	11.9	5.7	7.7	7.4	8.5	6.4
	T100N1	9.9	6.7	6.0	10.8	2.8	1.5	3.2	3.2	10.3	6.4	10.3	9.4	6.0	6.7	7.1	6.3	9.5
	T200N1	9.6	5.8	4.7	9.4	2.6	3.7	2.8	2.7	9.6	4.5	9.5	9.4	6.5	6.6	9.5	9.4	11.0
	T500N1	10.4	6.3	8.2	10.7	2.1	2.2	3.2	3.0	12.8	6.2	11.0	8.9	9.1	8.9	9.8	8.8	10.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	7.2	5.3	8.9	7.0	5.2	6.7	7.0	6.1	7.9	4.1	6.3	4.3	5.1	6.9	5.8	5.1	5.9
	T100N1	7.8	9.8	4.6	9.4	4.4	4.2	4.1	5.3	6.3	6.8	14.9	5.7	6.0	4.5	4.8	6.3	4.5
	T200N1	9.4	6.8	5.9	7.7	5.0	4.2	4.3	3.5	9.0	4.6	10.2	4.9	5.6	4.4	7.3	4.9	7.1
	T500N1	8.3	7.3	6.6	7.2	4.9	6.3	5.5	6.2	8.5	5.8	7.9	5.5	4.6	5.3	5.6	6.5	5.4
LN	T50N1	8.0	4.6	10.2	7.5	4.5	3.8	5.1	5.1	7.6	5.7	7.6	11.9	11.8	24.3	14.9	11.2	13.3
	T100N1	8.1	10.6	5.7	8.8	5.6	4.4	4.8	3.6	6.7	6.0	11.9	14.1	22.5	14.3	11.7	18.1	20.3
	T200N1	7.1	6.7	7.2	7.5	6.2	5.3	4.2	4.4	7.0	4.4	8.7	15.1	14.4	12.7	16.7	18.1	14.3
	T500N1	8.0	6.6	8.4	8.1	5.1	5.5	7.3	5.4	8.7	6.8	8.5	16.0	16.5	15.1	17.4	16.8	16.1
CN	T50N1	11.2	5.4	6.6	9.9	4.8	3.3	4.0	4.0	11.4	4.8	7.9	12.2	6.1	7.2	7.8	7.6	6.4
	T100N1	9.1	6.3	6.0	9.6	3.1	2.4	3.4	3.9	10.0	6.3	10.2	9.7	6.2	6.6	7.1	6.4	9.4
	T200N1	9.5	5.6	5.2	8.7	3.5	4.5	3.0	3.1	9.8	4.2	9.7	10.1	6.9	6.3	9.2	10.0	10.7
	T500N1	9.4	5.6	7.0	8.9	2.8	2.5	4.1	3.7	12.8	5.9	10.5	8.5	8.9	8.5	10.1	8.2	10.2

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.66

MIS-COVERAGE RATES OBTAINED USING THE STATIONARY INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	8.5	6.1	9.0	7.2	5.7	6.6	6.9	5.5	9.3	4.9	7.6	4.1	5.1	7.8	6.0	4.8	5.6
	T20N25	9.0	11.1	5.0	9.6	4.3	3.8	4.5	5.6	7.1	7.2	16.2	6.0	6.7	4.7	5.0	5.8	4.8
	T25N20	10.5	6.3	7.6	7.9	6.3	4.4	5.6	4.1	9.9	5.1	10.8	5.1	5.7	4.6	6.6	5.4	7.0
	T50N10	9.6	7.6	8.5	7.6	5.5	5.7	4.9	5.6	9.4	7.0	9.5	6.0	4.3	4.6	5.7	5.8	5.3
LN	T10N50	11.5	5.8	11.4	8.7	5.9	4.0	6.3	6.5	9.6	6.9	9.7	53.4	52.8	60.2	53.0	52.4	52.5
	T20N25	8.7	12.0	6.6	10.8	6.3	6.2	4.8	4.2	8.3	6.4	14.5	53.9	60.9	53.3	47.1	58.0	59.1
	T25N20	7.8	8.5	8.0	8.4	5.9	5.5	5.1	5.0	8.1	4.4	10.5	52.3	57.3	53.3	51.8	57.0	54.3
	T50N10	8.3	7.3	8.8	8.3	5.6	5.4	7.2	4.8	10.1	6.8	9.4	57.0	56.5	55.8	53.4	53.9	58.6
CN	T10N50	24.1	13.1	16.0	23.4	14.1	9.9	13.1	9.6	27.3	23.0	23.5	37.2	34.3	36.0	32.6	35.6	34.7
	T20N25	20.2	14.7	13.9	21.0	10.9	11.1	10.6	9.8	24.2	24.4	23.4	34.0	37.4	35.8	33.3	35.9	37.6
	T25N20	19.9	11.9	14.1	18.4	9.2	12.7	11.4	8.8	22.4	20.5	21.5	36.3	38.0	37.2	35.2	38.6	39.5
	T50N10	19.2	13.0	15.9	18.7	8.1	7.7	8.8	11.0	25.2	22.1	23.2	33.6	37.6	35.9	35.0	36.6	36.4
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	10.4	7.1	10.6	7.9	6.3	6.1	7.9	5.8	11.3	5.5	8.1	5.2	5.3	8.0	6.7	4.8	6.2
	T20N25	10.1	13.2	6.5	11.2	4.3	3.9	5.1	6.3	7.4	8.0	16.6	6.3	7.1	4.8	5.3	5.8	5.0
	T25N20	11.3	7.6	9.6	9.4	6.9	4.7	6.2	4.4	10.4	6.7	11.5	5.7	5.8	4.7	7.0	5.4	7.1
	T50N10	10.3	8.8	9.7	7.9	6.0	6.2	5.1	6.0	10.4	7.6	10.6	6.2	4.3	5.0	5.9	6.2	5.6
LN	T10N50	13.3	6.8	13.0	9.7	6.2	4.1	6.6	6.9	11.8	8.4	10.5	54.5	53.0	60.9	53.5	52.9	52.5
	T20N25	10.1	12.2	8.0	11.9	7.1	6.8	4.9	4.5	9.6	6.8	15.6	54.0	60.6	54.0	48.3	58.4	59.4
	T25N20	9.5	9.2	8.9	10.4	6.3	6.2	5.7	5.5	8.6	5.4	11.4	52.9	58.0	53.5	52.2	57.5	54.4
	T50N10	9.9	8.1	9.1	9.4	6.8	5.6	7.3	5.8	10.4	8.3	10.4	57.5	56.9	56.0	53.6	54.8	58.9
CN	T10N50	28.1	15.4	18.7	27.1	16.3	11.0	15.3	10.8	30.5	25.9	26.0	39.4	35.3	37.0	35.1	37.1	35.3
	T20N25	22.6	17.5	15.6	23.5	12.9	12.7	13.2	11.1	26.3	26.7	26.6	35.9	38.9	36.5	35.8	36.8	38.4
	T25N20	22.4	13.1	15.0	19.7	11.1	14.6	13.2	10.6	24.0	22.9	22.5	37.8	38.9	38.6	37.0	40.0	40.3
	T50N10	22.8	14.9	16.8	21.6	10.6	9.7	9.6	12.8	26.2	23.9	25.1	34.3	38.6	37.1	36.6	37.2	37.0
Papanastassiou's Sandwich SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	7.2	4.3	8.1	6.5	5.0	6.0	6.2	5.4	7.9	3.5	6.2	3.6	4.5	7.2	5.6	5.2	6.2
	T20N25	7.7	9.4	4.1	8.7	3.9	3.6	3.9	4.6	6.6	6.2	15.0	5.7	6.2	4.8	4.8	6.0	4.3
	T25N20	9.5	6.2	5.8	7.2	4.8	3.7	4.1	3.6	8.3	4.5	9.6	4.8	5.5	3.9	6.6	5.1	6.9
	T50N10	8.3	6.6	7.7	6.8	4.8	4.8	4.5	5.0	7.7	6.1	7.8	4.9	4.0	4.9	5.4	5.5	5.4
LN	T10N50	8.1	4.0	9.2	6.6	3.8	3.4	5.2	4.1	7.4	5.2	7.7	12.9	12.9	25.4	16.6	10.9	13.1
	T20N25	7.0	9.6	5.2	8.2	4.5	4.2	4.1	3.4	6.4	5.0	11.8	15.3	22.6	14.7	12.3	18.7	22.4
	T25N20	6.7	6.3	6.4	6.3	4.9	4.4	3.3	3.7	6.5	4.0	8.1	16.3	15.1	13.7	18.6	18.7	15.3
	T50N10	7.8	6.1	7.6	6.6	4.6	4.5	5.9	3.6	8.5	5.6	8.3	17.6	17.5	16.3	18.2	18.0	16.5
CN	T10N50	12.3	5.8	6.8	10.2	3.9	2.8	3.7	3.0	12.0	4.4	8.0	11.9	5.7	7.7	7.4	8.5	6.4
	T20N25	9.9	6.7	6.0	10.8	2.8	1.5	3.2	3.2	10.3	6.4	10.3	9.4	6.0	6.7	7.1	6.3	9.5
	T25N20	9.6	5.8	4.7	9.4	2.6	3.7	2.8	2.7	9.6	4.5	9.5	9.4	6.5	6.6	9.5	9.4	11.0
	T50N10	10.4	6.3	8.2	10.7	2.1	2.2	3.2	3.0	12.8	6.2	11.0	8.9	9.1	8.9	9.8	8.8	10.1
White's Sandwich SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	7.2	5.3	8.9	7.0	5.2	6.7	7.0	6.1	7.9	4.1	6.3	4.3	5.1	6.9	5.8	5.1	5.9
	T20N25	7.8	9.8	4.6	9.4	4.4	4.2	4.1	5.3	6.3	6.8	14.9	5.7	6.0	4.5	4.8	6.3	4.5
	T25N20	9.4	6.8	5.9	7.7	5.0	4.2	4.3	3.5	9.0	4.6	10.2	4.9	5.6	4.4	7.3	4.9	7.1
	T50N10	8.3	7.3	6.6	7.2	4.9	6.3	5.5	6.2	8.5	5.8	7.9	5.5	4.6	5.3	5.6	6.5	5.4
LN	T10N50	8.0	4.6	10.2	7.5	4.5	3.8	5.1	5.1	7.6	5.7	7.6	11.9	11.8	24.3	14.9	11.2	13.3
	T20N25	8.1	10.6	5.7	8.8	5.6	4.4	4.8	3.6	6.7	6.0	11.9	14.1	22.5	14.3	11.7	18.1	20.3
	T25N20	7.1	6.7	7.2	7.5	6.2	5.3	4.2	4.4	7.0	4.4	8.7	15.1	14.4	12.7	16.7	18.1	14.3
	T50N10	8.0	6.6	8.4	8.1	5.1	5.5	7.3	5.4	8.7	6.8	8.5	16.0	16.5	15.1	17.4	16.8	16.1
CN	T10N50	11.2	5.4	6.6	9.9	4.8	3.3	4.0	4.0	11.4	4.8	7.9	12.2	6.1	7.2	7.8	7.6	6.4
	T20N25	9.1	6.3	6.0	9.6	3.1	2.4	3.4	3.9	10.0	6.3	10.2	9.7	6.2	6.6	7.1	6.4	9.4
	T25N20	9.5	5.6	5.2	8.7	3.5	4.5	3.0	3.1	9.8	4.2	9.7	10.1	6.9	6.3	9.2	10.0	10.7
	T50N10	9.4	5.6	7.0	8.9	2.8	2.5	4.1	3.7	12.8	5.9	10.5	8.5	8.9	8.5	10.1	8.2	10.2

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

### 1.3.2 Using The Noninformative Initial Setting

TABLE 1.67

MIS-COVERAGE RATES OBATAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$\mathbf{A}_{21}$	$\mathbf{A}_{31}$	$\mathbf{A}_{52}$	$\mathbf{A}_{62}$	$\mathbf{Q}_{11}$	$\mathbf{Q}_{12}$	$\mathbf{Q}_{22}$	$\mathbf{R}_{11}$	$\mathbf{R}_{22}$	$\mathbf{R}_{33}$	$\mathbf{R}_{44}$	$\mathbf{R}_{55}$	$\mathbf{R}_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	10.1	5.7	6.7	10.2	5.0	4.7	6.4	5.5	8.9	6.6	10.3	7.0	9.5	8.4	5.7	8.7	7.6	
	T100N1	7.6	7.5	4.7	6.1	4.5	6.3	6.0	4.5	7.0	5.3	7.4	5.2	6.7	6.9	7.1	6.2	7.4	
	T200N1	6.0	5.5	5.6	6.8	5.4	6.1	5.1	6.2	5.3	5.9	4.2	5.0	5.8	6.6	5.1	6.1	6.1	
	T500N1	4.2	5.5	6.4	5.8	4.7	5.3	4.7	6.6	4.8	4.6	4.8	6.8	4.8	4.4	4.4	5.8	4.8	
LN	T50N1	9.2	5.6	5.2	9.9	5.9	6.1	6.1	5.5	33.2	10.3	36.7	20.5	27.2	25.0	19.6	26.3	28.8	
	T100N1	6.7	6.9	5.3	6.4	6.8	6.0	4.9	6.3	35.2	5.0	33.6	20.2	28.5	24.9	22.9	28.2	28.0	
	T200N1	6.2	6.0	6.2	6.8	5.7	5.9	6.3	5.2	32.9	4.2	36.2	20.9	24.5	28.3	22.0	24.6	28.0	
	T500N1	5.3	4.0	3.7	4.5	5.3	4.6	3.6	5.1	38.8	3.3	36.4	24.4	25.1	26.7	19.8	27.4	27.6	
CN	T50N1	12.2	6.1	8.4	10.5	10.9	9.3	8.6	10.9	28.7	26.1	24.7	36.4	33.4	36.9	33.4	33.0	35.4	
	T100N1	8.3	7.3	7.8	7.8	8.5	8.6	7.8	9.0	27.6	27.9	28.6	34.3	37.3	35.2	35.5	35.5	38.1	
	T200N1	8.5	6.1	5.4	7.1	9.9	8.4	8.5	8.3	31.2	25.5	32.9	32.4	42.3	38.3	34.4	36.5	40.3	
	T500N1	7.1	6.5	4.8	5.8	8.0	7.8	8.7	7.7	26.6	26.6	31.5	33.1	37.9	36.8	31.4	37.5	38.5	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	13.2	6.9	7.9	13.1	10.5	10.8	10.2	10.2	10.1	7.1	11.0	7.9	9.9	8.9	6.4	9.7	8.9	
	T100N1	10.3	9.3	5.7	7.5	6.3	8.4	8.6	6.7	7.8	5.3	7.8	5.5	7.0	7.3	7.5	6.6	7.5	
	T200N1	7.0	6.5	6.2	7.3	6.7	7.2	6.4	7.4	5.7	5.8	4.4	5.1	5.9	6.8	5.9	6.2	6.0	
	T500N1	5.0	5.8	6.5	6.4	5.1	5.6	5.8	7.3	4.9	4.6	4.8	7.0	4.9	4.1	4.4	6.1	4.8	
LN	T50N1	12.8	8.2	7.8	15.2	11.0	11.6	12.9	12.7	35.0	10.7	37.9	23.4	28.6	26.9	22.0	27.8	30.5	
	T100N1	10.2	7.7	5.9	8.9	9.9	9.2	8.0	9.8	35.9	5.0	34.3	21.7	28.7	25.9	24.1	28.7	28.5	
	T200N1	7.0	7.1	6.6	8.5	6.6	7.0	7.1	6.5	33.4	4.5	36.2	21.3	24.7	28.2	22.3	24.7	28.7	
	T50N1	5.4	4.3	3.9	5.0	5.8	5.0	4.1	5.6	38.8	3.2	36.1	24.4	25.2	26.7	20.0	27.4	27.6	
CN	T50N1	17.0	9.0	11.8	15.0	17.8	17.4	16.2	18.1	30.2	27.4	27.3	38.3	35.4	38.2	34.9	35.9	36.9	
	T100N1	9.8	8.6	8.4	11.1	12.4	10.9	11.9	13.1	28.4	28.4	29.6	35.2	37.7	36.0	36.7	36.4	39.1	
	T200N1	10.8	8.5	7.6	8.7	13.1	13.4	12.2	12.2	32.3	26.5	34.0	32.4	41.5	38.5	34.9	37.5	39.5	
	T500N1	8.2	6.7	4.9	6.5	8.7	8.2	9.4	8.3	26.8	26.6	31.7	33.3	38.1	36.9	31.5	37.5	39.0	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P_1}}$ )																	
N	T50N1	11.7	6.5	8.4	12.3	5.6	5.9	7.1	6.2	10.2	7.2	12.2	8.1	9.5	9.6	6.9	9.7	8.1	
	T100N1	9.0	7.8	5.1	6.5	5.1	6.6	6.9	5.5	8.0	5.6	7.7	6.0	7.8	7.5	7.9	6.5	7.8	
	T200N1	6.3	5.9	5.9	6.3	5.3	6.5	5.3	6.3	6.1	5.6	5.0	5.4	6.2	7.1	5.2	7.1	6.0	
	T500N1	4.8	5.1	6.0	5.4	5.0	5.2	4.7	6.5	5.0	4.8	5.0	6.9	5.1	4.8	4.3	5.9	5.4	
LN	T50N1	9.0	6.4	6.8	10.6	6.1	5.8	7.3	6.4	25.2	10.8	29.0	15.6	19.3	18.7	15.7	18.8	21.6	
	T100N1	6.0	5.9	5.1	7.1	6.8	5.7	4.1	6.4	21.6	6.6	20.8	12.0	16.5	14.7	14.7	16.1	16.8	
	T200N1	5.4	4.9	6.5	6.8	5.4	5.9	5.5	5.4	14.5	4.7	15.5	11.5	11.2	12.5	12.0	12.1	11.8	
	T500N1	4.3	4.0	3.5	3.9	5.7	4.2	4.1	5.1	12.0	4.5	12.2	9.1	9.0	8.2	9.4	10.0	10.9	
CN	T50N1	13.1	7.2	9.0	11.3	6.9	7.4	5.1	5.7	18.9	12.7	18.7	26.0	24.1	26.8	25.5	25.3	27.0	
	T100N1	7.6	7.2	6.8	7.7	4.9	3.4	4.9	5.5	13.7	10.5	15.9	21.2	21.3	21.0	21.5	22.7	25.3	
	T200N1	5.8	5.2	4.0	5.8	4.4	4.7	2.9	4.5	11.9	9.6	14.1	12.8	18.6	17.5	16.9	15.6	16.3	
	T500N1	5.7	5.6	4.4	4.8	4.3	3.7	4.9	4.4	7.4	7.1	9.4	10.2	11.5	11.6	9.3	10.0	11.2	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	18.3	14.1	15.0	17.6	12.5	13.3	12.5	13.1	17.0	14.0	17.2	13.1	15.2	13.2	13.5	15.0	11.6	
	T100N1	13.7	12.6	9.4	12.3	9.8	11.5	11.9	9.5	11.2	7.6	12.3	9.7	9.6	12.0	11.0	9.7	11.9	
	T200N1	9.7	7.6	10.2	8.4	8.7	9.4	8.9	9.8	8.5	8.5	7.6	8.1	8.7	9.6	8.0	8.7	8.6	
	T500N1	5.7	6.1	7.8	6.9	7.0	7.6	7.1	8.5	6.1	5.9	7.1	7.7	6.8	5.8	5.8	7.3	6.2	
LN	T50N1	17.9	12.7	12.3	18.4	11.6	12.5	12.8	13.9	29.4	16.2	30.7	19.3	23.0	21.2	18.3	22.1	24.7	
	T100N1	14.5	11.0	9.7	13.0	11.8	11.3	9.6	11.6	22.0	10.9	21.8	15.0	18.5	15.1	16.5	17.8	18.8	
	T200N1	10.5	9.6	8.9	12.1	9.7	9.5	9.5	10.0	15.1	8.2	17.0	11.1	12.2	13.9	13.1	12.9	13.4	
	T500N1	7.4	6.8	6.7	7.6	8.0	6.6	6.4	6.5	13.0	5.3	13.0	9.9	8.9	8.1	8.7	9.9	10.6	
CN	T50N1	20.6	13.1	13.8	18.3	11.3	12.6	10.7	11.8	22.7	17.6	21.2	29.7	27.5	29.8	28.0	27.3	31.5	
	T100N1	15.3	13.0	10.5	13.3	11.9	9.6	9.6	10.2	15.7	13.5	16.9	22.4	24.0	23.0	24.7	24.7	26.1	
	T200N1	12.3	9.8	9.6	9.6	7.7	9.0	6.0	9.1	13.3	11.8	15.1	14.0	19.1	19.0	18.1	16.5	18.3	
	T500N1	8.5	7.3	6.2	7.0	7.1	5.7	7.0	6.6	8.0	8.2	9.9	9.7	12.7	12.6	9.3	10.5	11.2	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.68

