

ST414: Advanced Topics in Statistics

Asymptotic Statistics

Lecture 6

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Table: Estimated bias and estimated mean squared error (MSE) of $\hat{\lambda}$ and $\hat{\lambda}_{BC}$ for a random sample of size $n = 5$ from the exponential distribution with mean $1/\lambda$. The estimates are calculated based on 10000 simulated sampled for each value of λ_0 .

λ_0	Estimated bias		Estimated MSE	
	$\hat{\lambda}$	$\hat{\lambda}_{BC}$	$\hat{\lambda}$	$\hat{\lambda}_{BC}$
0.1	0.02504	0.00003	0.00587	0.00336
0.7	0.18160	0.00528	0.29559	0.16810
1.3	0.31539	-0.00769	0.97714	0.56177
1.9	0.48286	0.00629	2.11375	1.20362
2.5	0.60376	-0.01699	3.31455	1.88830
3.3	0.80564	-0.01549	6.22776	3.57062
3.9	0.98943	0.01154	9.20051	5.26192
4.5	1.13511	0.00809	12.52054	7.18859
5.1	1.22392	-0.04086	14.57797	8.37287
5.9	1.51747	0.03397	21.93058	12.56300

Figure: Estimated bias of $\hat{\lambda}$ and $\hat{\lambda}_{BC}$ for a random sample of size $n = 5$ from the exponential distribution with mean $1/\lambda$.

