

$$\text{relative error} = \frac{\sum_{\tau=1}^{100} \frac{|\hat{\eta} - \bar{\eta}|}{\bar{\eta}}}{100}$$

and

$$\text{relative bias} = \frac{\sum_{\tau=1}^{100} \frac{\hat{\eta} - \bar{\eta}}{\bar{\eta}}}{100},$$

and measures of HPD intervals are given by

$$\frac{95\% \text{ HPD upper bound} - 95\% \text{ HPD lower bound}}{\bar{\eta}}.$$

**Table 1. Simulation Study Results for Stochastic Coalescent Trees**

$\eta$	Inference	Truth	Mean	Median	Error	Bias	Relative HPD width	95% HPD accuracy
$\mathcal{R}_0$	Stoch.Coal.SIR	2.50	2.81	2.64	0.11	0.08	0.95	100.00%
	Deter.Coal.SIR	2.50	2.73	2.65	0.14	0.06	0.85	96.00%
$\gamma$	Stoch.Coal.SIR	0.30	0.28	0.26	0.16	-0.11	1.17	99.00%
	Deter.Coal.SIR	0.30	0.30	0.28	0.18	-0.03	1.20	99.00%
$\mathcal{S}_{(0)}$	Stoch.Coal.SIR	999.00	1456.22	986.32	0.21	0.02	3.93	100.00%
	Deter.Coal.SIR	999.00	1719.88	1057.37	0.48	0.24	4.28	99.00%
$z_{(0)}$	Stoch.Coal.SIR	(varies)	42.36	40.43	0.03	0.02	0.20	98.00%
	Deter.Coal.SIR	(varies)	41.29	39.82	0.03	0.01	6.78	65.00%

**Table 2. Simulation Study Results for Deterministic Coalescent Trees**

$\eta$	Inference	Truth	Mean	Median	Error	Bias	Relative HPD width	95% HPD accuracy
$\mathcal{R}_0$	Stoch.Coal.SIR	2.50	2.44	2.37	0.06	-0.05	0.67	100.00%
	Deter.Coal.SIR	2.50	2.51	2.46	0.08	-0.01	0.59	99.00%
$\gamma$	Stoch.Coal.SIR	0.30	0.33	0.31	0.07	0.05	1.00	100.00%
	Deter.Coal.SIR	0.30	0.32	0.30	0.10	0.02	0.79	100.00%
$\mathcal{S}_{(0)}$	Stoch.Coal.SIR	999.00	1586.15	1141.95	0.26	0.20	3.83	100.00%
	Deter.Coal.SIR	999.00	1426.32	1029.51	0.36	0.13	3.03	100.00%
$z_{(0)}$	Stoch.Coal.SIR	44.12	45.52	44.74	0.02	0.01	0.19	93.00%
	Deter.Coal.SIR	44.12	44.34	44.11	0.02	1.93E-3	0.08	92.00%

**Table 3. Simulation Study Results: Lower  $S_0$  and  $R_0$ , Part II**

$\eta$	Inference	Truth	Mean	Median	Error	Bias	Relative HPD width	95% HPD accuracy
$\mathcal{R}_0$	Deter.Coal.SIR	1.25	1.72	1.49	0.34	0.33	0.59	73.00%
$\gamma$	Deter.Coal.SIR	0.30	0.24	0.22	0.28	-0.24	1.10	89.00%
$S_{(0)}$	Deter.Coal.SIR	499.00	546.18	350.10	0.44	-0.27	3.16	91.00%
$z_{(0)}$	Deter.Coal.SIR	(varies)	87.19	72.42	0.31	-0.29	0.44	73.00%