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M11

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T10N50	94.7	77.3	69.7	94.1	7.7	7.0	6.8	6.3	7.6	4.7	5.1	6.4	5.7	7.3	9.5	4.4	5.4	
	T20N25	67.3	39.0	46.6	64.2	6.4	5.4	6.1	5.9	5.0	5.8	3.8	6.1	7.3	5.7	5.4	5.1	5.9	
	T25N20	52.2	27.9	30.5	46.1	6.4	7.2	6.4	5.0	5.2	4.6	3.8	7.9	4.3	3.6	6.1	5.7	5.7	
	T50N10	19.2	13.8	11.8	19.4	5.8	6.8	4.9	5.2	5.0	5.0	6.3	6.3	6.1	4.8	4.9	4.8	5.0	
LN	T10N50	89.0	77.2	65.9	92.8	8.0	6.0	6.9	6.9	37.9	3.5	31.0	23.1	24.5	33.1	23.5	23.3	24.4	
	T20N25	68.5	36.8	51.0	65.6	6.7	6.0	6.6	6.3	35.9	4.3	37.1	23.9	30.8	26.5	16.6	28.4	28.5	
	T25N20	51.4	31.6	33.6	48.5	5.8	5.9	5.5	6.3	34.9	3.1	35.4	23.8	26.6	23.5	20.4	28.3	25.1	
	T50N10	20.3	15.6	9.2	19.1	5.6	5.5	5.3	6.4	37.5	3.8	35.0	23.2	26.6	25.1	20.6	24.7	29.4	
CN	T10N50	91.3	70.5	67.2	91.3	13.4	11.3	12.8	11.5	27.7	25.7	31.5	38.0	37.9	37.0	31.0	34.0	35.6	
	T20N25	60.8	37.9	45.6	66.1	9.8	10.9	10.1	10.4	27.0	25.9	31.5	34.8	39.7	34.0	33.2	37.2	36.5	
	T25N20	48.6	31.2	30.1	49.6	9.1	10.2	8.7	7.9	28.2	28.6	29.2	34.3	36.4	36.6	32.0	34.6	37.5	
	T50N10	18.7	10.9	11.3	17.9	8.1	7.2	8.9	10.6	31.8	27.2	28.6	32.9	38.2	35.6	33.0	36.8	34.7	
Harvey's SE Estimator ( $\widehat{SE}_H$ )																			
N	T10N50	97.6	81.5	72.9	97.1	29.6	25.5	24.0	26.4	8.7	4.7	6.0	6.6	6.1	8.2	10.3	4.9	5.4	
	T20N25	77.7	46.2	54.2	75.0	18.1	15.0	17.6	15.5	5.7	5.7	4.2	6.6	7.9	5.9	5.6	5.6	6.2	
	T25N20	63.7	35.2	37.8	58.8	15.9	16.9	15.5	13.9	5.9	4.5	4.2	8.3	4.4	3.9	6.7	5.9	5.9	
	T50N10	27.3	17.9	16.6	26.6	10.3	12.0	9.8	9.2	5.3	5.1	6.8	6.5	6.4	4.9	5.6	5.0	5.6	
LN	T10N50	91.8	80.4	69.4	95.4	27.4	24.6	26.9	25.7	39.9	3.3	33.0	23.9	25.4	34.3	25.1	24.3	25.2	
	T20N25	78.4	43.2	58.1	76.5	17.3	14.7	17.4	17.3	37.6	4.2	39.8	25.2	31.4	27.3	17.4	28.8	29.0	
	T25N20	64.4	39.3	41.0	59.7	16.0	14.9	17.2	15.8	35.7	3.9	34.9	23.6	26.5	24.7	20.2	28.8	26.5	
	T50N10	28.5	21.7	12.9	26.2	10.2	10.2	9.0	10.8	38.9	3.8	36.0	23.6	27.2	25.3	21.3	25.0	29.8	
CN	T10N50	95.2	74.4	70.5	95.0	33.9	33.0	33.4	32.5	30.1	25.8	33.1	39.1	38.6	37.9	32.9	35.2	36.2	
	T20N25	74.8	46.2	52.8	77.4	22.2	22.9	22.7	23.4	29.3	25.8	33.3	35.4	40.3	34.5	34.6	37.8	37.5	
	T25N20	60.1	39.1	36.6	59.7	22.3	21.2	18.5	18.7	29.1	28.8	30.9	35.0	37.0	36.8	33.5	35.5	38.0	
	T50N10	26.8	15.6	16.0	26.3	13.1	12.4	14.5	16.3	32.7	27.4	29.4	33.6	38.7	36.2	33.8	37.5	35.1	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																			
N	T10N50	94.6	82.9	74.5	94.1	7.8	7.0	7.4	6.3	8.4	5.3	5.9	6.4	6.0	7.2	9.3	4.8	5.6	
	T20N25	64.6	42.6	49.4	60.8	7.0	5.8	6.6	6.2	5.8	5.9	3.4	6.0	7.6	6.2	6.1	5.8	6.3	
	T25N20	48.8	28.2	31.6	43.3	6.6	7.2	6.4	5.0	6.1	5.2	4.1	8.2	4.4	4.2	5.8	5.2	5.9	
	T50N10	17.1	14.0	11.5	17.5	5.8	6.5	4.9	5.5	5.1	5.3	6.8	6.3	6.1	4.9	5.4	5.0	5.0	
LN	T10N50	76.6	72.8	62.6	82.8	8.8	6.0	8.0	7.0	7.1	4.5	7.1	8.0	6.6	18.0	12.5	5.1	8.8	
	T20N25	55.8	34.6	48.0	50.5	6.2	6.3	6.3	6.8	8.8	4.9	13.3	9.2	13.4	8.0	8.0	11.2	12.0	
	T25N20	37.2	28.8	29.4	35.8	6.6	6.1	6.2	6.8	9.8	3.6	10.9	9.8	9.4	6.2	10.7	10.5	7.5	
	T50N10	13.7	12.4	6.8	13.2	5.6	5.4	5.4	6.3	12.1	4.3	10.5	9.6	10.3	8.3	8.8	9.3	9.0	
CN	T10N50	86.3	67.8	64.2	86.0	7.0	7.8	7.0	7.2	5.8	5.9	4.9	12.6	7.1	6.6	8.3	7.9	6.1	
	T20N25	51.6	36.0	42.1	56.4	5.4	6.0	5.7	5.0	6.3	4.3	4.0	11.5	5.5	5.6	9.8	6.9	10.5	
	T25N20	36.2	27.8	26.0	39.6	4.7	5.2	4.6	3.3	7.2	5.2	5.4	10.9	7.3	5.8	9.4	8.7	10.0	
	T50N10	12.4	9.5	8.9	13.6	4.5	3.6	5.0	6.1	8.6	5.8	7.2	9.7	7.8	7.4	9.6	10.0	8.4	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T10N50	92.8	81.1	72.6	91.1	9.0	7.6	7.8	6.8	9.0	5.0	6.1	6.4	6.2	6.8	9.7	5.3	5.7	
	T20N25	60.2	40.4	49.6	58.6	7.4	6.9	6.8	5.9	5.7	5.9	3.9	6.2	7.8	5.9	5.8	5.9	6.3	
	T25N20	45.0	26.7	29.5	39.3	7.0	8.2	6.6	5.3	6.2	6.0	4.2	8.4	4.8	4.1	6.6	5.1	6.3	
	T50N10	15.3	14.1	10.6	16.5	5.6	7.2	6.3	5.6	6.1	5.8	6.9	6.6	6.6	4.3	6.2	5.4	5.6	
LN	T10N50	77.0	72.6	62.6	83.5	10.4	6.6	9.5	8.2	6.7	4.6	7.4	7.9	6.1	17.0	11.3	4.9	8.1	
	T20N25	59.8	36.3	48.4	56.3	7.0	7.8	7.1	7.8	8.7	6.1	13.1	8.5	12.7	7.5	7.3	11.1	11.3	
	T25N20	41.9	29.4	30.1	38.9	7.0	6.9	6.6	6.9	9.0	5.1	10.5	9.2	8.8	6.3	9.7	9.4	6.8	
	T50N10	18.4	13.3	8.6	16.3	6.9	6.7	6.7	7.0	11.3	5.0	11.2	8.5	9.7	7.5	8.4	8.6	9.1	
CN	T10N50	83.2	65.3	63.2	83.2	8.5	8.4	7.7	8.4	4.6	5.0	5.4	12.3	7.3	6.5	8.5	7.5	6.4	
	T20N25	50.3	36.8	41.9	58.2	5.6	6.1	6.5	6.3	6.3	4.2	4.2	11.3	5.9	6.1	9.1	7.2	10.6	
	T25N20	39.0	27.8	26.0	39.7	6.0	6.4	5.0	4.4	7.0	5.6	5.8	10.6	7.6	6.2	9.5	8.4	9.9	
	T50N10	15.6	11.1	10.8	16.4	4.8	4.5	5.6	7.5	9.1	6.0	7.5	9.1	8.8	8.5	10.0	10.0	7.8	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.69

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	13.3	6.2	8.8	11.9	6.6	6.4	5.8	5.1	7.9	6.3	7.1	7.7	7.9	8.4	5.9	9.2	8.7	
	T100N1	10.2	8.4	5.5	7.9	6.1	5.7	5.6	5.4	8.4	3.9	7.3	5.9	7.5	7.7	6.8	5.9	7.9	
	T200N1	4.6	6.0	6.9	6.7	6.2	5.8	5.2	4.4	5.8	4.9	6.1	5.4	4.8	6.6	4.9	6.6	6.4	
	T500N1	5.0	5.4	4.9	5.8	4.7	5.5	5.4	5.0	6.3	4.9	3.9	6.1	4.7	4.1	5.2	6.1	4.8	
LN	T50N1	13.9	5.1	7.6	13.4	6.0	6.2	7.1	5.9	22.2	7.4	19.9	14.1	18.9	16.3	11.6	15.0	14.6	
	T100N1	8.7	6.3	4.7	7.3	6.7	6.0	5.2	6.4	21.5	5.1	21.6	12.9	14.9	15.2	14.3	16.0	17.5	
	T200N1	7.0	6.6	7.6	7.3	6.4	3.9	5.3	4.6	21.2	3.5	21.5	11.1	12.7	17.4	13.4	14.8	14.6	
	T500N1	5.0	5.0	3.8	5.1	5.4	4.5	4.7	5.7	24.3	4.7	22.9	13.5	12.5	13.5	12.3	15.9	16.3	
CN	T50N1	13.2	7.8	7.3	12.7	10.4	8.9	8.6	10.1	25.1	23.0	24.0	32.1	33.2	37.3	34.3	32.1	34.2	
	T100N1	10.7	8.9	8.5	9.9	8.1	8.5	7.8	7.7	29.9	26.7	27.6	32.2	39.0	32.5	34.4	34.9	38.6	
	T200N1	6.2	6.3	6.5	8.0	8.7	9.3	8.2	9.9	29.7	26.8	32.1	32.9	42.9	35.4	35.1	36.4	36.5	
	T500N1	6.8	6.0	6.1	6.5	8.7	8.6	9.0	9.1	28.4	27.4	30.1	32.8	38.0	36.2	31.5	37.7	38.8	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	20.5	10.0	12.1	18.4	17.7	21.3	17.8	18.4	10.2	7.1	8.5	8.8	9.8	10.2	7.1	9.8	9.3	
	T100N1	14.2	11.1	8.0	12.3	11.8	12.3	11.9	12.0	9.1	4.5	8.3	6.9	7.7	8.2	7.7	6.5	8.3	
	T200N1	6.9	7.9	7.5	9.1	9.3	9.4	9.1	7.6	6.2	5.2	6.3	5.9	5.2	6.8	5.6	6.9	6.6	
	T500N1	5.5	6.0	5.6	6.4	5.9	6.6	6.5	6.0	6.5	5.0	4.0	6.3	4.9	4.2	5.9	6.1	4.8	
LN	T50N1	21.4	8.4	11.4	16.3	17.8	18.2	20.2	18.1	23.7	8.0	21.4	16.3	19.7	17.5	13.5	16.1	16.7	
	T100N1	12.9	8.5	7.2	12.5	13.3	13.7	13.5	11.9	23.0	5.1	22.7	13.5	15.6	15.6	15.1	16.8	18.0	
	T200N1	9.1	8.3	9.5	9.7	9.6	6.4	9.1	7.5	22.2	3.7	22.2	12.4	12.9	17.5	14.0	15.0	14.9	
	T500N1	5.7	5.4	4.2	6.1	7.1	5.5	5.4	6.9	24.7	4.7	22.8	13.7	12.6	13.7	12.7	16.4	16.6	
CN	T50N1	21.1	12.0	11.2	22.0	27.0	26.3	24.5	24.8	29.8	24.9	28.0	34.6	34.9	39.3	37.7	34.3	36.6	
	T100N1	15.8	10.7	11.6	15.7	17.3	17.4	16.2	16.2	31.9	27.5	29.7	34.8	40.2	33.2	36.2	36.1	38.9	
	T200N1	8.8	7.5	8.0	11.2	13.6	12.8	11.8	13.4	31.1	27.2	33.0	33.6	43.5	35.5	35.8	37.0	36.8	
	T500N1	7.1	6.3	6.6	7.1	10.1	9.6	11.4	10.5	28.6	27.6	30.8	32.7	38.2	36.4	31.7	37.9	39.0	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																	
N	T50N1	13.6	7.7	10.0	12.9	7.5	7.6	7.2	6.3	9.1	7.5	9.1	8.9	7.9	10.0	7.3	9.7	8.9	
	T100N1	9.5	9.0	6.5	7.9	6.4	5.9	5.2	5.2	8.6	4.7	7.9	6.5	7.5	7.5	7.8	6.6	8.3	
	T200N1	4.9	6.5	6.8	6.1	5.9	6.1	6.4	5.4	6.0	5.5	5.8	5.7	5.8	7.1	6.2	6.5	6.7	
	T500N1	4.9	5.0	4.8	5.6	5.0	5.5	5.0	5.3	6.5	4.9	4.4	5.7	4.6	4.0	5.1	5.5	5.0	
LN	T50N1	14.9	6.7	8.3	14.7	7.6	7.2	7.5	6.7	17.4	8.2	16.2	12.0	16.1	14.7	11.4	13.0	13.3	
	T100N1	8.1	6.7	5.1	6.7	8.2	6.4	6.2	6.6	13.8	7.0	15.2	9.1	9.4	10.1	12.0	11.8	12.3	
	T200N1	5.4	5.6	6.3	5.9	6.9	4.3	5.0	5.3	10.0	4.9	11.4	8.1	7.9	9.7	9.7	8.9	8.4	
	T500N1	4.6	4.7	3.8	5.3	5.8	5.0	4.2	5.6	8.7	5.2	8.8	7.8	6.2	5.2	7.1	8.0	7.9	
CN	T50N1	13.6	9.6	7.6	14.0	4.7	6.1	5.1	6.4	16.1	10.0	15.4	21.2	23.3	25.5	23.5	23.1	24.0	
	T100N1	9.0	7.1	6.4	8.2	5.1	5.6	4.3	4.8	15.0	10.5	14.7	19.3	21.8	19.5	19.9	19.1	23.0	
	T200N1	4.8	6.0	5.3	5.5	4.0	5.6	4.4	6.1	11.1	8.8	14.2	14.2	19.2	14.8	17.3	16.2	14.4	
	T500N1	5.7	5.4	5.1	5.1	4.9	5.1	5.2	5.3	9.0	6.8	9.1	9.4	11.2	11.0	10.2	10.7	11.4	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	18.5	11.9	14.6	18.6	13.0	13.8	14.0	13.6	15.4	13.1	15.2	13.0	13.0	13.1	11.5	14.3	12.7	
	T100N1	15.1	12.2	10.3	11.4	11.3	11.9	10.6	9.2	11.9	8.1	10.9	9.5	10.7	11.6	10.5	10.2	12.7	
	T200N1	7.6	8.8	8.0	8.1	10.0	9.0	10.2	9.2	8.5	7.6	7.5	7.8	8.3	9.7	7.8	9.0	9.4	
	T500N1	7.7	6.4	6.6	7.4	7.2	7.0	7.9	7.3	8.4	6.1	5.8	6.5	5.9	5.0	5.6	6.9	5.9	
LN	T50N1	21.4	13.3	14.6	21.3	14.3	14.7	13.9	11.8	21.3	14.1	19.9	15.7	18.3	17.7	13.7	16.3	17.0	
	T100N1	13.8	10.6	9.4	12.1	11.3	13.7	12.2	12.9	16.5	10.4	17.6	11.7	11.8	12.6	14.1	15.2	15.7	
	T200N1	9.0	8.5	9.0	9.8	9.8	8.1	8.2	9.2	10.6	6.4	12.9	9.8	8.9	11.7	10.5	10.1	10.7	
	T500N1	6.6	6.8	5.6	7.5	6.9	6.6	6.6	5.7	9.9	6.7	10.2	8.4	6.9	6.4	7.6	8.8	8.4	
CN	T50N1	19.4	13.9	13.3	20.5	11.1	13.6	12.3	12.5	20.2	14.0	18.6	24.5	26.7	27.8	27.0	25.8	26.0	
	T100N1	15.0	11.9	11.8	13.2	11.1	9.3	7.7	9.1	17.2	11.7	16.2	22.4	25.3	20.5	23.0	21.2	26.2	
	T200N1	10.1	8.7	8.4	10.8	7.9	9.2	8.2	8.0	12.6	10.6	16.2	15.5	19.8	16.4	18.4	16.3	15.4	
	T500N1	8.7	7.6	7.5	7.6	7.1	7.5	8.3	7.7	9.9	7.5	9.9	10.3	11.2	12.3	11.1	10.7	11.8	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.70

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M12

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T10N50	99.2	94.3	92.6	98.9	10.3	7.4	7.5	7.2	10.9	7.5	5.7	6.9	6.0	5.7	10.1	5.8	4.9	
	T20N25	93.6	80.8	85.4	92.3	5.0	6.3	6.3	6.0	6.5	4.9	3.7	5.9	6.4	4.4	4.6	5.5	5.5	
	T25N20	78.8	64.0	68.4	75.4	6.4	6.2	4.3	5.3	5.4	5.1	3.1	7.7	3.2	4.1	6.1	5.7	4.5	
	T50N10	27.7	24.1	18.6	27.6	6.4	4.8	5.4	4.8	5.1	4.2	5.1	6.3	5.4	5.1	5.1	4.4	6.3	
LN	T10N50	98.5	94.2	91.8	98.6	9.0	6.6	7.5	8.2	29.1	4.8	19.0	15.2	12.7	21.3	14.5	13.6	13.8	
	T20N25	90.0	77.2	85.4	90.7	6.9	5.3	5.2	6.8	23.4	4.1	20.1	12.3	19.1	14.8	10.3	16.5	16.8	
	T25N20	78.0	67.5	67.5	76.3	5.4	7.3	7.0	4.9	22.5	4.1	21.2	13.1	15.1	12.6	14.0	14.3	15.4	
	T50N10	28.5	23.8	18.1	28.1	7.0	6.2	4.7	4.2	20.3	4.1	21.4	13.6	15.3	13.8	11.0	13.5	16.7	
CN	T10N50	98.3	91.3	89.7	97.3	13.1	11.5	11.6	11.0	27.9	29.2	35.0	37.0	39.2	36.4	32.9	33.9	37.1	
	T20N25	89.4	79.2	82.4	90.8	11.2	10.3	10.2	11.8	27.9	28.3	31.1	36.6	37.8	34.9	33.9	36.8	36.8	
	T25N20	79.3	66.2	67.7	76.3	8.9	9.9	8.6	8.6	26.4	28.2	29.2	34.3	36.7	36.7	31.4	35.4	36.6	
	T50N10	29.7	21.1	19.0	28.1	7.8	7.9	8.8	8.0	30.5	26.2	27.7	32.7	37.3	36.9	32.9	36.2	35.2	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T10N50	99.9	96.8	95.0	99.7	46.1	43.0	42.6	44.1	12.9	7.3	7.7	7.6	6.6	6.3	11.2	6.0	5.9	
	T20N25	96.8	87.9	90.7	96.8	28.3	30.3	31.7	30.2	8.4	5.0	4.2	7.0	6.5	5.0	5.3	6.5	6.1	
	T25N20	88.7	74.7	77.6	87.7	26.6	25.1	22.3	27.8	6.6	5.2	4.8	8.5	3.9	4.5	7.2	6.1	4.8	
	T50N10	41.3	32.5	25.6	40.8	16.8	16.9	17.1	15.8	5.5	4.5	6.0	6.7	5.8	5.3	5.3	4.6	6.8	
LN	T10N50	99.5	96.8	94.6	99.7	42.3	41.8	43.2	43.4	31.9	4.8	21.9	15.9	13.8	22.4	16.3	15.0	15.0	
	T20N25	95.2	84.2	90.3	95.4	33.2	33.7	29.6	28.7	26.0	4.0	22.7	13.2	20.0	15.8	11.2	17.9	17.8	
	T25N20	89.1	77.0	78.6	84.6	25.4	27.3	26.2	23.7	24.1	4.4	23.4	14.2	16.0	13.5	15.3	15.3	16.4	
	T50N10	43.6	34.0	27.4	41.0	19.7	17.2	16.7	16.5	23.0	4.3	22.5	14.8	15.6	14.5	12.1	14.2	17.3	
CN	T10N50	99.5	93.8	91.6	99.0	50.3	45.5	47.6	46.7	30.8	29.0	38.4	38.6	40.6	37.4	34.5	35.3	38.3	
	T20N25	94.1	84.6	86.6	95.7	40.4	35.9	37.0	34.0	30.4	28.5	34.0	37.5	38.8	36.0	36.6	37.7	37.7	
	T25N20	88.2	75.7	77.2	87.5	32.7	32.3	31.0	29.6	30.0	28.9	31.5	35.2	37.7	37.7	33.0	36.8	37.1	
	T50N10	44.5	30.5	29.7	42.9	22.2	22.2	22.6	21.1	33.1	27.1	30.1	34.0	37.9	37.4	34.2	37.1	35.6	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T10N50	99.1	96.6	94.7	98.7	10.7	7.6	7.6	7.8	11.9	7.4	6.2	6.9	6.0	6.9	10.6	6.0	5.4	
	T20N25	91.1	82.9	86.8	90.8	5.5	6.4	6.4	6.1	6.8	4.7	4.0	6.5	6.5	4.9	4.4	5.8	5.9	
	T25N20	71.5	61.7	66.0	67.8	6.9	6.5	4.2	5.2	5.9	5.6	3.9	8.2	3.8	4.2	5.9	6.4	4.8	
	T50N10	19.8	19.0	15.3	19.4	6.6	4.9	5.2	4.9	5.4	4.0	5.2	6.4	5.2	5.4	5.1	4.0	5.6	
LN	T10N50	95.5	94.9	90.9	95.9	8.9	6.9	7.6	8.4	5.3	6.5	5.7	8.2	5.2	14.6	10.3	4.8	6.2	
	T20N25	85.3	76.1	83.2	84.0	7.9	4.8	5.9	7.3	5.8	4.9	7.0	6.4	11.6	5.3	6.8	7.9	9.1	
	T25N20	68.1	62.1	63.4	65.1	6.0	7.6	6.8	5.3	7.0	4.4	7.0	8.1	6.6	5.4	8.5	7.9	7.5	
	T50N10	17.8	17.3	13.0	16.6	7.8	6.3	4.7	5.0	7.7	4.2	8.1	9.2	7.3	6.3	5.6	6.9	8.4	
CN	T10N50	96.1	89.0	87.7	94.8	7.7	7.2	7.1	6.8	5.1	6.2	4.9	12.0	6.8	6.8	9.9	7.1	5.6	
	T20N25	82.6	74.5	78.6	83.2	4.9	4.9	5.8	5.8	5.5	4.3	12.5	6.0	5.9	7.9	7.1	9.7		
	T25N20	67.9	59.6	59.3	66.4	5.2	5.5	4.8	5.2	5.7	6.2	5.4	10.0	7.4	5.8	8.1	8.5	9.3	
	T50N10	14.5	13.7	11.7	14.9	4.5	4.5	5.0	4.1	7.5	5.6	6.1	9.5	7.9	9.4	9.4	9.4	9.5	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T10N50	98.1	95.6	93.6	97.3	11.1	8.2	7.7	8.3	11.7	7.1	6.9	7.1	6.4	6.1	11.2	5.8	6.3	
	T20N25	88.4	80.7	85.4	87.5	5.8	6.4	7.2	5.9	6.9	5.5	4.0	6.1	6.8	4.8	5.1	6.4	6.1	
	T25N20	69.2	58.3	62.8	65.6	6.6	7.3	5.1	5.7	6.4	6.1	4.2	8.5	4.4	5.4	6.4	6.3	5.1	
	T50N10	19.0	17.8	15.5	19.4	7.1	5.6	6.1	6.3	6.2	5.4	5.5	7.2	6.1	5.2	5.5	5.2	6.6	
LN	T10N50	93.4	94.1	89.7	94.2	9.2	7.3	8.4	9.1	5.0	6.9	5.9	8.3	4.9	13.5	9.5	4.5	6.1	
	T20N25	84.2	74.3	81.7	83.1	7.8	6.1	7.1	7.3	5.7	5.3	6.8	5.8	11.7	5.9	6.1	7.5	8.6	
	T25N20	66.9	61.4	61.3	63.3	7.0	7.9	6.9	5.3	6.6	6.2	6.8	7.7	6.4	4.4	7.8	8.1	7.4	
	T50N10	19.8	18.0	13.8	18.1	7.8	6.3	6.2	6.6	8.0	4.9	8.5	8.9	8.2	6.2	5.9	6.6	8.0	
CN	T10N50	94.4	86.2	84.7	93.2	8.9	7.4	8.5	7.1	4.5	5.3	5.3	12.0	7.2	7.2	9.8	7.3	6.3	
	T20N25	80.9	74.4	76.5	82.5	5.8	5.7	5.5	7.5	5.8	5.3	4.8	11.5	6.2	5.7	8.2	7.1	9.8	
	T25N20	67.5	58.9	59.3	66.3	6.1	6.7	4.9	5.6	5.5	6.3	5.6	9.7	8.4	6.6	8.2	8.4	10.0	
	T50N10	16.5	15.2	13.2	16.7	5.4	5.8	5.7	4.9	7.7	5.4	6.3	9.3	8.1	9.6	9.6	9.6	8.9	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.



TABLE 1.71

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	17.4	8.9	7.9	18.3	6.5	7.2	4.1	4.6	8.5	6.5	7.7	9.2	7.6	7.4	8.6	7.1		
	T100N1	10.3	7.1	7.2	6.5	7.1	7.1	5.5	5.2	7.7	4.4	6.9	6.9	7.6	7.5	6.5	7.0	8.1	
	T200N1	6.5	4.8	6.1	6.9	4.9	5.0	4.7	5.0	4.0	5.6	4.8	5.7	4.8	8.4	4.2	5.8	6.8	
	T500N1	4.8	5.9	5.4	5.9	3.3	5.6	5.1	5.0	5.5	5.4	5.4	6.2	5.4	4.0	4.4	7.0	5.8	
LN	T50N1	16.7	9.1	8.2	17.6	5.8	5.5	6.5	5.5	15.9	6.1	13.9	11.2	12.5	14.0	9.6	11.3	11.8	
	T100N1	10.3	7.4	6.8	8.2	5.9	5.1	5.0	6.4	15.5	4.2	14.3	9.5	12.7	11.6	12.2	11.4	13.8	
	T200N1	6.2	5.3	5.4	6.6	5.3	6.0	4.7	4.8	12.5	4.2	13.2	8.8	9.6	12.4	9.5	11.8	9.7	
	T500N1	5.4	5.2	5.6	5.9	4.9	4.7	4.5	5.7	15.2	4.9	13.5	9.7	9.6	9.1	10.5	11.8	9.8	
CN	T50N1	18.6	8.7	9.8	16.9	9.9	8.4	9.7	10.1	24.4	24.4	28.0	30.8	32.2	39.8	34.7	34.9	38.5	
	T100N1	11.6	9.2	11.2	12.1	9.3	9.4	7.9	9.2	30.2	27.0	29.7	36.2	38.3	35.3	34.6	37.9	38.0	
	T200N1	8.6	6.9	7.5	7.3	8.0	8.5	8.2	8.0	29.5	26.7	31.8	31.2	44.4	38.2	34.5	38.8	39.2	
	T500N1	7.1	6.4	6.4	5.0	9.7	9.6	6.0	7.9	29.7	27.7	31.8	32.7	36.0	36.6	32.1	37.7	39.8	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	25.3	12.3	13.9	25.2	27.7	30.1	24.1	27.6	11.1	6.7	9.7	11.2	8.8	8.9	9.9	9.3	8.0	
	T100N1	16.7	11.0	11.1	13.3	18.9	19.0	18.0	16.1	8.9	4.7	8.0	7.9	8.5	8.0	8.3	7.6	8.8	
	T200N1	9.5	7.2	8.7	9.6	10.8	11.5	10.7	11.5	5.0	6.0	6.4	6.0	5.1	8.9	4.7	6.0	7.1	
	T500N1	5.5	6.1	6.0	6.7	5.4	8.0	7.1	7.2	5.9	5.5	5.4	6.5	5.6	4.3	4.7	7.0	6.0	
LN	T50N1	22.9	18.3	14.9	23.8	27.8	28.5	28.5	28.9	19.4	9.1	17.7	12.6	12.6	12.2	12.6	12.6	14.4	
	T100N1	16.8	11.5	10.4	14.3	18.3	18.2	17.4	17.4	17.6	4.2	16.6	10.1	13.4	12.2	13.3	12.5	14.6	
	T200N1	8.7	8.2	7.7	9.5	10.8	12.3	11.2	12.8	14.1	4.6	14.3	9.0	10.3	12.5	10.0	12.3	10.3	
	T500N1	6.1	5.7	5.9	6.8	7.3	8.0	8.1	8.0	16.1	5.0	13.9	10.0	9.7	9.4	10.8	11.9	9.9	
CN	T50N1	27.5	15.8	14.9	25.5	37.0	31.4	32.3	36.9	28.8	26.5	32.3	34.2	34.5	42.0	37.9	37.0	40.2	
	T100N1	18.4	13.1	14.8	19.2	25.0	23.4	25.0	23.6	32.1	27.9	32.1	38.1	39.3	37.1	36.5	39.2	38.9	
	T200N1	11.6	9.9	9.8	9.7	16.7	15.8	16.6	17.4	30.9	27.2	33.6	32.3	45.1	38.8	35.3	39.4	40.2	
	T500N1	8.1	7.1	6.7	6.2	12.5	13.2	9.6	12.0	30.5	28.1	32.5	33.5	36.2	37.0	32.6	37.9	40.0	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																	
N	T50N1	18.5	10.1	9.5	19.4	7.6	7.5	5.4	6.6	9.3	8.4	8.5	9.4	8.8	7.6	8.8	9.2	7.5	
	T100N1	9.4	6.6	6.6	6.4	7.1	7.7	6.0	5.3	8.0	4.8	6.7	7.2	9.0	8.1	7.8	7.0	8.3	
	T200N1	5.3	4.3	6.1	5.5	4.9	5.8	5.7	5.4	5.4	5.6	5.3	5.9	5.6	8.4	4.2	6.0	6.6	
	T500N1	4.4	5.3	5.7	5.4	3.4	5.8	5.3	5.2	6.0	5.2	5.6	6.1	5.3	4.5	4.4	7.0	5.9	
LN	T50N1	18.0	11.2	9.1	16.6	5.7	6.9	7.4	5.7	14.0	8.2	12.5	11.0	11.3	12.2	9.6	11.2	12.0	
	T100N1	9.5	7.0	6.8	6.7	5.9	6.5	5.4	6.9	12.2	5.7	11.0	7.8	10.5	9.0	10.8	10.8	11.0	
	T200N1	4.5	4.8	4.7	4.8	5.4	6.1	4.8	5.4	7.8	5.4	8.5	7.4	6.5	8.2	7.6	8.6	6.8	
	T500N1	5.1	5.3	5.4	5.6	5.0	5.5	4.5	5.7	7.2	5.3	7.8	7.3	5.8	5.0	7.3	7.4	6.8	
CN	T50N1	18.8	11.1	9.4	16.9	5.5	5.0	6.6	6.4	15.8	11.4	18.6	22.4	24.4	29.4	25.6	26.4	28.3	
	T100N1	10.9	8.7	9.1	10.3	5.5	5.1	5.4	5.4	14.5	11.0	16.3	20.7	22.7	21.2	21.6	25.0	23.9	
	T200N1	5.2	5.8	5.0	5.3	3.9	4.1	4.7	4.6	10.9	9.2	13.9	13.7	20.1	17.6	16.9	17.0	16.6	
	T500N1	5.2	5.7	5.1	3.7	5.3	5.6	3.3	4.4	9.6	7.5	9.1	10.4	11.1	10.5	9.2	9.8	11.1	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	22.6	15.4	13.7	25.8	13.7	15.6	10.1	13.2	13.9	13.2	14.8	15.4	13.3	12.6	14.6	13.7	11.2	
	T100N1	13.8	11.6	9.9	10.3	11.6	13.1	11.4	11.2	11.5	7.2	9.7	10.5	11.0	11.2	10.4	10.6	12.5	
	T200N1	8.5	7.4	7.9	7.7	8.6	7.7	8.7	9.1	6.0	7.2	8.1	7.8	6.5	9.9	7.2	8.8	9.6	
	T500N1	6.2	5.5	7.1	6.5	4.5	7.9	6.4	6.9	7.4	7.3	7.0	6.9	7.0	5.0	5.8	7.9	7.6	
LN	T50N1	22.4	16.4	12.5	23.7	12.5	12.3	13.7	13.6	17.1	13.7	17.0	15.2	15.6	14.4	13.7	15.3	17.1	
	T100N1	13.0	9.7	10.1	11.1	10.3	12.0	10.6	12.2	13.8	9.3	13.9	9.3	12.5	11.5	14.4	14.8	15.3	
	T200N1	7.7	6.7	6.6	8.2	9.3	9.5	8.4	11.8	8.9	7.0	9.7	9.6	7.7	10.0	10.0	10.4	9.1	
	T500N1	7.1	6.5	6.8	7.4	5.9	7.4	6.4	8.1	8.5	7.1	8.4	9.1	6.4	6.4	7.8	7.2	7.7	
CN	T50N1	25.2	16.8	14.6	24.1	12.5	9.9	14.5	14.7	19.2	14.5	21.7	26.1	28.4	32.4	27.9	27.9	31.1	
	T100N1	15.3	12.3	13.8	16.4	11.1	10.3	10.5	9.3	15.9	14.1	19.3	23.8	24.7	23.7	24.9	25.8	24.9	
	T200N1	10.3	9.6	9.5	9.0	7.0	6.5	8.3	7.7	13.2	10.2	15.2	15.5	20.8	18.4	18.3	17.5	18.7	
	T500N1	7.9	7.3	7.3	6.2	6.8	8.0	5.3	6.1	9.2	7.8	9.6	10.3	11.8	11.8	9.9	10.4	11.6	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.72

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M13

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	99.9	97.8	96.9	98.8	7.5	6.3	8.8	6.3	9.3	7.3	7.9	4.8	4.9	6.9	8.1	5.6	4.8
	T20N25	98.2	95.5	97.2	98.2	7.1	5.1	5.9	4.6	6.4	6.8	4.9	5.1	6.9	5.5	5.3	5.4	4.8
	T25N20	93.3	89.1	88.6	92.0	4.1	6.5	6.8	4.8	5.7	8.1	5.0	5.4	3.3	5.1	6.2	6.0	5.2
	T50N10	37.5	30.1	25.8	34.7	5.8	5.9	6.0	5.4	4.4	4.5	4.8	5.0	5.5	4.7	5.6	4.4	5.3
LN	T10N50	99.5	98.2	96.2	98.9	7.5	8.0	8.1	7.1	22.5	6.8	15.5	9.5	9.4	13.7	12.1	10.0	10.5
	T20N25	98.4	95.0	96.9	97.1	4.6	5.1	6.2	7.1	17.7	4.7	14.2	9.3	11.5	10.6	7.7	12.2	12.3
	T25N20	93.9	90.3	90.0	91.3	6.7	7.7	6.3	5.6	15.2	6.0	14.8	12.2	10.2	8.5	9.7	11.7	9.6
	T50N10	34.6	30.5	25.5	33.6	5.3	6.3	6.7	6.5	13.3	3.6	14.9	10.4	9.7	10.3	8.2	9.6	11.2
CN	T10N50	99.0	96.3	94.6	99.2	13.1	10.4	10.8	11.2	28.7	26.6	35.3	37.0	39.0	36.5	33.4	33.1	37.5
	T20N25	96.4	92.4	94.0	97.2	10.2	10.3	10.5	11.2	30.3	31.7	33.3	36.8	39.8	37.0	33.7	36.3	36.5
	T25N20	92.8	88.6	86.8	90.1	9.5	10.9	10.4	9.7	27.0	29.4	30.6	34.2	35.1	35.0	31.1	37.5	39.2
	T50N10	34.9	31.4	27.8	35.2	8.7	7.5	8.8	8.5	28.1	25.4	26.9	32.8	35.6	33.3	34.7	36.9	34.5
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	100.0	98.7	98.7	99.8	57.5	55.9	56.7	54.5	11.8	7.3	10.1	5.7	5.2	7.2	8.9	6.0	5.3
	T20N25	99.5	97.7	98.4	99.4	43.4	37.7	41.4	42.7	8.1	6.8	6.8	6.2	7.7	6.1	6.1	6.1	5.3
	T25N20	97.5	95.2	92.8	97.3	37.1	37.2	35.8	38.7	7.2	8.5	7.5	6.0	3.7	5.4	7.1	6.5	6.0
	T50N10	55.1	46.6	39.4	52.1	25.4	25.3	26.2	27.0	5.5	5.0	6.5	5.9	5.8	4.7	6.2	4.7	5.5
LN	T10N50	100.0	99.5	97.1	99.4	58.9	54.2	56.4	54.1	27.1	6.7	17.4	10.5	10.4	15.0	13.1	10.4	12.0
	T20N25	99.4	97.0	98.3	98.7	42.6	40.4	42.1	42.9	20.0	4.7	17.7	10.7	12.8	11.4	8.9	12.9	13.4
	T25N20	97.2	94.0	93.9	96.3	41.0	39.8	39.3	35.6	17.4	6.4	17.4	13.1	10.9	9.3	10.4	13.0	10.2
	T50N10	52.9	45.9	39.7	53.0	26.3	27.8	27.5	24.4	15.4	4.3	18.2	10.8	10.2	10.9	9.1	10.2	11.8
CN	T10N50	99.7	98.2	97.2	99.8	62.4	60.9	58.8	60.5	31.3	26.6	39.6	38.8	39.9	37.8	35.4	34.4	38.6
	T20N25	98.6	95.8	96.6	98.8	50.2	45.1	48.8	45.1	35.3	31.9	37.2	39.0	40.6	38.7	36.7	37.3	38.3
	T25N20	95.6	92.9	90.9	95.8	43.5	45.3	43.7	41.7	31.1	30.0	33.7	36.1	36.6	36.2	33.0	38.2	40.3
	T50N10	53.2	45.4	41.6	50.5	32.7	32.0	30.4	31.9	30.7	26.5	30.0	34.6	36.6	34.9	36.1	37.8	35.7
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	99.7	98.4	98.0	98.6	8.0	6.5	9.2	6.5	9.5	7.7	8.5	4.5	5.3	6.9	8.2	5.8	4.8
	T20N25	97.7	96.5	97.8	97.8	7.4	5.3	6.0	5.1	6.4	6.4	5.3	5.2	7.0	5.2	5.5	5.2	4.9
	T25N20	91.0	88.6	88.2	88.9	4.7	6.1	6.9	5.0	5.8	8.5	5.6	5.2	3.3	4.9	6.0	6.4	5.8
	T50N10	20.4	19.1	18.1	21.4	5.8	5.9	6.5	6.0	4.5	4.0	4.9	5.7	5.9	4.8	5.6	4.5	5.4
LN	T10N50	98.4	99.1	96.2	98.8	7.8	8.2	8.4	7.1	8.5	7.3	5.3	6.9	5.2	9.9	9.4	6.0	5.9
	T20N25	96.9	94.8	97.1	95.5	5.5	5.4	5.8	7.4	6.5	5.4	6.1	6.0	8.4	6.3	5.5	7.1	6.9
	T25N20	90.4	87.6	88.3	87.7	7.3	8.3	6.9	6.2	5.7	7.3	5.2	9.6	5.5	4.1	7.4	6.8	5.3
	T50N10	19.1	19.0	16.8	18.8	5.4	6.9	6.9	6.6	5.2	4.1	6.2	7.5	6.6	6.6	6.6	6.3	6.6
CN	T10N50	98.1	95.8	93.4	97.8	7.6	6.7	5.3	7.1	6.1	6.0	6.6	12.3	7.1	6.5	8.9	6.2	6.1
	T20N25	92.2	89.6	91.6	93.3	6.3	5.4	5.8	6.2	6.4	5.9	6.0	11.7	5.0	5.3	8.7	6.7	9.2
	T25N20	86.8	85.2	83.4	84.6	5.2	5.0	5.9	4.9	5.2	6.8	5.0	10.3	6.3	5.9	9.0	8.8	9.2
	T50N10	17.9	20.4	16.6	20.7	4.2	4.1	5.6	4.0	7.6	4.0	6.8	9.7	8.0	9.2	8.5	10.3	9.5
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	99.4	98.1	97.4	98.1	8.6	6.9	8.8	6.7	10.2	7.3	8.2	5.3	5.3	6.4	9.1	6.3	5.7
	T20N25	97.1	95.9	97.5	96.1	8.2	5.6	6.1	4.8	7.1	6.4	6.3	5.1	7.5	5.3	5.5	6.3	5.1
	T25N20	89.4	87.2	87.6	86.4	5.8	5.9	7.0	5.8	6.4	8.0	6.0	6.1	3.7	5.0	6.2	6.2	5.9
	T50N10	19.0	19.5	17.7	21.1	7.4	6.5	6.8	6.6	4.6	4.5	5.7	6.2	6.4	5.2	6.2	5.2	5.8
LN	T10N50	97.2	98.2	95.4	97.6	8.4	8.2	9.2	7.2	7.8	6.8	5.5	6.7	4.4	9.0	9.3	5.9	5.9
	T20N25	95.3	95.0	96.2	94.1	6.7	5.5	6.3	8.3	6.3	5.2	5.8	5.4	8.8	5.9	5.2	7.3	6.8
	T25N20	88.5	86.4	87.0	85.6	7.4	7.8	7.4	6.4	5.3	8.1	5.0	8.5	5.9	3.5	6.9	6.6	5.0
	T50N10	19.2	18.7	17.0	18.0	5.5	8.2	7.5	8.0	5.2	5.0	6.6	8.1	6.9	6.5	6.9	6.3	6.9
CN	T10N50	97.6	93.8	92.2	96.5	7.7	7.2	6.2	8.0	6.1	4.3	7.5	12.3	7.6	6.6	8.9	6.3	6.5
	T20N25	90.8	87.4	90.6	92.2	6.4	5.3	6.7	6.4	5.1	5.8	5.3	10.7	4.6	5.5	9.0	6.9	9.3
	T25N20	87.2	84.1	82.5	83.8	5.6	6.8	6.3	6.3	5.5	5.6	4.8	9.8	6.8	6.4	8.5	9.5	10.1
	T50N10	19.9	22.4	17.8	21.9	6.2	5.0	7.0	5.0	7.5	4.7	7.2	9.8	8.4	9.0	9.2	10.3	9.6

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.73

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	9.0	4.7	4.0	10.6	6.6	5.6	7.4	6.6	8.4	5.6	9.0	7.7	7.4	7.4	7.9	10.0	7.3
	T100N1	9.4	4.5	4.7	7.4	6.6	5.3	6.3	4.8	7.7	4.5	8.0	6.5	7.7	7.0	7.0	8.1	7.3
	T200N1	5.5	3.8	5.8	6.4	5.1	5.2	5.6	5.3	6.2	5.5	5.8	5.6	5.6	7.3	4.6	4.3	6.9
	T500N1	5.2	3.7	4.6	5.5	5.5	4.8	5.4	4.7	6.2	6.6	5.4	5.5	4.7	3.5	4.7	6.3	4.8
LN	T50N1	10.4	7.0	4.7	9.5	7.5	6.7	5.5	5.8	21.8	9.0	22.0	47.8	52.2	52.1	43.7	52.2	55.4
	T100N1	8.3	5.7	6.1	9.2	5.5	5.3	6.8	6.3	19.2	6.6	21.2	50.1	57.1	54.7	53.0	58.0	56.1
	T200N1	7.1	5.9	5.6	7.1	5.8	6.1	6.7	7.0	17.3	4.7	18.4	48.6	55.0	58.5	53.6	53.9	53.6
	T500N1	5.9	5.0	5.4	5.5	3.2	5.1	5.4	4.8	17.1	4.2	16.4	55.6	57.1	56.0	51.7	57.7	56.5
CN	T50N1	16.2	8.1	8.6	16.0	13.2	13.4	11.6	12.2	18.5	18.6	17.0	37.0	35.8	39.1	37.8	37.0	38.3
	T100N1	12.2	7.6	7.2	15.0	11.2	11.5	10.7	11.8	20.6	20.0	22.0	34.0	39.7	37.7	39.0	37.9	40.2
	T200N1	12.0	8.3	7.8	12.8	11.1	10.1	11.1	11.0	20.7	20.0	21.5	32.9	44.9	39.6	36.6	39.3	38.6
	T500N1	8.4	8.7	6.4	9.3	10.5	8.9	7.9	9.4	18.3	18.1	20.6	33.9	38.7	37.9	34.2	39.4	38.1
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	12.2	8.0	8.0	13.3	13.2	11.2	13.0	11.9	12.0	8.3	12.2	10.2	9.9	8.3	9.9	11.4	9.3
	T100N1	10.5	5.5	6.7	8.4	9.0	9.0	9.6	8.6	9.7	5.2	9.0	7.8	8.9	7.4	8.0	8.4	8.6
	T200N1	6.9	5.1	6.9	8.5	6.5	7.4	8.1	7.9	6.9	5.7	6.4	6.1	6.0	7.5	4.9	4.6	7.1
	T500N1	6.4	4.4	5.3	6.1	6.2	5.9	5.9	5.0	6.4	6.7	5.4	5.9	4.7	3.6	4.9	6.4	4.6
LN	T50N1	13.0	9.9	8.4	13.4	14.2	14.2	13.6	12.5	26.3	11.3	25.6	51.1	53.9	53.3	46.3	54.4	56.9
	T100N1	9.9	7.2	7.6	11.5	9.4	9.3	10.4	9.9	21.4	7.2	23.1	51.3	58.0	55.8	55.4	59.2	57.4
	T200N1	8.7	7.1	6.4	8.2	7.8	8.4	8.1	8.3	18.2	5.2	19.7	49.3	55.5	58.9	54.4	54.0	53.8
	T500N1	6.0	5.3	6.0	5.9	3.9	6.1	5.5	5.6	17.9	4.3	16.5	55.9	57.2	56.4	51.9	58.0	56.3
CN	T50N1	20.0	12.9	14.0	23.1	21.5	22.8	20.8	21.0	23.9	23.3	21.8	39.6	39.4	42.4	42.4	39.8	41.7
	T100N1	15.6	11.1	11.1	19.6	16.0	17.3	16.4	18.3	23.6	22.6	25.6	37.6	42.0	38.8	41.5	38.9	42.0
	T200N1	14.2	9.8	9.5	15.3	14.1	12.6	14.2	13.2	21.7	22.0	23.1	34.3	45.8	40.4	37.7	39.7	39.4
	T500N1	9.2	9.3	7.1	10.8	11.3	9.7	8.7	11.0	19.1	18.6	20.9	34.4	39.3	38.3	34.9	39.8	38.7
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	10.7	4.7	5.4	12.3	6.7	5.4	6.6	7.0	7.7	5.3	9.6	7.3	7.6	8.4	7.6	9.9	7.9
	T100N1	8.9	5.1	5.2	8.1	6.4	5.4	6.8	5.4	7.4	4.2	7.0	7.0	7.6	7.6	7.8	7.7	7.7
	T200N1	5.9	4.4	5.4	6.5	5.0	4.9	5.8	5.6	6.3	4.9	6.1	5.9	5.3	8.3	4.8	4.4	7.8
	T500N1	5.2	3.9	4.6	5.4	5.3	4.9	5.2	5.5	6.2	6.3	5.2	5.3	4.5	3.3	4.5	6.6	5.1
LN	T50N1	11.9	6.6	5.0	9.8	7.5	6.1	5.8	4.6	17.6	8.9	18.0	30.7	35.0	34.5	29.2	35.9	38.0
	T100N1	7.1	5.0	5.4	7.4	3.7	5.2	5.2	6.0	14.9	6.1	15.9	26.9	30.7	29.0	27.3	31.2	31.2
	T200N1	5.4	5.4	5.1	5.4	4.8	5.1	5.9	5.9	10.2	3.9	11.2	23.1	22.3	24.4	25.8	23.6	22.0
	T500N1	3.2	2.9	4.1	3.3	2.8	4.4	3.9	4.1	8.3	3.8	9.3	19.3	18.2	17.5	18.4	19.5	19.0
CN	T50N1	13.2	6.3	7.4	14.4	7.1	6.3	6.6	7.1	10.4	5.4	11.4	24.4	23.4	28.5	25.9	26.4	27.6
	T100N1	10.0	4.4	5.2	11.3	4.6	4.5	4.8	5.2	10.2	6.0	11.2	19.5	23.7	22.7	24.8	24.1	24.2
	T200N1	8.0	6.3	4.9	9.5	4.7	4.3	3.4	4.0	8.3	5.1	9.7	14.0	19.8	18.1	18.5	17.4	15.2
	T500N1	5.3	5.8	3.7	5.6	3.7	3.0	3.4	3.3	7.6	5.4	6.6	10.5	11.1	11.4	9.2	11.2	10.6
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	16.3	9.4	9.7	16.9	12.3	13.7	11.4	12.9	11.6	9.6	13.7	12.2	12.4	11.7	12.6	13.2	13.6
	T100N1	12.6	8.1	8.5	12.7	10.7	10.9	9.7	10.7	10.6	6.3	9.7	11.2	10.2	11.4	11.7	10.7	10.8
	T200N1	8.7	7.3	8.2	8.6	8.3	9.8	10.1	8.8	7.7	7.1	8.5	7.1	7.6	8.6	7.2	6.8	11.0
	T500N1	6.7	4.9	6.8	5.3	7.4	7.7	7.9	7.1	7.6	7.6	7.6	7.0	5.7	4.5	6.1	7.8	6.7
LN	T50N1	18.3	9.9	10.1	16.3	12.1	11.8	11.6	8.4	20.3	12.7	21.8	31.3	36.0	37.3	31.3	36.5	38.6
	T100N1	13.5	9.2	10.6	14.6	7.8	10.0	9.3	10.5	16.7	12.3	18.2	27.0	31.6	28.9	27.6	31.2	31.2
	T200N1	9.6	8.1	8.5	10.4	8.2	9.4	9.3	10.5	12.0	7.8	13.3	21.5	21.1	24.5	25.2	24.2	22.0
	T500N1	6.9	6.0	7.0	8.0	6.2	6.8	6.4	8.7	8.9	6.2	9.7	16.6	17.6	16.8	16.2	18.4	17.8
CN	T50N1	20.5	10.9	12.7	21.3	11.9	10.9	11.2	13.4	14.7	11.1	13.4	28.2	28.5	30.2	30.4	31.2	31.0
	T100N1	12.3	8.1	9.0	14.8	8.2	7.6	8.3	9.4	12.7	8.2	13.7	21.8	26.0	24.8	27.3	26.3	26.8
	T200N1	10.6	7.6	6.8	11.7	7.9	7.9	7.6	6.4	9.3	6.2	10.4	14.6	21.4	18.5	19.4	18.6	16.6
	T500N1	6.1	7.6	5.0	7.3	5.6	5.0	5.9	6.4	8.0	6.3	7.6	10.2	11.7	12.1	9.2	11.2	11.0

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.74

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M21

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	86.5	22.5	18.0	86.1	17.9	17.0	18.1	16.3	17.1	4.5	14.2	9.1	5.3	6.4	14.0	4.6	4.5
	T20N25	61.4	16.6	25.9	52.1	8.8	8.7	8.4	9.5	6.4	4.0	5.6	7.5	7.1	4.6	6.2	5.5	4.6
	T25N20	51.3	16.7	19.1	43.3	8.3	7.6	7.7	8.3	6.1	5.7	4.5	7.9	6.4	3.9	6.6	4.8	5.2
	T50N10	22.2	9.6	9.4	21.0	6.4	5.9	5.4	5.1	3.9	4.6	3.9	5.2	5.2	5.0	4.7	5.7	5.5
LN	T10N50	81.7	27.3	16.1	84.6	18.8	17.2	16.3	15.8	34.0	7.0	24.3	54.5	54.1	62.4	55.2	51.9	52.6
	T20N25	61.4	18.0	29.6	55.4	9.2	8.6	9.4	11.1	22.0	3.1	17.4	52.8	60.5	53.8	48.3	59.3	58.6
	T25N20	49.2	20.0	21.5	44.0	9.2	8.6	7.9	7.6	17.5	3.9	17.3	53.5	58.7	52.1	53.3	59.3	56.2
	T50N10	22.7	12.1	10.9	21.8	8.8	5.5	6.7	6.1	15.7	4.8	16.1	55.3	56.6	58.2	51.3	57.8	58.8
CN	T10N50	81.8	22.9	18.8	83.6	21.3	20.6	23.8	18.3	32.0	23.0	35.6	38.6	36.2	35.5	34.8	32.7	34.2
	T20N25	59.4	22.9	28.4	56.1	14.3	14.7	15.8	13.7	21.7	20.9	22.0	34.7	39.8	35.5	34.1	35.8	37.0
	T25N20	49.1	22.6	23.6	43.5	12.2	13.9	13.7	12.2	20.9	18.5	19.9	36.2	37.5	35.8	32.9	38.1	37.1
	T50N10	22.0	16.5	12.5	27.7	9.7	10.1	9.5	10.5	21.0	20.2	19.6	33.2	35.8	34.8	33.5	36.8	36.5
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	90.5	19.1	14.8	90.5	43.5	38.3	41.4	38.0	21.5	5.2	18.0	9.8	5.4	7.0	15.0	5.6	5.0
	T20N25	71.5	16.6	26.2	62.1	22.3	21.5	21.2	23.1	8.0	4.1	6.6	8.5	8.1	5.1	6.5	6.2	5.8
	T25N20	59.5	18.9	20.3	52.5	18.7	18.7	17.6	18.7	7.9	5.8	5.8	8.4	6.6	4.4	6.9	5.6	6.2
	T50N10	29.5	11.6	11.7	28.0	11.7	11.3	10.7	10.9	5.3	4.4	5.1	5.6	5.8	5.4	5.1	5.9	5.9
LN	T10N50	84.1	23.1	12.5	88.6	40.6	38.5	39.0	38.0	36.7	7.9	28.1	54.9	55.0	63.7	56.2	53.2	53.5
	T20N25	70.0	18.3	30.2	63.4	20.7	21.4	23.1	25.2	24.5	3.2	20.0	53.2	61.3	54.4	48.5	60.1	59.3
	T25N20	58.6	21.9	22.9	54.9	17.7	18.2	18.6	19.2	18.7	3.9	18.9	54.5	59.1	53.2	54.3	59.9	57.3
	T50N10	30.1	15.3	11.8	29.9	13.2	11.7	11.6	11.3	17.4	4.9	18.4	55.4	57.0	58.8	52.1	58.4	59.2
CN	T10N50	86.3	19.8	15.6	86.8	42.8	40.4	45.5	40.7	35.6	24.4	39.7	39.4	37.7	37.5	36.2	33.8	36.4
	T20N25	67.1	23.5	29.4	64.0	30.1	29.3	30.4	26.7	26.4	21.8	25.8	36.8	41.5	36.9	35.6	36.7	38.8
	T25N20	58.3	24.5	24.9	53.7	23.8	27.1	25.6	23.2	23.4	18.9	23.6	37.1	38.1	37.2	33.8	38.9	38.5
	T50N10	30.4	19.9	15.7	34.3	17.1	16.4	15.9	17.5	22.6	20.7	21.2	34.2	36.7	35.8	34.9	38.1	37.0
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	86.3	35.1	30.6	86.5	18.5	17.7	18.6	17.6	19.3	4.5	16.6	8.8	4.7	6.1	14.2	4.5	4.3
	T20N25	62.3	23.3	35.0	53.6	9.0	8.7	9.0	9.6	7.3	4.3	5.9	8.1	7.4	4.9	6.4	5.3	4.7
	T25N20	51.2	23.2	25.4	44.5	8.0	8.3	7.8	8.5	6.4	6.2	5.7	8.0	6.7	4.5	6.7	5.0	5.6
	T50N10	22.9	11.9	11.6	21.2	6.5	6.1	5.7	4.9	4.1	4.8	4.7	5.4	5.2	5.4	5.0	5.9	5.2
LN	T10N50	67.8	28.8	18.9	74.7	14.7	14.4	13.8	14.8	10.8	5.3	8.4	18.3	13.7	27.4	22.9	11.0	14.8
	T20N25	49.6	20.6	30.9	45.0	7.6	7.1	7.7	8.6	6.1	3.6	6.3	17.7	23.0	14.3	16.1	20.7	21.5
	T25N20	39.0	21.8	21.5	33.8	8.3	7.1	7.7	7.3	6.3	3.3	5.7	20.0	17.5	16.1	23.5	20.2	16.2
	T50N10	16.0	11.0	9.8	15.3	7.5	5.2	5.4	5.2	6.7	4.4	6.8	19.4	18.2	16.8	20.5	18.6	17.3
CN	T10N50	71.4	23.7	18.2	73.3	9.5	10.6	11.3	10.4	9.6	6.2	7.9	16.2	4.7	6.5	11.1	6.2	6.7
	T20N25	50.1	21.6	26.1	44.1	5.4	6.7	7.9	5.4	6.1	4.5	4.9	12.2	6.0	5.5	9.1	6.5	8.3
	T25N20	38.3	20.5	21.2	35.4	6.3	6.1	5.5	5.0	4.8	3.7	5.3	11.9	6.7	5.9	11.5	8.1	9.6
	T50N10	15.8	12.2	8.7	20.6	3.1	4.5	5.0	4.3	6.9	5.3	6.1	10.5	8.4	9.0	10.3	10.1	8.9
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	82.4	34.2	29.4	82.2	18.4	17.0	18.5	16.4	18.7	5.1	15.3	9.3	5.1	6.3	14.9	4.8	4.8
	T20N25	59.1	23.1	35.9	50.3	9.4	8.8	7.9	9.2	8.2	4.9	6.2	8.3	7.1	4.8	6.4	6.2	5.0
	T25N20	47.7	23.6	25.0	42.2	8.5	8.4	7.9	8.6	6.8	6.6	5.4	8.1	6.8	5.0	6.8	5.1	5.8
	T50N10	21.7	12.0	11.6	21.2	7.8	7.2	6.2	6.2	4.5	5.0	6.0	5.9	6.3	5.6	5.8	6.2	5.0
LN	T10N50	68.3	30.9	22.9	75.3	16.0	16.7	14.6	17.4	9.4	5.1	7.6	16.7	12.5	26.0	20.4	11.0	14.7
	T20N25	54.7	24.9	35.1	52.2	9.3	9.0	9.7	9.9	6.0	5.0	6.1	15.8	21.9	13.7	14.6	19.7	20.1
	T25N20	44.7	24.8	25.3	39.6	9.6	9.2	8.1	9.5	5.9	4.4	4.9	17.7	16.7	14.8	20.9	19.2	14.8
	T50N10	22.4	14.1	12.1	21.4	9.3	6.0	6.7	6.8	6.4	5.6	6.6	17.3	16.6	16.1	18.5	17.7	16.5
CN	T10N50	64.7	22.4	17.3	69.6	10.2	12.5	12.8	10.8	7.6	5.1	8.6	15.3	5.6	6.6	11.0	5.9	6.7
	T20N25	45.5	21.0	25.3	42.2	7.0	7.0	8.9	6.9	5.5	4.7	5.3	11.6	6.2	6.3	8.8	6.5	8.7
	T25N20	35.6	19.1	22.3	33.3	7.3	7.6	7.2	6.4	3.9	3.3	5.0	11.8	7.7	6.6	10.9	8.4	9.7
	T50N10	16.1	12.3	9.4	18.9	5.2	5.5	5.4	5.7	7.0	5.1	5.3	10.1	8.2	9.1	10.6	9.5	9.0

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.75

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	12.5	3.7	6.6	12.4	7.5	7.9	7.3	6.2	8.0	7.5	11.3	7.3	6.6	8.7	8.3	9.2	8.7
	T100N1	9.6	6.8	6.1	11.3	7.3	7.2	6.6	6.9	8.4	4.7	7.7	8.5	7.4	7.1	7.4	8.6	6.6
	T200N1	6.5	6.3	6.1	8.2	5.6	5.5	4.7	5.2	6.2	5.1	7.3	6.7	5.3	7.8	4.4	5.5	5.0
	T500N1	4.8	4.7	5.3	4.6	5.7	5.2	5.8	4.4	5.7	4.8	5.0	5.9	5.4	3.6	5.2	6.7	5.0
LN	T50N1	14.8	6.1	4.9	14.1	7.2	5.3	5.9	6.5	16.1	8.9	15.5	35.8	40.2	38.8	34.0	39.5	42.2
	T100N1	11.1	5.4	6.6	11.1	7.8	5.8	6.3	7.1	13.5	6.2	12.6	35.0	43.0	39.0	38.3	41.1	41.8
	T200N1	8.6	5.4	6.6	8.0	6.0	6.0	5.0	5.2	11.5	4.9	10.4	33.5	39.8	43.4	38.3	38.5	39.8
	T500N1	5.7	5.2	4.8	6.0	5.1	4.9	4.2	5.1	10.2	3.8	9.9	41.0	41.7	41.5	36.8	42.3	41.9
CN	T50N1	17.2	7.4	9.4	17.2	13.6	11.0	11.0	11.2	22.3	19.4	19.5	33.0	35.0	36.8	37.3	36.5	35.8
	T100N1	15.3	8.4	8.0	17.8	12.9	12.6	10.3	10.3	19.5	19.3	18.9	34.5	38.9	35.6	39.6	38.5	41.3
	T200N1	13.3	9.9	10.3	13.5	10.1	9.2	11.1	9.9	21.8	20.6	20.8	34.1	43.8	38.7	35.9	39.2	38.2
	T500N1	9.0	8.5	7.4	11.5	7.2	10.4	8.8	9.0	19.9	20.1	22.0	34.5	40.9	37.0	33.5	37.9	40.0
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	17.3	8.5	10.1	15.5	23.5	23.1	23.7	21.8	10.6	10.3	14.1	10.8	9.6	10.8	10.4	11.1	10.7
	T100N1	13.3	10.6	8.3	14.3	16.2	14.7	14.9	15.8	10.8	6.2	9.7	9.7	7.9	7.6	9.0	9.6	7.7
	T200N1	8.9	7.8	7.9	11.1	9.3	8.9	8.5	9.5	6.8	5.4	8.8	7.9	5.7	8.5	5.0	5.9	5.8
	T500N1	6.0	5.5	6.1	5.8	7.4	7.2	7.6	5.6	6.3	5.1	5.6	6.0	5.5	3.6	5.6	7.0	4.9
LN	T50N1	19.1	10.8	10.8	17.9	22.3	21.6	22.6	22.5	18.0	11.2	20.4	39.5	42.6	41.9	38.0	42.9	44.1
	T100N1	15.3	9.8	9.5	14.0	16.6	14.6	14.5	16.1	15.8	7.5	16.3	37.6	43.5	41.6	40.6	43.2	43.3
	T200N1	10.6	7.5	8.9	10.3	9.4	10.0	8.2	9.2	12.8	5.2	11.5	34.2	40.9	43.8	38.9	39.5	40.3
	T500N1	6.7	5.9	5.8	7.1	6.5	6.4	5.8	6.4	11.4	4.0	10.9	41.5	42.0	41.7	37.0	42.3	42.0
CN	T50N1	25.6	15.4	18.9	25.3	34.6	28.7	29.4	29.4	28.2	26.1	25.6	38.6	39.6	40.2	42.0	39.4	37.8
	T100N1	19.8	13.2	11.8	22.4	24.2	24.9	21.0	21.6	23.8	23.7	23.5	38.1	41.4	37.4	43.2	39.7	43.2
	T200N1	16.4	12.2	12.9	17.2	16.7	14.5	18.2	16.3	24.3	22.6	22.5	35.1	44.8	40.3	37.4	40.9	39.5
	T500N1	10.7	10.4	8.6	12.8	9.3	12.9	10.9	11.5	21.2	20.5	22.9	35.1	41.3	37.5	34.2	38.7	40.9
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	13.8	4.2	6.6	13.4	7.2	7.5	7.6	5.5	7.3	7.0	11.5	7.7	7.3	8.6	8.9	9.2	8.7
	T100N1	11.0	6.9	6.0	11.8	7.3	7.9	6.2	7.0	8.6	4.9	7.8	6.8	7.1	7.7	7.4	8.4	7.1
	T200N1	6.9	6.4	6.5	8.0	5.9	5.3	4.9	5.2	5.8	5.8	7.2	6.6	5.6	7.8	4.9	5.8	5.0
	T500N1	4.9	4.4	5.4	4.4	5.6	5.4	5.7	5.0	5.2	4.8	5.1	5.9	5.5	3.7	5.2	6.6	5.2
LN	T50N1	13.3	6.1	5.2	13.9	6.4	5.3	5.9	5.0	13.3	8.1	13.6	24.7	28.3	28.6	20.9	27.1	27.8
	T100N1	10.3	6.1	6.6	11.3	7.0	5.0	5.4	6.3	11.4	6.0	10.6	18.6	23.4	21.1	20.4	20.9	22.3
	T200N1	7.8	4.8	6.4	6.7	5.2	4.6	5.0	5.2	7.9	3.7	7.8	15.2	16.3	19.0	18.4	17.6	16.8
	T500N1	3.9	4.0	4.0	4.4	4.1	3.6	3.6	4.5	7.0	2.8	6.2	14.3	12.5	12.1	12.8	13.7	12.7
CN	T50N1	15.1	5.9	7.7	13.6	5.7	4.4	5.3	7.1	12.8	7.6	10.8	25.3	26.3	25.8	26.1	26.9	26.6
	T100N1	11.9	6.1	4.6	13.2	4.5	6.3	3.9	3.9	10.6	5.1	9.0	19.9	24.0	21.0	24.8	23.7	26.1
	T200N1	8.6	5.3	6.7	8.9	3.6	3.8	4.0	3.7	9.0	4.9	8.3	15.3	19.0	19.5	18.1	17.1	16.2
	T500N1	5.0	6.1	4.4	7.0	2.9	4.6	3.7	3.7	7.3	4.3	7.2	11.2	11.9	12.2	10.0	11.3	11.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	18.5	8.0	9.9	18.5	13.8	14.4	14.1	12.8	11.5	11.1	15.1	12.4	12.8	13.2	13.8	13.5	13.2
	T100N1	14.0	10.9	9.3	15.5	13.8	12.8	9.6	12.8	10.7	7.7	11.6	9.7	10.6	11.6	11.1	11.1	11.1
	T200N1	9.6	7.3	9.3	9.1	9.7	9.0	7.8	8.1	7.1	7.4	9.6	9.0	8.0	9.9	7.2	8.8	8.6
	T500N1	6.7	5.5	6.7	5.8	8.9	6.9	7.1	6.2	6.1	6.6	6.5	7.3	6.2	4.3	6.9	8.5	5.8
LN	T50N1	20.0	9.2	8.9	19.4	11.2	11.7	11.4	12.1	17.0	12.9	16.9	26.2	31.1	29.0	23.4	28.7	29.7
	T100N1	15.0	9.2	10.3	15.0	12.1	9.5	8.8	10.9	14.4	10.3	12.9	19.7	23.5	21.9	20.3	21.8	22.6
	T200N1	12.4	8.6	9.9	10.6	8.3	8.3	7.5	9.2	9.6	7.1	8.8	15.0	15.3	19.3	18.1	17.0	16.8
	T500N1	7.2	6.6	6.7	6.3	6.2	6.0	5.7	6.6	8.0	5.4	7.4	13.5	12.1	11.4	13.0	12.7	13.1
CN	T50N1	16.6	8.7	11.7	20.7	10.7	8.7	11.5	10.8	15.9	12.6	13.3	27.9	29.7	30.0	29.9	29.9	29.7
	T100N1	15.1	10.8	9.3	17.0	9.3	10.4	8.4	7.4	13.1	7.4	10.9	22.9	26.5	23.5	26.1	25.4	27.1
	T200N1	10.5	7.7	9.2	10.2	7.0	6.4	6.7	6.8	11.5	6.6	9.5	15.9	20.6	20.6	18.5	18.1	17.9
	T500N1	5.7	7.4	5.5	8.1	4.2	6.5	6.4	6.6	7.3	4.7	8.3	10.7	11.9	13.4	9.7	12.0	10.7

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.76

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M22

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	95.9	41.2	32.8	94.5	18.4	16.7	19.1	17.2	22.6	6.9	19.3	8.6	5.2	7.2	13.9	5.2	5.6
	T20N25	82.6	38.1	53.3	74.7	8.3	9.0	8.6	8.5	10.1	4.0	5.4	8.0	6.3	4.2	5.7	5.8	5.6
	T25N20	75.1	45.7	45.7	69.4	6.8	9.1	7.4	6.8	6.1	6.6	4.8	8.2	4.8	2.8	5.6	4.6	5.5
	T50N10	38.3	27.9	21.6	42.0	6.6	6.9	7.0	7.6	5.5	5.4	5.5	5.6	5.5	5.2	6.1	6.0	4.8
LN	T10N50	92.2	44.3	32.9	93.3	17.1	14.5	17.9	16.7	30.0	8.2	22.4	39.4	38.3	47.4	40.6	38.3	36.6
	T20N25	81.9	37.4	53.9	76.7	10.1	7.0	9.4	10.1	15.0	5.0	11.0	37.9	47.8	40.0	30.1	42.2	43.2
	T25N20	74.6	43.7	47.6	67.3	8.8	8.3	10.0	8.0	14.2	5.2	10.9	38.9	42.8	40.7	37.7	42.8	41.3
	T50N10	40.8	27.5	23.3	37.6	6.4	5.8	6.8	6.8	10.8	5.9	9.0	40.3	40.2	41.3	37.5	40.5	46.1
CN	T10N50	91.2	39.1	31.8	90.2	24.7	24.2	22.8	20.4	34.4	25.3	38.4	37.0	35.5	36.8	33.0	32.4	34.4
	T20N25	74.3	45.1	50.6	74.3	15.3	17.9	16.2	13.3	22.0	22.0	24.5	36.4	38.6	34.6	35.0	36.5	38.1
	T25N20	69.6	44.6	44.5	68.1	11.3	13.3	14.2	10.0	19.5	21.4	22.1	34.2	38.2	35.0	31.9	37.8	39.4
	T50N10	41.2	24.2	28.9	42.4	10.5	11.8	10.3	11.2	19.3	21.9	21.8	33.9	34.7	35.7	34.6	37.0	35.3
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	97.6	37.9	31.1	96.4	56.1	58.2	61.6	54.5	29.5	7.4	24.8	10.3	6.1	8.5	15.9	6.1	6.2
	T20N25	89.6	41.3	56.9	83.8	33.6	34.4	35.9	35.6	13.9	4.2	8.5	9.0	7.1	4.5	6.4	6.7	6.2
	T25N20	83.3	51.3	51.8	78.6	31.4	30.6	29.3	27.4	15.0	8.5	11.4	8.2	5.4	4.2	6.7	5.8	6.2
	T50N10	52.5	36.3	28.5	55.0	21.9	21.9	18.9	19.1	7.4	6.0	7.0	6.5	6.3	6.0	6.8	6.8	5.5
LN	T10N50	94.4	42.1	30.0	95.8	55.2	51.6	58.1	53.3	37.2	10.1	29.8	40.6	40.2	48.9	42.5	39.3	38.4
	T20N25	88.4	40.0	57.0	84.5	32.8	31.2	35.9	39.5	19.8	5.3	15.4	39.3	49.0	42.0	31.8	43.5	45.5
	T25N20	81.5	48.0	55.1	76.9	30.6	28.7	30.9	31.9	21.2	7.2	17.4	40.1	43.3	41.8	38.9	45.2	40.6
	T50N10	54.7	34.7	32.1	52.5	20.6	20.1	19.4	19.7	14.3	6.4	12.0	41.7	41.2	42.1	38.6	41.5	47.1
CN	T10N50	93.6	37.6	29.1	93.5	60.3	60.0	56.4	55.0	41.4	27.8	44.3	39.6	38.4	39.4	34.7	35.8	37.2
	T20N25	82.3	46.6	53.1	81.8	43.6	43.1	45.1	41.2	27.3	23.9	29.3	38.5	41.0	37.3	37.2	38.5	40.3
	T25N20	77.3	51.7	49.3	75.3	37.7	39.1	37.5	34.8	25.4	23.9	28.3	35.5	38.0	36.8	32.8	39.3	41.1
	T50N10	53.0	34.0	35.3	54.0	28.5	27.5	27.1	27.7	23.5	22.5	25.4	35.6	36.7	37.1	36.0	38.6	37.2
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{PI}}$ )																		
N	T10N50	95.4	55.3	46.4	93.7	18.9	17.7	19.5	18.3	24.1	5.2	20.5	9.4	5.6	7.3	14.3	5.4	5.2
	T20N25	82.1	49.5	63.5	73.7	9.2	9.5	10.1	9.1	11.2	4.3	6.7	7.5	7.0	4.8	6.1	6.6	5.2
	T25N20	73.7	55.6	54.9	68.5	7.4	9.3	7.8	7.3	6.9	6.4	5.4	8.3	5.4	3.5	5.8	4.6	5.2
	T50N10	35.5	30.3	24.1	39.7	6.1	7.3	7.2	7.9	6.1	5.2	5.9	5.3	5.9	5.0	6.4	6.1	4.7
LN	T10N50	86.5	49.3	40.7	88.2	15.4	13.7	16.4	16.6	16.0	6.2	13.7	14.9	10.5	20.1	18.5	7.4	10.4
	T20N25	76.7	43.3	60.1	68.6	7.8	6.8	8.8	9.2	8.2	5.2	5.5	13.7	18.0	10.2	11.8	13.7	15.0
	T25N20	69.1	47.4	53.7	60.2	7.8	8.2	9.0	7.7	8.0	5.3	5.4	15.0	11.5	10.8	17.1	16.0	12.1
	T50N10	34.2	26.3	23.4	31.1	5.5	4.6	6.1	7.1	5.7	6.1	5.1	14.3	14.0	10.8	14.0	13.2	13.7
CN	T10N50	83.9	38.1	31.9	82.5	13.4	13.5	10.8	10.5	10.2	6.9	8.8	17.7	5.5	8.2	10.6	5.9	6.2
	T20N25	62.9	42.0	45.9	63.8	6.3	9.1	6.7	6.0	6.2	5.4	5.5	15.2	5.1	5.8	9.5	6.1	9.3
	T25N20	57.7	41.7	39.4	56.9	5.6	6.0	5.0	4.1	5.4	4.2	5.8	11.2	6.6	5.6	11.2	8.8	10.4
	T50N10	29.9	19.9	22.9	30.2	4.3	4.3	3.8	5.6	5.0	5.7	5.9	9.9	8.4	9.0	12.1	10.0	9.3
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	93.2	54.1	44.1	90.8	19.2	17.3	20.5	17.4	23.1	5.2	19.5	8.8	5.3	6.8	13.8	5.4	5.6
	T20N25	80.1	49.0	62.6	70.3	9.1	10.1	10.3	9.0	11.0	4.5	6.7	8.1	6.5	4.8	6.3	7.0	5.6
	T25N20	71.4	53.9	53.1	66.0	7.3	9.3	8.3	7.0	7.0	6.1	5.5	8.4	5.6	3.7	5.6	5.2	5.6
	T50N10	34.2	30.3	24.1	38.7	7.8	7.4	8.4	8.5	6.2	5.8	6.8	6.1	6.5	6.1	7.4	6.6	5.7
LN	T10N50	85.6	48.1	39.5	86.7	16.7	14.7	17.9	17.0	14.1	6.3	11.4	14.0	9.8	18.6	16.1	6.2	9.6
	T20N25	76.1	46.0	60.2	70.1	9.4	8.3	10.5	9.1	8.2	6.1	5.2	11.7	17.6	9.6	10.8	13.1	14.1
	T25N20	68.8	48.6	54.9	61.4	8.8	9.2	9.6	8.9	7.2	6.7	5.4	12.7	10.7	9.7	15.4	15.0	11.3
	T50N10	36.5	28.6	26.0	33.4	6.8	5.6	8.2	7.4	6.1	7.6	4.5	12.9	13.2	10.6	12.8	13.2	13.3
CN	T10N50	78.1	35.2	29.5	77.4	12.7	14.0	12.2	11.4	8.8	5.8	9.3	16.5	5.5	8.4	10.6	6.1	6.1
	T20N25	59.0	40.6	43.7	60.1	7.7	9.3	7.5	6.3	5.5	4.6	5.5	13.7	5.4	5.9	9.5	6.4	9.5
	T25N20	54.3	39.4	39.2	53.6	6.6	7.0	6.4	5.7	5.2	3.4	5.9	10.8	6.9	5.7	11.4	8.9	11.0
	T50N10	28.9	19.0	22.2	26.8	6.1	6.1	5.4	6.0	5.4	5.1	5.9	9.3	8.9	9.1	11.4	9.1	9.3

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.77

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	17.0	6.1	5.0	12.9	6.5	8.0	5.9	7.1	10.3	6.6	10.3	8.1	7.8	8.7	7.5	8.1	8.4	
	T100N1	12.0	7.8	5.3	14.3	6.7	5.4	5.6	4.4	8.9	5.1	8.0	7.1	6.7	6.7	7.4	6.9	7.3	
	T200N1	8.8	6.5	7.4	8.1	6.4	6.3	5.8	4.7	5.9	5.4	6.1	6.2	5.3	7.4	5.7	6.1	6.4	
	T500N1	5.3	6.7	4.6	4.9	4.5	5.4	4.2	5.1	7.0	5.7	5.2	5.3	5.2	4.4	5.1	6.2	5.0	
LN	T50N1	18.0	5.9	6.9	17.4	8.1	7.4	6.2	8.0	12.1	7.3	13.3	26.1	31.1	28.9	21.0	30.3	30.0	
	T100N1	12.6	7.1	5.4	15.6	7.7	7.1	7.1	6.5	12.0	6.7	10.0	25.5	31.0	28.5	27.6	30.9	30.0	
	T200N1	10.2	7.0	7.0	9.4	6.6	5.8	5.6	5.2	9.8	2.9	9.9	23.6	28.9	32.6	24.3	27.0	28.2	
	T500N1	6.9	6.0	5.9	6.4	5.0	5.4	4.3	6.2	8.0	5.2	7.7	26.6	29.1	28.9	25.8	29.3	29.8	
CN	T50N1	19.5	8.3	8.5	19.8	11.6	12.0	12.8	14.5	21.3	19.1	18.1	36.3	34.9	38.1	36.4	36.6	39.9	
	T100N1	16.6	9.9	8.0	21.4	10.1	11.5	12.5	11.9	22.5	21.9	22.8	34.1	37.8	35.4	37.1	38.9	39.5	
	T200N1	13.6	10.1	9.1	14.5	11.6	9.6	11.1	11.2	19.0	19.8	21.6	34.9	42.9	39.4	35.8	39.4	37.8	
	T500N1	10.5	9.5	8.6	9.8	9.6	9.1	9.7	10.1	19.6	19.9	21.0	32.8	39.4	36.1	33.0	40.8	38.8	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	20.4	13.0	12.1	20.5	34.7	35.7	32.8	32.5	14.8	9.9	14.5	11.5	10.0	11.2	10.5	10.2	10.8	
	T100N1	17.6	13.1	8.7	18.7	23.4	22.9	21.4	20.8	12.3	6.6	11.3	8.7	7.2	8.1	8.9	8.1	8.4	
	T200N1	12.3	9.2	10.4	13.3	15.4	14.6	14.8	13.6	7.6	6.0	8.2	7.5	5.6	7.9	6.6	6.9	6.7	
	T500N1	7.1	8.1	6.3	6.4	7.9	9.3	7.7	7.5	8.3	6.0	5.8	5.7	5.3	4.4	5.7	6.3	5.3	
LN	T50N1	22.0	12.1	14.3	22.3	34.1	31.3	33.8	30.7	15.7	10.4	16.8	28.3	33.8	32.3	25.5	33.5	33.9	
	T100N1	17.7	11.1	10.0	19.6	25.3	23.8	22.1	22.1	15.3	7.7	13.1	28.0	33.4	31.3	30.0	33.6	31.4	
	T200N1	14.3	9.5	9.3	14.7	14.8	13.6	13.7	13.2	11.2	3.7	12.1	25.3	29.9	33.5	26.1	27.7	28.9	
	T500N1	9.1	7.4	7.6	8.9	8.0	9.1	7.4	9.2	8.8	5.5	8.6	27.2	29.7	29.0	26.7	29.6	30.4	
CN	T50N1	28.5	16.1	17.8	27.5	38.4	40.9	40.4	39.9	27.3	23.8	24.3	43.1	39.1	42.3	42.6	41.4	42.8	
	T100N1	22.3	18.5	15.0	30.0	31.0	32.6	30.3	31.9	28.3	25.5	26.5	36.9	41.4	38.7	41.3	42.2	42.5	
	T200N1	18.4	13.4	13.4	19.1	21.7	22.2	20.6	21.9	24.3	22.6	24.9	36.4	44.4	40.3	37.5	40.8	39.1	
	T500N1	12.7	11.5	10.5	13.2	13.4	14.4	14.6	14.6	21.1	21.0	23.3	33.3	40.2	36.6	34.5	41.3	39.3	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	15.8	5.5	5.9	14.9	7.8	6.5	6.1	5.9	10.2	7.4	9.6	7.5	8.6	8.3	6.6	8.4	9.2	
	T100N1	13.0	8.1	5.1	15.7	6.9	6.0	5.7	5.0	8.1	4.4	6.9	6.7	6.9	7.4	7.3	7.4	7.0	
	T200N1	8.8	6.1	6.7	8.5	6.2	6.4	6.1	4.7	5.8	5.2	6.2	5.7	5.0	7.2	5.4	5.7	6.9	
	T500N1	4.6	6.6	4.6	5.1	4.5	5.3	4.6	5.4	6.9	5.3	4.8	5.3	5.1	4.6	5.0	6.8	5.3	
LN	T50N1	17.0	5.6	5.8	16.0	8.1	6.5	5.8	6.3	10.4	6.6	10.5	17.4	20.8	20.8	14.9	20.1	20.8	
	T100N1	12.0	6.0	5.6	13.8	7.8	7.2	6.2	7.3	10.1	5.3	8.4	14.8	17.7	16.7	16.4	18.2	16.3	
	T200N1	9.2	6.6	6.7	8.9	5.4	6.0	5.6	4.7	7.8	2.9	8.4	10.6	12.9	15.9	13.2	11.5	12.3	
	T500N1	5.7	4.7	4.9	4.6	5.1	5.4	3.8	5.7	6.5	4.5	5.4	10.2	9.6	8.5	9.9	9.6	11.6	
CN	T50N1	16.0	5.5	7.0	17.3	5.8	6.3	7.0	8.3	13.8	5.7	9.3	26.1	26.1	27.6	25.6	28.8	29.6	
	T100N1	11.9	7.1	5.1	16.2	4.6	5.9	4.7	4.2	10.7	6.4	10.3	20.6	21.9	19.8	21.6	24.4	24.6	
	T200N1	8.6	7.2	5.2	9.2	5.1	5.4	4.8	4.8	8.2	4.9	10.1	14.7	19.5	18.3	18.6	16.9	15.9	
	T500N1	6.3	4.8	5.0	5.5	4.1	3.7	3.7	4.1	6.9	4.5	6.8	10.7	11.1	11.9	9.7	11.7	11.5	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	20.2	10.5	10.0	19.6	14.6	13.9	11.7	11.4	13.4	11.8	15.5	11.4	13.6	12.4	12.0	13.6	13.3	
	T100N1	16.0	12.5	8.5	20.1	11.5	11.3	10.6	9.3	11.0	7.8	10.7	10.3	8.8	11.4	10.5	11.1	10.8	
	T200N1	11.2	8.4	8.8	9.7	10.3	8.2	9.7	8.3	7.6	8.2	7.5	8.5	7.3	9.6	8.2	8.4	9.8	
	T500N1	6.5	8.0	6.0	6.3	6.6	7.8	6.9	7.8	8.3	6.6	6.7	6.8	6.4	5.3	7.7	8.1	6.5	
LN	T50N1	22.9	10.4	9.8	20.6	14.2	12.3	11.9	10.9	14.2	10.9	13.2	19.8	23.3	23.6	17.3	22.4	21.9	
	T100N1	16.0	9.5	9.5	16.7	12.8	11.8	9.5	11.5	12.8	8.3	12.0	15.3	19.9	18.2	18.3	19.8	17.4	
	T200N1	12.2	8.5	9.5	11.3	10.2	9.4	9.9	7.4	9.4	5.1	8.9	11.6	13.7	16.1	14.4	13.1	13.4	
	T500N1	7.6	6.0	6.5	7.7	6.4	6.8	6.2	8.0	7.0	6.8	6.8	10.4	10.5	8.5	9.9	10.2	11.0	
CN	T50N1	20.1	11.0	11.8	20.8	12.5	12.8	11.8	12.1	17.5	11.0	14.6	30.1	28.3	31.1	29.3	32.4	32.8	
	T100N1	13.6	10.5	9.3	19.6	9.0	8.6	7.5	8.2	12.9	8.4	11.9	22.3	24.4	21.5	23.0	26.4	25.7	
	T200N1	10.5	8.7	7.6	11.6	8.3	7.2	6.8	6.7	9.2	6.3	11.7	15.5	20.5	18.9	18.9	17.6	17.3	
	T500N1	6.8	6.9	5.5	6.5	6.2	5.8	7.3	6.4	7.0	4.9	7.4	10.5	11.7	12.8	9.8	11.2	11.0	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.78

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M23

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	96.7	55.2	48.2	95.6	19.8	20.1	19.5	14.1	24.3	7.0	18.6	10.8	4.6	7.5	14.0	5.1	5.0
	T20N25	90.0	55.8	68.8	83.6	9.1	7.8	7.7	9.6	8.4	5.6	5.2	6.7	7.6	4.5	6.6	5.1	5.8
	T25N20	84.8	61.2	64.7	81.8	7.7	7.6	6.8	5.9	7.7	6.4	5.3	8.7	5.4	4.2	6.2	5.1	4.5
	T50N10	59.0	47.5	42.1	57.1	6.7	5.8	7.1	6.3	4.8	6.2	5.2	8.6	5.3	5.1	5.8	5.0	4.9
LN	T10N50	95.7	56.2	40.5	97.2	18.4	13.9	17.7	15.8	28.5	8.2	21.5	28.9	27.0	37.1	32.1	26.7	25.3
	T20N25	89.8	52.6	68.5	84.6	7.4	8.4	9.5	9.9	12.7	4.8	8.5	25.5	34.3	28.1	21.4	29.3	30.6
	T25N20	86.0	60.9	65.7	78.7	8.1	9.8	8.5	5.6	10.4	5.8	6.6	27.7	32.2	27.9	25.7	32.3	30.7
	T50N10	62.9	45.8	45.1	56.2	7.2	7.0	6.6	7.7	8.3	6.6	7.3	28.8	29.2	28.1	26.4	27.3	31.5
CN	T10N50	94.3	48.3	41.3	93.5	26.1	23.8	23.4	19.1	33.6	21.6	37.5	38.5	37.1	36.5	33.0	34.0	36.4
	T20N25	81.3	57.8	59.1	83.9	15.9	15.9	18.1	12.5	21.5	22.9	24.3	37.0	40.2	36.1	32.9	37.1	37.8
	T25N20	78.8	58.4	58.2	77.1	13.4	13.5	14.1	9.9	21.2	21.2	20.9	35.6	35.6	36.8	32.5	36.4	37.1
	T50N10	55.6	44.6	42.7	57.2	10.5	12.1	9.4	11.7	18.3	19.6	20.0	34.1	34.6	34.4	34.0	38.1	34.7
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	98.1	54.4	46.9	97.6	67.8	64.3	69.4	66.8	33.6	8.1	28.0	12.2	5.8	8.4	16.3	6.1	5.7
	T20N25	94.0	61.1	73.8	90.3	45.9	44.9	47.1	47.0	13.1	5.9	9.1	8.3	8.6	4.7	7.5	6.8	6.9
	T25N20	91.0	70.3	71.7	88.7	45.5	42.5	42.2	42.3	12.5	7.1	10.0	10.1	6.3	5.1	7.4	6.5	4.8
	T50N10	71.1	58.8	52.2	71.5	30.4	28.3	27.6	29.2	6.6	7.1	8.2	9.9	6.4	5.4	6.7	5.9	5.5
LN	T10N50	97.0	53.8	39.7	97.8	65.2	64.2	66.5	68.4	37.5	10.3	29.6	30.9	29.3	38.9	34.5	29.2	27.5
	T20N25	94.2	56.2	72.9	89.7	42.2	44.6	48.4	48.9	19.4	5.3	12.7	28.2	35.3	29.7	22.3	30.7	32.4
	T25N20	92.2	68.4	71.8	86.5	43.8	44.3	42.5	41.3	15.7	6.3	11.3	29.7	33.7	30.4	27.4	33.7	32.9
	T50N10	75.6	58.0	55.6	72.1	29.5	31.5	28.3	32.8	13.5	7.3	11.1	30.8	31.3	29.6	28.8	28.7	32.8
CN	T10N50	96.0	47.2	40.9	96.1	69.2	70.6	68.7	65.6	41.7	24.7	44.5	41.3	38.7	39.4	35.9	36.8	38.7
	T20N25	86.7	62.7	63.7	89.3	55.9	55.2	56.0	53.5	29.1	24.6	31.4	39.9	41.9	38.1	34.9	38.5	39.5
	T25N20	86.5	64.9	65.0	85.4	50.9	54.4	49.8	47.8	28.6	23.2	28.0	37.4	37.3	39.1	35.5	39.0	39.5
	T50N10	67.7	54.9	50.7	71.7	37.4	36.1	33.7	38.5	22.8	21.1	26.3	37.0	36.4	36.7	36.7	39.4	36.6
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	96.7	66.4	59.8	94.9	20.0	20.9	20.3	15.1	25.4	6.2	19.5	10.7	4.5	7.3	13.9	5.0	5.5
	T20N25	88.8	66.9	77.1	82.7	9.2	8.1	8.0	9.6	9.3	5.9	6.2	6.9	7.8	4.8	6.3	6.0	6.3
	T25N20	83.2	70.9	72.4	80.0	8.4	8.4	7.1	6.3	8.3	6.4	6.6	8.7	6.1	3.9	6.7	5.4	4.9
	T50N10	55.7	51.5	46.9	54.1	6.5	6.5	6.9	6.3	4.6	6.5	5.3	8.8	5.3	4.8	5.5	5.1	4.9
LN	T10N50	92.3	63.4	50.3	94.6	16.8	14.3	15.6	15.6	20.0	7.0	16.0	11.6	6.4	16.2	16.5	5.3	6.6
	T20N25	86.8	62.1	75.1	80.4	6.5	8.0	9.6	9.3	8.9	4.3	5.6	10.6	14.4	9.1	9.2	10.5	12.2
	T25N20	82.4	67.2	72.6	75.3	7.9	8.8	9.2	5.8	7.9	5.4	4.7	12.6	10.4	7.3	12.6	12.4	9.8
	T50N10	58.3	47.6	46.8	50.9	7.0	7.4	6.9	6.9	4.7	6.6	4.8	10.8	9.2	8.9	10.9	8.7	9.6
CN	T10N50	87.8	47.4	39.6	87.9	12.9	12.1	11.4	10.8	10.8	6.5	10.9	16.3	6.2	7.7	11.0	6.2	6.5
	T20N25	73.2	52.9	54.2	71.1	6.3	7.2	7.1	5.8	5.5	4.4	7.4	13.4	6.0	6.8	9.6	6.4	9.4
	T25N20	68.4	53.6	54.4	66.4	6.3	6.0	5.9	4.1	5.6	4.6	6.6	11.8	7.2	5.9	11.0	8.2	10.4
	T50N10	44.2	38.2	35.7	44.6	4.6	5.2	4.1	5.1	5.6	4.1	6.3	9.7	8.3	8.4	10.2	10.2	7.3
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	94.4	64.0	58.0	93.2	19.2	20.5	20.3	15.2	24.2	5.2	18.4	10.3	5.0	7.6	13.7	5.0	5.2
	T20N25	85.9	65.2	76.2	80.4	9.6	8.1	7.7	8.5	9.4	5.8	6.6	6.5	7.0	4.9	6.0	6.6	6.3
	T25N20	80.4	69.9	71.1	76.2	8.6	7.9	7.3	6.8	8.0	6.3	7.3	9.2	6.4	4.5	7.0	5.6	4.9
	T50N10	52.4	50.5	45.7	52.2	6.4	6.8	8.3	6.7	5.2	6.8	5.6	9.2	5.8	5.5	6.7	5.3	5.6
LN	T10N50	89.6	61.8	49.9	90.8	17.6	14.2	16.0	15.9	18.5	7.0	13.5	10.7	6.3	15.9	13.8	4.8	5.9
	T20N25	84.7	62.4	74.0	78.9	7.1	8.6	9.3	10.8	8.6	4.4	5.5	9.2	14.6	8.6	7.9	9.9	10.9
	T25N20	80.7	68.5	72.2	74.8	8.2	9.9	9.9	6.6	7.8	6.0	4.3	10.8	10.1	6.7	11.2	11.4	8.9
	T50N10	58.1	49.1	47.2	50.2	7.5	8.4	7.2	8.3	5.5	7.7	5.7	9.6	8.9	8.4	9.4	8.2	9.7
CN	T10N50	82.1	43.8	36.5	81.6	13.9	13.8	12.7	11.2	8.3	5.0	10.3	15.4	6.4	7.7	11.2	5.7	6.8
	T20N25	69.3	51.7	51.8	67.9	7.6	8.5	8.8	6.7	5.3	3.6	7.0	12.4	6.6	6.8	9.4	6.4	9.6
	T25N20	65.1	51.3	50.5	63.4	6.5	7.0	6.8	4.9	5.0	3.9	6.0	10.9	7.5	5.7	10.4	9.0	10.4
	T50N10	41.9	36.2	33.9	43.6	5.6	6.1	4.7	6.6	5.1	4.1	6.5	9.1	8.5	8.6	10.2	9.8	7.4

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.



TABLE 1.79

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T50N1	13.6	9.5	8.6	13.1	15.4	15.8	16.7	14.9	5.0	3.2	7.7	10.0	8.6	8.1	10.4	10.0	8.6
	T100N1	13.0	6.4	8.9	11.8	11.3	9.0	8.6	9.5	8.7	3.0	5.9	6.7	6.4	8.2	7.4	7.4	7.6
	T200N1	8.8	6.5	7.9	10.8	5.3	8.1	7.5	6.3	10.7	5.3	9.5	6.3	6.3	7.3	5.5	4.8	7.7
	T500N1	7.4	7.6	5.9	7.5	6.0	7.8	5.7	5.5	9.4	5.9	8.4	6.1	4.8	3.8	5.7	6.1	5.0
LN	T50N1	14.3	7.6	8.8	13.0	10.9	8.8	10.9	10.5	15.5	8.4	14.7	68.1	71.0	73.1	69.3	75.2	70.6
	T100N1	14.8	6.7	7.8	15.4	9.3	6.7	7.8	11.1	15.6	8.8	13.2	67.2	73.5	73.2	72.7	74.3	72.2
	T200N1	12.8	8.5	6.7	13.0	7.9	7.9	8.3	7.9	12.8	6.2	14.1	71.7	73.6	75.1	74.9	76.4	72.4
	T500N1	8.5	8.5	7.7	8.7	6.5	7.6	5.5	5.4	11.7	5.9	11.4	76.4	76.1	78.3	70.7	75.0	77.1
CN	T50N1	24.1	9.5	9.0	19.6	23.6	15.1	20.1	16.6	17.1	16.1	11.6	41.2	51.8	43.7	47.2	48.2	49.7
	T100N1	20.6	10.6	13.7	21.6	18.0	16.5	16.1	17.6	18.8	19.4	16.7	40.2	42.2	42.9	40.6	40.6	44.9
	T200N1	22.8	13.1	12.2	25.0	14.5	12.7	15.9	15.2	18.5	20.8	23.1	36.9	44.8	40.6	40.0	41.7	39.0
	T500N1	17.3	11.5	12.2	18.5	8.7	10.1	11.0	10.6	23.1	22.0	23.2	34.1	41.3	37.9	34.8	39.6	40.8
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T50N1	15.4	14.0	12.2	16.7	24.4	24.0	22.2	19.9	6.8	2.7	9.5	11.3	12.2	10.0	12.7	12.7	11.3
	T100N1	15.5	9.9	12.7	16.3	15.1	14.8	11.7	14.3	9.7	5.9	8.1	9.7	8.2	9.4	9.9	8.9	9.0
	T200N1	10.3	10.3	9.4	13.6	7.9	10.0	10.0	8.7	12.3	7.5	11.3	6.9	7.3	8.2	5.8	5.7	8.1
	T500N1	8.3	8.3	6.8	9.3	7.3	8.3	6.7	6.9	9.9	6.8	9.6	6.0	4.9	4.0	5.9	6.7	5.2
LN	T50N1	17.2	12.2	12.6	14.7	16.4	18.5	18.1	17.2	18.9	10.1	16.4	68.9	71.8	73.1	71.0	75.6	71.8
	T100N1	18.9	8.9	10.6	19.2	13.7	11.7	10.6	15.1	18.5	10.4	15.6	68.3	74.6	73.8	73.3	75.1	73.7
	T200N1	13.3	10.9	8.8	15.2	10.1	10.3	10.2	9.8	15.2	7.7	17.6	72.6	74.5	75.6	75.9	76.5	72.9
	T500N1	10.9	9.4	8.3	10.3	7.5	8.7	6.6	6.2	12.3	7.3	12.6	76.6	76.2	78.5	71.1	75.1	77.3
CN	T50N1	28.1	17.6	16.1	26.1	29.1	21.1	26.1	22.1	24.6	23.1	15.6	46.2	54.8	46.7	51.8	52.8	52.8
	T100N1	30.4	16.3	19.8	27.3	26.3	25.9	21.4	25.9	24.3	25.3	20.6	44.5	45.3	45.3	45.5	42.7	49.0
	T200N1	28.2	17.5	17.4	29.8	20.6	18.4	22.3	21.0	22.7	25.2	27.5	38.6	46.4	42.8	42.3	43.5	41.4
	T500N1	21.2	13.4	15.2	22.0	11.9	12.9	14.1	13.5	24.4	24.8	26.3	35.9	42.6	38.7	36.8	40.7	41.6
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T50N1	11.8	9.0	5.0	13.6	11.3	12.7	10.0	12.2	3.2	3.2	5.0	9.0	7.7	7.7	10.0	5.9	
	T100N1	12.2	5.4	6.6	11.0	8.9	6.7	6.2	7.4	7.9	2.5	4.6	6.2	5.1	7.2	6.1	7.6	6.4
	T200N1	7.3	4.7	7.0	9.3	3.9	6.5	6.6	5.2	9.1	4.9	8.1	5.2	5.8	6.9	5.0	4.3	7.0
	T500N1	7.7	6.4	5.7	8.4	5.5	6.7	5.4	5.1	8.8	6.3	7.3	5.3	4.6	3.7	5.4	5.7	5.4
LN	T50N1	11.8	6.3	5.9	12.2	8.8	6.7	10.5	8.0	15.5	8.4	11.8	49.6	50.4	57.1	53.4	53.4	55.5
	T100N1	13.5	5.2	6.3	11.9	6.8	5.0	5.7	7.8	11.9	5.9	11.5	40.5	43.6	42.9	44.9	48.0	45.9
	T200N1	9.4	7.1	4.6	10.4	5.0	5.3	5.3	5.1	10.3	4.4	10.0	36.2	34.4	37.8	39.7	36.5	35.7
	T500N1	6.6	5.7	4.1	6.6	4.7	5.0	4.0	4.1	8.1	3.8	8.4	31.3	30.1	27.2	29.5	29.9	29.6
CN	T50N1	24.1	7.5	8.5	16.6	15.1	6.5	12.1	10.1	7.5	5.5	4.5	31.7	36.7	36.2	37.7	40.2	41.7
	T100N1	16.1	6.9	8.2	13.9	8.8	6.5	5.7	8.0	8.2	3.5	6.5	25.7	28.2	25.7	28.2	27.6	30.6
	T200N1	12.8	7.4	6.2	15.2	4.3	4.2	6.5	6.9	8.1	4.2	11.5	16.5	22.4	19.6	18.7	18.2	18.0
	T500N1	7.8	5.2	5.1	9.7	2.7	3.3	4.2	3.8	9.1	4.5	9.9	11.0	11.3	12.7	10.3	11.4	10.2
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T50N1	18.6	10.0	6.8	18.6	14.5	13.6	14.9	18.1	5.0	6.3	9.5	10.0	13.1	11.3	14.0	15.4	12.2
	T100N1	14.5	7.4	9.0	14.8	11.5	10.2	10.0	10.5	9.5	4.3	5.6	9.4	8.1	10.7	9.0	11.0	9.7
	T200N1	10.1	6.5	8.7	11.5	6.8	8.5	8.1	7.7	10.0	6.4	10.6	7.3	7.7	8.1	7.3	7.6	9.3
	T500N1	9.2	6.9	7.1	10.4	7.7	9.1	5.8	6.5	9.7	6.3	9.3	6.0	5.5	4.5	6.4	6.8	6.7
LN	T50N1	15.5	8.4	11.3	18.1	13.4	9.2	12.6	12.6	18.5	12.2	13.0	52.5	51.7	58.0	52.9	55.0	55.9
	T100N1	16.4	7.5	8.3	16.3	11.2	8.1	9.8	12.4	14.3	9.4	13.0	38.9	45.0	43.1	43.9	47.8	45.9
	T200N1	12.7	9.5	7.1	14.3	7.8	8.5	8.9	8.3	10.7	6.3	11.3	35.6	33.9	37.2	39.6	37.3	36.7
	T500N1	9.0	7.7	7.3	9.0	7.4	7.3	6.0	6.2	8.8	5.8	9.8	29.6	29.7	26.9	27.7	29.6	28.0
CN	T50N1	28.1	9.0	11.1	20.1	18.6	10.1	15.1	13.1	11.1	9.5	6.5	36.2	42.2	39.7	39.2	40.7	45.2
	T100N1	19.0	8.8	9.4	16.7	11.6	10.8	9.4	10.8	11.0	6.1	9.6	28.8	29.8	28.6	28.6	29.0	32.0
	T200N1	15.3	7.8	8.0	16.4	6.9	6.4	8.6	9.1	10.2	5.8	11.8	18.2	22.9	21.2	20.3	19.1	18.9
	T500N1	8.2	5.8	5.7	9.0	3.4	5.0	5.7	5.3	10.2	4.9	10.3	11.2	11.5	13.1	10.8	12.0	11.0

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.80

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M31

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	91.6	21.2	25.6	89.2	33.8	34.6	38.0	26.4	41.6	34.1	39.5	15.9	5.1	6.9	21.1	4.9	4.8
	T20N25	47.1	2.6	3.9	35.8	16.5	15.4	18.6	18.4	10.8	7.9	6.4	9.8	6.1	5.0	8.1	6.3	4.4
	T25N20	33.1	2.3	2.8	26.6	15.5	14.8	15.7	14.3	6.2	4.1	3.9	10.4	4.0	4.3	8.4	4.8	5.6
	T50N10	13.9	2.3	2.7	12.3	9.5	9.1	8.3	8.2	3.5	4.6	3.4	7.7	4.7	4.6	6.0	6.3	6.0
LN	T10N50	82.2	39.1	40.7	86.2	38.4	40.1	38.0	32.7	46.8	44.4	41.6	72.8	72.2	76.3	72.6	71.1	72.7
	T20N25	51.4	11.6	16.2	44.4	19.8	19.3	20.6	21.0	16.7	12.6	14.1	72.5	77.7	71.8	74.1	76.0	77.8
	T25N20	39.4	9.7	10.6	33.7	18.7	19.7	19.3	17.1	11.7	10.6	13.1	75.3	77.9	73.0	76.3	79.3	72.8
	T50N10	22.1	8.2	8.3	18.9	11.5	11.3	8.8	8.4	9.8	9.1	10.8	74.8	74.8	76.1	72.7	75.2	77.5
CN	T10N50	86.8	41.1	43.3	85.3	40.7	36.9	38.6	33.1	42.6	49.5	39.5	41.5	37.7	35.4	37.1	35.1	36.1
	T20N25	49.6	13.3	14.3	50.1	27.5	26.1	29.3	21.5	23.9	29.6	24.7	35.2	38.5	34.0	35.4	37.0	37.5
	T25N20	40.3	8.9	11.0	38.3	21.1	21.4	23.8	19.9	19.2	23.7	19.2	39.1	39.5	36.0	36.4	38.9	39.2
	T50N10	25.0	8.2	8.0	27.4	14.6	14.4	13.3	15.5	16.2	20.9	18.9	37.1	36.2	34.8	36.6	36.2	36.5
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	86.2	9.7	11.9	81.9	46.6	47.1	49.9	38.2	44.2	39.7	45.2	15.9	6.3	7.9	22.1	5.6	5.3
	T20N25	40.6	2.1	1.7	33.0	26.4	27.6	31.5	32.1	14.2	9.7	8.3	10.2	7.9	5.7	8.5	7.0	5.1
	T25N20	31.1	1.3	1.7	25.4	28.3	23.9	27.7	26.5	7.9	5.1	4.9	11.2	4.6	5.0	8.4	5.3	6.9
	T50N10	11.8	2.1	2.8	10.8	14.7	15.2	15.7	14.4	4.0	5.4	3.9	7.9	5.1	4.7	6.1	6.5	6.5
LN	T10N50	77.0	25.7	29.0	80.1	48.5	48.7	47.3	41.7	50.3	47.8	44.2	73.0	73.6	76.5	73.3	71.6	72.8
	T20N25	47.9	9.9	12.4	40.7	33.4	30.9	33.2	34.2	19.3	14.9	16.4	73.0	78.3	72.3	74.0	76.5	78.3
	T25N20	36.7	8.5	8.6	31.6	30.7	31.2	30.0	29.0	14.6	12.2	14.6	75.8	78.8	73.7	76.3	80.1	73.1
	T50N10	21.4	7.9	7.6	18.7	19.5	18.0	15.5	13.5	10.7	9.7	12.0	75.0	76.0	76.3	73.3	75.8	77.9
CN	T10N50	81.7	26.9	31.6	78.4	48.6	46.2	48.6	44.1	48.0	53.8	46.4	42.6	39.3	37.4	38.7	36.7	38.6
	T20N25	45.7	11.0	11.6	46.2	40.9	38.9	41.2	35.0	29.2	33.8	28.8	35.8	40.5	35.4	37.0	38.4	39.1
	T25N20	36.6	7.9	8.2	37.2	33.6	33.9	36.7	31.0	23.3	28.2	23.5	40.4	40.2	37.2	37.2	40.6	41.4
	T50N10	26.2	10.1	8.9	29.0	23.3	22.4	22.6	23.9	19.6	23.6	23.0	37.9	37.9	37.0	37.3	37.8	37.4
Papanastassiou's SE Estimator ( $\widehat{SE}_{SWP1}$ )																		
N	T10N50	86.7	23.5	24.9	84.2	31.6	33.0	35.9	25.6	33.6	28.1	33.4	12.9	5.1	6.4	19.3	5.0	4.8
	T20N25	48.6	7.8	10.4	35.7	14.9	13.8	17.8	16.6	10.6	5.7	6.8	9.2	6.0	4.8	7.5	5.8	4.1
	T25N20	35.2	8.5	8.5	28.9	14.1	13.5	14.0	13.4	6.6	3.6	4.0	10.2	3.8	4.4	7.9	4.1	5.9
	T50N10	18.0	6.4	7.0	16.6	8.8	8.7	7.7	7.9	4.0	4.3	3.5	7.5	4.9	4.8	6.4	6.0	5.9
LN	T10N50	64.2	33.9	32.3	72.4	23.8	25.1	24.9	23.5	19.0	31.2	20.8	27.7	22.2	33.1	29.8	24.8	27.4
	T20N25	41.7	13.1	19.6	32.6	14.4	10.7	14.5	12.0	6.1	7.4	6.3	27.6	33.7	26.1	31.8	31.2	34.3
	T25N20	30.7	12.7	14.7	25.6	11.2	13.3	9.6	10.8	4.9	6.1	4.4	29.8	30.0	26.7	34.2	29.3	27.3
	T50N10	19.3	9.0	8.9	16.3	7.3	6.5	6.2	5.9	5.1	6.4	7.6	29.9	29.2	26.7	31.7	31.1	27.9
CN	T10N50	68.2	29.8	33.4	66.2	19.4	18.6	17.8	14.7	10.5	18.1	8.9	14.0	5.4	6.0	11.4	6.6	6.5
	T20N25	35.0	12.5	12.8	34.4	10.4	12.5	10.7	9.8	4.1	5.4	3.8	12.8	5.4	6.6	10.6	7.3	9.1
	T25N20	27.7	10.8	9.3	25.8	7.6	7.4	8.2	7.5	2.9	3.4	2.5	12.5	6.3	5.7	12.0	9.0	9.8
	T50N10	15.0	5.8	4.3	18.9	5.3	4.8	5.8	5.4	3.9	2.3	4.6	10.6	8.6	8.1	11.9	10.7	9.8
White's SE Estimator ( $\widehat{SE}_{SWW}$ )																		
N	T10N50	81.9	18.7	21.6	79.8	28.9	30.8	32.8	24.3	30.2	27.2	27.6	11.6	4.6	6.0	17.2	4.8	4.7
	T20N25	45.4	7.8	10.3	34.2	15.6	14.2	17.3	16.1	10.4	5.8	6.6	9.6	6.4	4.8	7.2	6.4	4.6
	T25N20	34.5	8.4	8.9	27.6	14.3	14.0	15.2	14.4	7.3	3.7	4.4	10.5	4.0	4.7	8.3	4.5	5.9
	T50N10	17.9	6.9	7.6	16.9	10.1	8.7	9.0	9.2	4.7	4.6	3.8	8.2	5.5	4.7	6.9	6.1	6.0
LN	T10N50	63.2	31.9	30.5	67.4	25.2	26.5	26.4	23.8	17.7	29.6	19.1	25.7	21.6	32.6	28.1	24.4	26.4
	T20N25	45.2	13.1	20.6	36.5	15.9	14.1	15.8	13.7	6.9	7.5	6.9	25.5	32.4	24.7	29.5	30.3	33.0
	T25N20	35.1	14.5	16.4	29.8	14.5	15.3	12.8	13.7	5.2	7.0	4.9	28.3	28.3	26.0	32.4	28.9	25.8
	T50N10	22.9	12.8	12.6	20.7	8.4	8.8	7.4	7.2	5.7	8.3	8.2	28.0	28.1	26.4	30.6	29.9	26.6
CN	T10N50	65.4	28.0	28.6	63.2	18.7	18.4	17.6	14.3	9.8	16.6	8.7	12.9	5.6	5.7	11.0	6.8	6.4
	T20N25	32.3	11.6	11.0	33.4	11.8	13.2	12.6	10.5	4.1	5.8	4.1	12.2	5.2	6.2	10.4	7.4	9.4
	T25N20	25.7	10.3	8.6	23.1	7.9	8.6	9.3	8.4	2.8	3.1	2.5	12.7	6.6	5.6	11.4	8.9	10.3
	T50N10	14.5	5.6	4.9	15.8	5.7	5.7	6.3	6.7	4.4	2.7	4.6	10.3	8.4	8.4	11.3	10.2	9.7

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.81

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
		The Observed Information SE Estimator ( $\widehat{SE}_O$ )																	
N	T50N1	15.5	4.8	8.4	12.4	13.1	11.6	12.0	10.0	6.8	2.4	2.8	12.0	9.6	9.2	7.2	10.4	9.6	
	T100N1	13.9	6.2	7.7	13.9	9.7	9.7	8.8	9.4	8.8	4.8	8.0	7.9	7.3	7.4	6.9	9.4	7.4	
	T200N1	10.1	7.2	6.3	12.6	7.2	8.3	7.3	7.5	9.2	4.3	8.9	5.6	5.1	8.2	4.5	5.3	8.5	
	T500N1	8.1	6.0	5.0	8.9	5.6	6.3	6.8	5.7	7.2	6.4	6.7	5.6	5.2	4.1	4.7	6.1	5.7	
LN	T50N1	20.9	6.1	6.6	14.8	11.9	12.7	9.0	7.4	10.2	2.9	8.6	63.5	60.7	61.5	59.4	61.5	64.3	
	T100N1	18.2	7.2	6.8	18.4	9.2	12.5	8.0	8.3	12.4	6.0	12.9	57.8	60.9	60.9	64.9	67.8	61.6	
	T200N1	14.1	6.7	7.2	12.9	6.6	6.6	7.4	9.0	12.2	5.5	10.4	60.3	62.9	65.9	63.6	65.4	61.5	
	T500N1	10.1	7.3	5.7	9.4	6.0	6.5	6.4	5.6	10.0	5.5	8.8	65.4	63.9	66.7	60.2	65.0	66.8	
CN	T50N1	23.8	10.7	10.3	25.7	20.6	13.6	16.4	15.9	14.5	15.4	13.1	41.1	39.3	43.0	49.1	38.8	50.0	
	T100N1	22.1	9.6	13.5	28.0	16.6	17.2	16.0	14.7	15.5	19.0	18.4	41.9	45.4	44.0	43.1	41.1	44.4	
	T200N1	22.5	13.0	10.2	23.5	15.6	14.8	15.1	15.7	20.2	23.4	19.9	34.2	43.9	41.2	39.0	41.2	43.2	
	T500N1	20.1	13.8	10.8	19.8	12.1	12.2	10.4	10.6	24.1	21.3	23.1	34.0	39.9	37.5	35.7	39.2	41.2	
		Harvey's SE Estimator ( $\widehat{SE}_H$ )																	
N	T50N1	17.5	10.0	11.6	13.9	30.7	28.7	21.5	23.5	10.0	4.8	4.4	16.3	13.5	11.2	9.6	12.0	13.9	
	T100N1	16.5	10.4	12.1	17.5	20.2	19.8	20.2	20.8	10.9	7.4	10.9	9.5	9.4	8.9	9.4	11.0	9.4	
	T200N1	12.6	11.1	7.7	15.0	11.9	14.4	13.5	15.2	11.9	6.4	11.3	6.1	5.7	9.3	6.6	6.3	9.0	
	T500N1	9.4	6.9	6.2	9.0	9.0	9.0	8.8	8.0	7.6	6.6	8.0	5.9	5.8	4.4	5.3	6.2	6.2	
LN	T50N1	22.1	8.2	10.2	19.3	24.2	27.9	23.8	22.1	12.7	5.7	11.5	66.4	63.1	64.3	60.2	63.1	67.2	
	T100N1	20.5	12.2	11.2	21.4	19.2	22.4	19.0	16.2	15.7	8.2	16.0	60.4	63.4	62.6	66.9	69.1	63.9	
	T200N1	15.7	9.9	9.6	15.1	10.7	13.2	13.5	14.6	14.3	7.2	13.2	61.0	64.2	66.8	65.0	65.9	62.1	
	T500N1	12.1	9.0	7.3	11.1	8.2	8.9	9.3	8.5	11.7	6.2	10.8	65.9	64.4	66.9	60.5	65.7	67.3	
CN	T50N1	30.4	17.8	17.8	31.8	36.0	28.0	30.8	32.2	18.2	19.2	19.6	47.7	43.0	46.7	54.2	46.7	52.8	
	T100N1	30.7	17.8	20.9	34.6	30.1	30.3	30.9	24.9	21.9	27.2	24.3	45.8	49.3	47.9	49.9	45.4	46.6	
	T200N1	32.1	19.6	18.9	30.1	26.4	25.2	25.6	26.7	26.5	31.0	27.7	37.9	47.1	44.8	42.4	43.5	45.0	
	T500N1	23.5	17.6	14.2	24.5	16.1	16.9	15.0	14.8	27.3	24.4	25.7	35.9	40.9	38.4	36.7	40.4	42.6	
		Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																	
N	T50N1	13.5	4.4	6.0	14.3	11.2	8.8	8.4	7.6	6.0	2.0	2.4	9.2	8.0	8.8	6.4	8.8	8.8	
	T100N1	13.7	5.1	5.6	11.8	7.6	7.7	7.3	6.0	8.3	4.5	6.8	5.0	6.0	5.6	6.0	8.3	6.9	
	T200N1	9.8	6.1	5.2	12.1	6.4	7.2	6.4	6.3	7.4	3.3	7.7	5.1	4.5	7.3	4.1	4.6	8.0	
	T500N1	8.7	5.7	4.3	8.7	5.1	5.2	6.3	5.4	7.0	5.7	5.7	5.4	5.2	4.1	4.1	5.6	6.0	
LN	T50N1	17.2	6.1	6.1	15.6	11.5	11.9	9.0	5.3	7.0	4.1	7.4	44.3	40.2	40.2	34.8	42.6	40.2	
	T100N1	15.0	5.3	5.7	17.4	7.2	9.2	6.0	5.7	10.7	5.2	11.2	31.4	35.2	33.7	37.6	38.6	34.2	
	T200N1	13.5	5.6	5.2	11.2	4.2	5.7	6.1	5.7	10.5	3.8	8.4	25.6	26.0	27.7	32.2	28.2	28.4	
	T500N1	8.6	5.5	3.9	7.5	4.2	5.0	4.0	4.4	6.7	4.2	7.0	23.3	22.4	20.2	21.5	21.8	21.2	
CN	T50N1	23.4	9.8	12.1	19.6	12.1	7.9	10.7	7.5	7.0	1.9	4.2	33.2	33.6	33.6	36.4	33.6	37.9	
	T100N1	17.2	4.5	8.6	19.4	6.1	5.9	5.5	7.6	5.9	4.1	8.8	25.2	28.0	30.9	27.2	28.0	28.8	
	T200N1	14.1	6.3	5.4	13.3	5.8	7.0	3.4	6.0	8.8	3.9	9.4	16.5	20.8	19.0	18.3	18.3	18.0	
	T500N1	10.5	6.5	4.9	11.2	3.5	3.6	3.1	3.6	9.2	3.7	9.6	11.3	12.3	11.6	9.9	10.9	11.8	
		White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																	
N	T50N1	15.5	8.4	10.0	18.3	17.1	14.7	12.0	11.6	9.6	7.6	4.8	12.7	11.6	12.7	9.6	14.7	9.6	
	T100N1	16.3	7.7	7.4	13.9	11.8	12.1	10.9	12.4	9.5	6.6	10.0	7.9	9.2	10.1	8.2	13.4	8.5	
	T200N1	12.1	7.7	5.9	14.1	8.8	9.7	8.9	10.8	8.5	4.6	9.9	6.3	7.2	9.0	6.7	6.7	10.4	
	T500N1	10.0	6.4	5.7	9.6	7.6	8.4	8.0	6.5	8.1	7.8	7.8	5.7	5.9	4.3	5.7	6.6	7.3	
LN	T50N1	20.5	10.7	10.2	20.5	15.2	18.0	12.7	12.3	11.1	7.8	10.7	45.5	41.8	41.8	38.5	43.4	41.4	
	T100N1	19.5	8.5	8.3	21.2	10.0	11.0	10.2	8.2	11.4	9.3	12.5	32.9	34.9	34.1	37.1	40.1	35.4	
	T200N1	14.5	8.1	8.1	14.8	6.9	7.5	8.2	8.8	11.5	5.5	9.6	25.6	25.5	28.9	31.7	28.9	27.9	
	T500N1	11.2	7.0	4.9	9.6	5.9	6.5	7.5	6.3	6.9	6.3	8.3	21.4	22.2	20.1	20.9	21.9	21.0	
CN	T50N1	26.2	9.8	14.5	25.2	13.1	12.6	16.8	14.0	8.4	8.9	9.3	40.2	36.4	36.9	35.5	38.3	42.1	
	T100N1	19.0	7.2	10.6	19.6	9.0	9.6	9.0	8.6	7.0	5.3	9.8	28.6	30.7	32.9	28.6	30.9	30.5	
	T200N1	14.1	7.0	6.3	15.7	6.9	9.0	4.8	7.9	9.7	4.6	10.5	17.1	22.0	19.2	20.4	18.6	18.9	
	T500N1	10.3	7.6	5.4	9.9	4.5	5.9	5.0	5.3	9.8	4.4	10.2	11.6	12.7	11.9	10.2	11.7	11.5	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.82

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M32

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	97.6	72.1	73.9	97.6	33.9	33.7	39.3	31.1	41.1	67.3	41.4	12.5	5.3	6.7	17.0	6.3	5.6
	T20N25	67.4	9.4	12.2	55.6	17.1	16.9	19.0	21.9	13.5	12.6	9.8	9.3	6.1	4.3	8.5	5.6	5.1
	T25N20	51.6	4.5	5.5	41.9	16.6	16.9	16.0	14.7	9.3	6.2	6.6	10.1	4.1	3.7	9.3	4.8	5.7
	T50N10	24.4	5.0	2.9	23.5	9.0	10.4	8.6	9.6	3.9	3.3	3.7	8.2	5.2	4.6	6.5	5.4	5.5
LN	T10N50	94.0	71.2	68.3	95.0	37.9	36.6	35.2	31.5	40.5	65.0	40.2	55.5	58.6	65.2	57.5	58.6	60.4
	T20N25	68.7	15.8	21.5	57.0	24.7	23.7	25.8	18.4	17.0	13.4	61.6	69.2	63.0	59.5	66.3	66.0	66.0
	T25N20	53.3	12.2	13.9	45.2	19.9	19.1	16.1	15.7	11.4	10.6	10.8	64.2	67.9	61.8	62.6	67.8	64.4
	T50N10	28.9	8.2	8.4	25.9	13.0	11.0	11.0	12.0	6.8	6.4	6.7	64.4	64.9	66.8	62.1	66.9	69.0
CN	T10N50	94.3	74.9	74.8	94.5	45.7	43.0	39.5	34.7	42.1	64.2	39.1	38.3	37.2	36.8	37.5	34.0	36.7
	T20N25	66.1	28.4	28.8	64.5	35.2	32.0	31.0	26.2	30.9	34.9	27.5	37.7	39.7	35.8	36.3	37.1	36.6
	T25N20	52.9	16.4	17.2	50.9	23.2	24.7	26.9	21.6	21.9	26.7	21.8	38.7	38.6	35.0	35.9	39.4	37.9
	T50N10	30.7	12.0	11.7	37.0	16.4	14.6	15.5	15.8	16.2	22.3	19.1	37.4	37.4	35.7	35.6	36.8	37.0
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	95.6	43.3	49.7	95.8	48.3	44.6	51.4	43.5	51.7	72.9	55.1	16.8	6.2	8.2	23.5	7.9	6.9
	T20N25	61.2	5.2	7.8	50.8	40.0	41.3	44.7	46.4	22.7	16.6	17.3	11.6	7.8	5.4	10.3	6.4	6.8
	T25N20	46.7	2.4	2.7	40.3	41.4	37.9	39.6	38.1	15.1	8.4	11.4	12.7	5.1	4.4	9.9	5.7	6.4
	T50N10	23.7	4.5	2.7	23.2	25.1	26.4	24.3	25.1	6.4	4.0	5.4	8.4	6.1	5.3	7.0	6.2	6.1
LN	T10N50	91.7	51.2	47.8	91.6	48.5	46.3	47.8	43.5	47.4	69.3	48.9	58.5	59.9	66.8	60.5	59.6	61.7
	T20N25	61.3	12.6	15.4	51.7	46.7	45.5	49.8	49.1	25.5	20.1	18.7	63.3	70.8	64.3	60.6	67.3	67.2
	T25N20	48.8	9.5	10.0	42.9	44.3	39.8	39.5	39.1	16.2	12.5	15.2	65.0	68.8	62.7	63.7	69.8	65.3
	T50N10	29.1	8.1	8.0	25.5	29.1	26.7	26.3	24.1	9.0	7.2	9.9	65.0	66.4	67.2	62.8	67.2	70.1
CN	T10N50	91.2	53.6	56.4	90.5	54.8	52.7	50.2	47.1	45.8	67.9	46.7	39.3	39.4	38.6	40.7	35.7	40.0
	T20N25	61.8	21.7	20.1	58.7	56.7	52.5	53.2	47.2	37.0	39.4	35.9	40.0	42.5	38.4	39.4	39.2	38.2
	T25N20	51.0	14.6	14.3	47.7	43.6	46.5	49.0	42.7	31.2	31.8	29.1	40.5	40.5	38.4	38.4	42.6	39.9
	T50N10	32.7	13.9	12.5	36.5	34.6	34.4	35.0	33.3	22.4	24.8	24.9	38.9	38.2	37.1	38.3	39.2	38.6
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	90.6	67.0	67.2	90.4	28.2	27.7	33.3	24.3	28.5	58.1	27.2	7.9	4.1	5.5	12.0	4.5	5.2
	T20N25	61.2	15.7	22.1	50.1	14.8	15.0	16.1	18.7	10.0	8.5	7.3	8.1	6.3	4.5	7.7	5.2	4.4
	T25N20	51.6	16.0	16.7	40.8	14.7	15.0	14.6	11.2	7.9	4.4	5.7	9.7	4.3	3.7	8.3	5.1	5.4
	T50N10	28.0	14.5	12.0	28.6	8.7	10.1	7.7	8.8	4.2	2.5	3.9	7.6	5.6	4.6	7.0	5.3	5.2
LN	T10N50	84.1	65.1	61.7	85.0	24.4	23.8	22.2	21.7	18.0	46.6	21.6	16.8	15.0	25.7	20.1	14.5	15.6
	T20N25	56.1	18.5	26.2	41.7	17.3	14.8	18.0	18.0	9.1	11.2	5.1	20.3	26.4	17.6	20.4	22.9	24.1
	T25N20	42.6	18.1	21.9	36.1	14.0	13.3	9.1	9.6	5.0	6.6	4.0	23.9	19.3	17.6	26.2	23.3	18.8
	T50N10	26.0	14.5	15.7	24.7	9.3	7.3	7.8	8.5	3.0	5.0	4.5	23.5	21.6	19.1	25.1	22.4	20.9
CN	T10N50	84.0	62.7	63.2	84.0	25.5	22.9	21.3	16.7	10.7	26.5	8.8	10.5	4.6	5.1	8.0	5.7	4.7
	T20N25	50.1	26.3	24.2	49.6	14.6	14.7	12.1	11.8	5.3	7.2	4.3	13.9	6.2	6.8	10.7	6.1	8.3
	T25N20	38.6	18.0	16.6	36.7	9.2	9.6	10.6	10.3	3.9	4.9	3.4	12.6	7.7	6.3	13.4	9.7	10.3
	T50N10	20.1	10.0	10.0	26.8	5.5	4.3	4.4	5.4	4.4	2.9	4.4	11.1	9.2	9.1	11.6	9.5	10.1
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	87.7	62.7	64.3	87.9	25.7	25.8	30.1	22.1	23.4	55.9	22.5	7.1	4.3	5.7	10.1	4.6	5.2
	T20N25	56.6	15.3	21.7	48.1	15.1	14.7	15.2	18.6	8.6	7.6	7.2	8.3	6.0	4.8	7.4	5.9	4.9
	T25N20	49.4	15.1	16.6	39.9	14.5	14.9	14.6	12.0	8.5	4.3	5.6	9.6	4.9	4.2	8.2	5.2	5.4
	T50N10	29.3	15.8	12.9	29.0	9.3	10.2	9.0	9.0	4.3	2.8	4.2	7.8	6.2	5.0	7.4	5.9	5.5
LN	T10N50	81.5	62.4	58.9	82.4	23.8	23.6	22.2	21.3	15.5	43.9	19.0	15.9	15.0	24.9	18.3	14.3	15.7
	T20N25	56.1	19.2	27.7	43.0	18.3	15.4	19.0	18.8	8.5	10.3	5.4	18.9	25.4	17.3	18.5	22.7	23.1
	T25N20	45.6	19.3	23.3	39.4	15.3	13.3	11.1	11.3	5.7	7.0	5.0	21.4	18.7	17.1	24.1	22.6	18.9
	T50N10	29.5	16.8	17.8	28.1	10.6	9.6	9.6	9.5	3.2	4.9	4.7	22.5	20.9	18.4	24.4	21.8	20.1
CN	T10N50	80.9	59.8	61.6	80.6	24.4	22.2	20.4	15.9	9.7	25.2	9.0	10.2	6.0	5.2	7.7	5.7	4.7
	T20N25	46.9	24.9	24.1	46.2	13.7	15.1	12.8	12.3	5.0	7.5	4.0	13.0	6.4	6.7	10.5	6.4	8.5
	T25N20	35.5	17.3	17.2	35.0	9.1	10.6	12.3	11.1	4.0	5.2	2.9	12.0	8.1	6.3	12.9	10.0	10.9
	T50N10	18.8	9.7	8.8	24.7	7.2	5.6	4.9	6.8	3.8	2.7	3.9	11.0	9.8	8.6	11.2	9.2	10.5

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.83

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$	
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																			
N	T50N1	14.3	8.9	6.6	18.1	11.2	13.1	11.2	13.1	4.2	2.7	5.0	11.2	7.7	13.1	11.6	8.5	12.7	
	T100N1	13.6	5.2	5.0	13.8	8.8	8.9	9.1	8.5	7.5	2.7	6.4	7.8	6.9	6.1	6.6	9.2	7.7	
	T200N1	11.6	7.0	6.1	13.1	7.6	7.3	6.7	7.3	7.7	3.4	9.0	5.4	5.8	7.2	5.2	5.3	5.8	
	T500N1	9.5	5.6	5.3	10.1	5.3	4.6	6.1	4.6	6.8	5.7	8.1	4.6	5.5	4.9	5.7	6.3	5.9	
LN	T50N1	19.0	5.2	6.3	19.4	11.5	8.7	9.9	8.3	8.7	4.8	9.1	48.0	53.2	56.7	47.6	55.6	53.2	
	T100N1	16.4	7.9	5.4	19.8	10.5	12.5	9.3	8.9	7.5	5.4	8.9	49.7	56.1	51.3	55.1	59.5	54.9	
	T200N1	13.5	8.0	6.2	16.2	7.0	7.8	6.6	6.2	8.6	4.3	11.1	48.8	53.2	58.4	52.8	54.0	52.5	
	T500N1	9.6	7.2	5.4	11.4	5.3	5.0	6.4	6.2	7.9	5.9	8.5	54.7	53.9	55.5	49.0	56.1	54.5	
CN	T50N1	28.6	8.2	10.7	22.4	20.4	16.8	14.3	17.9	14.3	17.9	10.2	44.9	41.3	42.9	49.0	42.3	45.9	
	T100N1	26.3	9.6	11.4	28.1	16.1	17.9	16.9	18.7	17.5	20.4	15.5	38.7	45.2	47.7	42.0	47.3	45.0	
	T200N1	26.1	10.1	10.0	26.9	17.2	14.1	12.9	14.5	19.9	19.4	20.5	35.4	42.7	40.2	40.3	44.4	39.5	
	T500N1	22.2	10.7	12.1	20.9	10.0	10.1	10.6	10.4	22.9	22.0	22.1	34.1	40.0	38.2	36.6	39.9	41.6	
																			13.6
11.6																			
N	T50N1	20.8	15.8	13.9	21.2	34.4	36.7	30.9	33.6	5.8	8.1	7.3	15.8	10.4	16.6	15.8	10.8	950.0	
	T100N1	16.0	9.4	10.5	16.6	26.9	27.4	25.7	24.6	9.7	5.5	9.1	11.1	9.7	8.0	8.8	11.3	1900.0	
	T200N1	13.4	11.4	9.7	16.1	18.6	18.8	15.8	17.1	10.3	4.6	11.3	6.3	6.5	8.0	6.5	6.4	1640.0	
	T500N1	11.3	7.7	7.1	11.2	10.7	9.4	11.2	8.5	9.1	6.1	9.1	5.4	6.0	5.1	6.1	6.7	1350.0	
LN	T50N1	24.6	11.5	14.3	24.2	37.7	33.3	35.7	31.3	10.7	7.9	11.9	52.0	56.7	59.1	49.6	58.7	960.0	
	T100N1	18.7	14.1	11.3	23.9	27.2	28.4	27.5	26.9	11.1	6.7	13.9	53.0	58.4	53.9	58.2	61.5	2860.0	
	T200N1	16.3	12.5	10.4	18.0	17.0	19.3	16.1	17.6	13.0	6.5	14.2	50.8	55.0	60.1	54.1	55.4	2630.0	
	T500N1	11.7	10.5	8.1	13.7	10.3	8.3	9.6	10.3	10.1	7.3	9.6	55.8	54.5	56.3	50.5	56.6	2610.0	
CN	T50N1	36.2	15.8	19.4	28.1	43.9	37.8	39.3	44.9	20.9	26.0	18.9	52.0	48.0	49.0	54.1	45.9	2220.0	
	T100N1	33.8	21.8	22.8	37.9	39.7	38.5	37.3	36.9	26.3	29.9	26.9	45.2	49.5	50.1	47.9	50.7	49.7	
	T200N1	31.9	19.6	21.5	33.2	33.1	27.1	29.9	28.0	26.1	26.3	27.8	39.3	44.7	44.4	43.1	46.8	42.6	
	T500N1	27.3	16.9	18.3	25.8	17.1	17.4	17.7	17.8	27.1	25.7	26.4	35.8	41.7	39.5	37.4	41.0	42.8	
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																			
N	T50N1	11.6	6.6	5.0	16.2	10.0	9.7	7.7	9.7	3.1	2.3	3.5	8.9	5.4	9.7	9.7	6.6	9.7	
	T100N1	13.0	4.4	3.9	12.1	6.1	7.8	6.4	6.6	6.7	2.2	6.3	7.0	6.1	6.6	5.2	7.5	6.4	
	T200N1	12.2	5.0	5.0	12.7	6.5	5.8	5.9	6.5	8.1	3.4	7.9	4.8	6.1	6.4	4.5	4.9	5.0	
	T500N1	9.7	5.3	5.4	10.6	5.1	4.5	5.2	4.7	6.2	4.8	7.1	4.5	5.4	5.1	5.1	6.2	5.4	
LN	T50N1	19.0	6.0	6.7	17.9	7.9	6.7	6.3	6.0	9.1	4.4	8.7	32.5	32.5	35.3	29.0	36.5	38.1	
	T100N1	14.4	6.7	3.9	18.4	8.4	9.5	7.4	6.9	6.1	3.8	8.0	25.7	30.8	26.2	27.9	33.0	29.2	
	T200N1	12.1	6.3	3.5	13.4	5.5	6.0	5.4	5.1	6.4	3.3	7.8	20.7	19.5	24.6	22.7	23.0	21.5	
	T500N1	8.0	6.3	4.7	10.0	3.7	4.0	4.2	4.7	6.5	4.5	6.8	17.3	16.6	15.9	16.2	17.4	16.1	
CN	T50N1	24.0	8.7	10.7	15.8	10.7	9.2	7.1	10.2	6.6	4.1	4.6	30.6	32.1	33.2	35.2	34.7	35.7	
	T100N1	18.7	7.5	6.5	20.6	7.5	8.6	6.7	6.7	6.7	3.3	6.7	24.4	28.7	32.0	27.7	32.2	30.1	
	T200N1	14.9	5.2	4.5	16.0	6.2	4.8	4.3	4.8	8.0	3.2	8.5	16.5	21.6	18.6	20.2	19.6	17.9	
	T500N1	12.1	5.4	5.0	10.5	2.5	2.8	2.8	2.9	9.7	3.2	9.9	10.3	11.9	12.1	10.6	10.8	10.5	
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																			
N	T50N1	15.1	11.2	11.6	17.8	13.5	12.7	10.8	15.4	5.8	6.2	5.4	11.6	10.8	19.7	15.8	15.1	15.1	
	T100N1	16.7	6.3	6.6	14.2	8.6	11.1	9.4	9.7	7.2	4.2	7.5	9.1	9.4	9.9	8.3	11.7	10.3	
	T200N1	15.0	7.5	8.1	14.9	8.3	9.0	8.6	9.8	8.3	5.6	9.7	6.6	7.2	9.3	5.8	6.8	8.2	
	T500N1	10.9	6.9	7.4	11.9	7.2	6.1	8.0	5.7	7.8	6.3	8.5	5.4	6.3	5.1	6.8	6.8	7.0	
LN	T50N1	23.8	9.9	9.1	20.2	13.5	10.7	11.9	9.5	12.7	9.9	11.1	35.3	35.7	36.5	31.7	38.1	39.7	
	T100N1	18.2	10.2	7.0	21.8	13.6	11.3	11.0	11.3	8.4	7.5	9.0	25.9	30.8	26.4	30.0	33.4	29.5	
	T200N1	12.8	7.5	6.0	16.4	7.7	9.9	7.5	7.1	8.7	6.1	9.6	20.0	17.9	24.7	23.3	24.8	21.7	
	T500N1	9.5	7.6	6.6	11.5	5.5	5.0	5.1	6.7	6.5	6.1	8.5	16.2	16.3	15.5	15.9	17.3	15.9	
CN	T50N1	26.0	12.8	16.3	20.9	14.3	15.3	11.2	14.3	9.2	8.2	9.2	33.7	35.7	37.2	36.2	38.8	38.3	
	T100N1	20.4	9.0	8.8	22.6	11.2	12.4	9.2	11.6	9.4	5.7	9.2	27.1	29.5	35.2	29.1	32.4	31.0	
	T200N1	15.3	6.2	5.8	16.8	9.0	5.7	7.1	7.2	9.1	4.7	9.6	18.2	22.3	20.2	21.3	19.6	19.2	
	T500N1	11.5	5.6	5.8	11.2	3.8	4.9	4.0	5.0	9.2	3.9	9.7	10.0	11.7	12.4	9.9	11.0	10.9	

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.

TABLE 1.84

MIS-COVERAGE RATES OBTAINED USING THE NONINFORMATIVE INITIAL SETTING: MODEL M33

		$\Phi_{11}$	$\Phi_{12}$	$\Phi_{21}$	$\Phi_{22}$	$A_{21}$	$A_{31}$	$A_{52}$	$A_{62}$	$Q_{11}$	$Q_{12}$	$Q_{22}$	$R_{11}$	$R_{22}$	$R_{33}$	$R_{44}$	$R_{55}$	$R_{66}$
The Observed Information SE Estimator ( $\widehat{SE}_O$ )																		
N	T10N50	98.8	92.4	92.2	99.1	25.1	24.9	26.0	22.7	27.2	80.0	30.7	7.1	5.9	6.3	8.4	6.2	6.4
	T20N25	69.8	17.3	19.1	62.8	18.9	17.4	20.9	20.4	11.4	18.2	7.9	10.0	5.9	5.3	8.1	6.5	5.2
	T25N20	59.3	11.0	12.1	50.2	17.4	15.9	17.6	13.1	9.0	8.1	6.4	9.9	5.2	4.7	8.7	5.1	6.2
	T50N10	32.8	7.8	6.6	32.0	10.7	10.9	9.9	9.9	3.5	5.4	3.0	7.2	4.6	4.7	6.5	5.9	5.2
LN	T10N50	97.3	86.8	85.0	98.7	30.4	27.8	29.8	25.1	31.5	76.1	35.1	44.8	47.6	54.2	46.5	45.4	46.2
	T20N25	74.3	24.9	30.3	66.3	24.0	24.2	24.5	26.1	19.3	22.2	14.7	50.1	60.0	52.3	47.3	54.8	56.7
	T25N20	60.2	14.2	17.0	52.3	21.0	20.4	18.6	17.2	9.1	10.6	7.6	55.1	55.8	51.8	53.6	57.1	54.4
	T50N10	36.4	10.8	10.6	34.2	12.8	9.5	12.2	12.6	5.4	6.2	4.9	56.7	54.1	55.7	52.5	53.1	57.8
CN	T10N50	97.3	87.4	87.0	96.7	40.6	36.7	34.9	29.3	38.1	73.1	35.8	35.8	36.0	34.7	35.8	35.2	31.5
	T20N25	69.0	34.8	35.6	69.5	35.7	32.1	31.9	25.7	25.9	35.4	27.6	34.7	39.1	36.5	33.1	37.1	37.3
	T25N20	61.2	23.4	25.1	55.6	24.9	29.0	25.5	23.0	20.7	27.3	22.7	37.0	36.5	37.4	36.7	41.0	38.5
	T50N10	39.3	15.2	13.9	39.4	14.5	12.8	15.2	17.9	16.4	21.7	19.2	33.0	36.7	34.4	36.1	37.0	36.5
Harvey's SE Estimator ( $\widehat{SE}_H$ )																		
N	T10N50	97.5	69.5	71.5	96.7	35.2	34.3	35.6	30.2	37.0	83.1	40.5	9.8	6.9	7.6	12.5	7.8	8.1
	T20N25	61.3	11.9	12.2	56.1	49.3	50.1	53.4	54.9	23.6	23.1	17.7	12.1	7.4	6.0	9.9	7.1	6.3
	T25N20	55.1	6.4	8.2	44.4	52.7	49.3	51.7	48.9	16.5	10.2	12.7	12.6	6.9	5.7	10.4	5.8	7.0
	T50N10	32.8	6.9	6.3	31.6	35.7	35.7	35.3	34.8	7.4	6.9	5.7	8.1	5.2	5.9	7.8	6.8	5.8
LN	T10N50	94.9	63.4	64.5	96.5	40.1	37.7	38.4	35.5	38.2	79.4	41.9	49.5	49.6	55.9	49.8	48.3	47.7
	T20N25	67.4	18.9	21.0	60.8	53.8	53.4	54.2	56.6	28.2	26.6	22.5	52.2	61.9	54.2	49.0	55.9	58.2
	T25N20	54.6	10.4	12.8	47.3	52.3	53.0	54.7	52.3	15.2	13.2	13.7	56.3	57.7	53.5	54.5	58.9	56.0
	T50N10	33.9	10.8	10.0	33.5	36.9	33.9	37.4	38.0	9.2	7.8	9.2	58.5	55.4	56.7	53.3	54.8	59.2
CN	T10N50	93.6	69.6	67.2	94.0	53.3	47.3	47.6	41.8	40.6	75.9	39.7	36.7	39.8	37.5	37.9	37.5	33.3
	T20N25	60.7	28.3	26.8	61.4	63.1	60.9	58.7	54.5	33.4	41.0	34.9	36.6	42.1	38.6	35.6	38.7	39.1
	T25N20	56.8	18.5	22.3	52.7	57.5	58.6	55.0	53.1	29.8	32.8	30.1	40.3	39.3	39.2	38.2	43.4	41.0
	T50N10	39.1	17.8	16.9	40.4	42.8	42.1	44.3	45.6	24.5	27.2	25.4	36.0	38.2	37.8	38.8	39.1	38.7
Papanastassiou's SE Estimator ( $\widehat{SE}_{SW_{P1}}$ )																		
N	T10N50	96.6	91.9	91.5	96.4	20.1	18.3	20.0	17.3	17.6	71.8	20.8	4.5	4.7	4.6	4.5	5.2	5.3
	T20N25	63.4	27.1	30.5	56.2	15.7	14.3	17.3	17.7	7.7	13.0	6.1	8.4	5.1	4.5	6.6	6.2	4.7
	T25N20	58.1	27.1	26.6	48.1	15.4	14.4	15.5	10.7	5.9	6.6	5.2	9.3	5.0	4.6	7.8	4.7	5.6
	T50N10	35.6	19.7	18.2	35.0	9.6	9.9	8.4	8.6	3.9	5.1	3.7	7.2	4.6	5.1	7.2	5.5	5.0
LN	T10N50	92.7	85.7	82.2	94.7	19.9	17.2	20.1	16.4	15.3	60.7	18.8	11.6	9.5	19.2	12.3	8.2	10.9
	T20N25	64.7	29.8	37.7	54.0	16.0	16.6	18.6	19.1	7.7	15.9	6.1	16.2	19.6	11.5	15.8	17.0	19.4
	T25N20	50.9	24.5	28.8	42.7	15.2	14.4	11.3	11.3	5.0	5.7	3.3	19.4	14.5	12.8	22.0	17.6	14.2
	T50N10	34.4	20.2	20.9	31.9	8.9	7.4	9.3	9.6	3.3	5.8	2.8	18.3	16.6	15.3	19.2	16.9	14.7
CN	T10N50	92.4	84.7	82.2	91.9	21.6	20.1	14.7	12.9	8.8	32.9	8.3	9.3	4.2	4.2	6.1	6.7	5.6
	T20N25	53.9	36.3	34.6	54.7	16.2	14.5	12.7	12.5	5.7	9.2	4.4	12.1	5.3	5.7	7.7	6.2	8.3
	T25N20	46.3	24.1	27.1	42.4	10.9	12.3	9.5	9.8	3.2	5.1	3.2	11.2	6.3	5.7	12.9	8.3	9.7
	T50N10	27.0	12.2	12.2	27.5	4.2	4.0	5.5	6.1	3.9	2.9	4.5	10.3	8.0	8.6	11.3	8.6	9.2
White's SE Estimator ( $\widehat{SE}_{SW_W}$ )																		
N	T10N50	96.3	91.4	91.3	96.0	18.6	17.3	18.9	16.5	14.0	69.5	15.7	4.6	4.9	4.6	4.3	5.3	5.2
	T20N25	61.0	26.1	29.8	54.0	15.5	14.3	18.0	16.4	7.3	12.0	5.0	8.3	5.0	4.8	7.1	6.5	4.8
	T25N20	54.4	25.5	26.7	46.1	15.7	14.3	15.4	12.1	6.3	5.9	4.7	8.9	5.7	4.8	7.7	4.7	6.0
	T50N10	35.7	19.0	18.8	33.3	10.9	10.5	8.8	10.1	3.9	5.4	3.8	7.7	4.9	5.3	7.4	6.3	5.2
LN	T10N50	91.1	84.8	81.6	92.6	19.5	17.3	19.2	15.7	13.6	58.2	16.7	10.3	9.8	19.5	11.0	8.8	10.8
	T20N25	63.0	30.2	37.2	53.2	17.1	16.6	18.8	18.6	8.5	14.6	6.6	14.8	20.0	11.1	14.4	16.6	18.3
	T25N20	49.3	25.4	29.1	43.3	17.0	16.6	13.1	13.4	5.5	5.6	4.1	18.3	13.8	12.6	20.5	16.7	13.8
	T50N10	36.3	22.7	21.9	33.0	9.3	9.4	9.8	10.6	3.4	6.5	4.1	17.8	15.3	14.7	17.9	16.2	14.5
CN	T10N50	90.5	83.4	79.7	90.1	20.9	20.0	13.6	12.8	9.1	30.3	8.9	8.9	3.7	5.0	5.8	6.1	5.7
	T20N25	50.5	34.3	33.9	52.1	15.9	14.6	13.6	12.9	4.8	8.8	3.9	11.8	5.2	5.8	8.2	6.1	8.3
	T25N20	44.4	22.3	26.4	39.4	11.1	13.9	11.0	10.5	3.2	4.9	3.1	11.8	7.7	5.9	12.4	8.5	9.8
	T50N10	25.7	12.6	12.4	25.7	5.8	4.8	6.9	7.1	4.2	4.1	4.4	10.3	8.4	8.0	10.9	8.2	9.7

Note: Entries in the table are percentages. The nominal level of mis-coverage rates is 5%.