Robust Tail Table

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Data Source	Constraint Setting	n = 500 R.E./Estimated U.B./C.P.	n = 800 R.E./Estimated U.B./C.P.
Gamma	$(0, \chi^2)$	$16.08/8.04 \times 10^{-2}/1$	$14.19/7.10 \times 10^{-2}/1$
	$(1, \chi^2)$	$5.46/2.73 \times 10^{-2}/1$	$5.00/2.50 \times 10^{-2}/1$
	$(2, \chi^2)$	$2.99/1.50 \times 10^{-2}/1$	$2.76/1.38 \times 10^{-2}/1$
	$(0, \mathrm{KS})$	$14.23/7.11 \times 10^{-2}/1$	$11.65/5.83 \times 10^{-2}/1$
	$(1, \mathrm{KS})$	$6.64/3.32 \times 10^{-2}/1$	$5.90/2.95 \times 10^{-2}/1$
	$(2, \mathrm{KS})$	$3.95/1.98 \times 10^{-2}/1$	$3.54/1.77 \times 10^{-2}/1$
Lognorm	$(0, \chi^2)$	$15.75/7.88 \times 10^{-2}/1$	$16.98/8.49 \times 10^{-2}/1$
	$(1, \chi^2)$	$6.35/3.18 \times 10^{-2}/1$	$6.58/3.29 \times 10^{-2}/1$
	$(2, \chi^2)$	$3.93/1.96 \times 10^{-2}/1$	$3.99/2.00 \times 10^{-2}/1$
	$(0, \mathrm{KS})$	$14.11/7.05 \times 10^{-2}/1$	$11.55/5.78 \times 10^{-2}/1$
	$(1, \mathrm{KS})$	$7.94/3.97 \times 10^{-2}/1$	$6.98/3.49 \times 10^{-2}/1$
	$(2, \mathrm{KS})$	$5.06/2.53 \times 10^{-2}/1$	$4.46/2.23 \times 10^{-2}/1$
Pareto	$(0, \chi^2)$	$14.78/7.39 \times 10^{-2}/1$	$14.92/7.46 \times 10^{-2}/1$
	$(1, \chi^2)$	$6.39/3.20 \times 10^{-2}/1$	$6.44/3.22 \times 10^{-2}/1$
	$(2, \chi^2)$	$4.29/2.15 \times 10^{-2}/1$	$4.23/2.11 \times 10^{-2}/1$
	$(0, \mathrm{KS})$	$13.63/6.81 \times 10^{-2}/1$	$11.15/5.58 \times 10^{-2}/1$
	$(1, \mathrm{KS})$	$8.85/4.43 \times 10^{-2}/1$	$7.59/3.79 \times 10^{-2}/1$
	$(2, \mathrm{KS})$	$5.95/2.98 \times 10^{-2}/1$	$5.14/2.57 \times 10^{-2}/1$

Table 1: Tail probablity estimation under different constraint settings. The true value is 0.005.

Data Source	Constraint Setting	n = 500 R.E./Estimated U.B./C.P.	n = 800 R.E./Estimated U.B./C.P.
Gamma w. true quantile point 9.21.	$(0, \chi^2)$	$2.24/2.07 \times 10^1/1$	$2.15/1.98 \times 10^1/1$
	$(1, \chi^2)$	$1.66/1.53 \times 10^1/1$	$1.60/1.47 \times 10^1/1$
	$(2, \chi^2)$	$1.57/1.44 \times 10^1/1$	$1.50/1.38 \times 10^1/1$
Lognorm w. true quantile point 104.87.	$(0, \chi^2)$	$0.26/2.71 \times 10^1/0$	$0.28/2.99 \times 10^1/0$
	$(1, \chi^2)$	$0.18/1.92 \times 10^1/0$	$0.20/2.11 \times 10^1/0$
	$(2, \chi^2)$	$0.17/1.80 \times 10^1/0$	$0.19/1.98 \times 10^1/0$
Pareto w. true quantile point 1000.00.	$(0, \chi^2)$	$0.13/1.35 \times 10^2/0$	$0.14/1.37 \times 10^2/0$
	$(1, \chi^2)$	$0.10/9.60 \times 10^1/0$	$0.10/9.72 \times 10^1/0$
	$(2, \chi^2)$	$0.09/9.01 \times 10^1/0$	$0.09/9.13 \times 10^1/0$

Table 2: Quantitle estimation under different constraint settings.

Data Source	Thresholds	n = 500		n = 800	
		$(1, \chi^2)$	$(2, \chi^2)$	$(1, \chi^2)$	$(2, \chi^2)$
Gamma	0.60	$2.82 \times 10^{-2}/5.649/1$	$1.54 \times 10^{-2}/3.075/1$	$2.57 \times 10^{-2}/5.144/1$	$1.41 \times 10^{-2}/2.820/1$
	0.62	$2.79 \times 10^{-2}/5.582/1$	$1.53 \times 10^{-2}/3.058/1$	$2.56 \times 10^{-2}/5.116/1$	$1.41 \times 10^{-2}/2.812/1$
	0.65	$2.77 \times 10^{-2}/5.544/1$	$1.53 \times 10^{-2}/3.051/1$	$2.54 \times 10^{-2}/5.085/1$	$1.40 \times 10^{-2}/2.801/1$
	0.68	$2.75 \times 10^{-2}/5.499/1$	$1.51 \times 10^{-2}/3.021/1$	$2.53 \times 10^{-2}/5.058/1$	$1.39 \times 10^{-2}/2.785/1$
	0.70	$2.73 \times 10^{-2}/5.457/1$	$1.50 \times 10^{-2}/2.994/1$	$2.50 \times 10^{-2}/5.003/1$	$1.38 \times 10^{-2}/2.764/1$
	$[0.6, 0.625, 0.65, 0.675, 0.7]$	$2.90 \times 10^{-2}/5.791/1$	$1.59 \times 10^{-2}/3.189/1$	$2.65 \times 10^{-2}/5.304/1$	$1.46 \times 10^{-2}/2.922/1$
Lognorm	0.60	$3.29 \times 10^{-2}/6.571/1$	$2.02 \times 10^{-2}/4.040/1$	$3.46 \times 10^{-2}/6.913/1$	$2.07 \times 10^{-2}/4.145/1$
	0.62	$3.25 \times 10^{-2}/6.492/1$	$2.00 \times 10^{-2}/3.999/1$	$3.40 \times 10^{-2}/6.808/1$	$2.04 \times 10^{-2}/4.089/1$
	0.65	$3.23 \times 10^{-2}/6.460/1$	$1.99 \times 10^{-2}/3.980/1$	$3.37 \times 10^{-2}/6.738/1$	$2.03 \times 10^{-2}/4.060/1$
	0.68	$3.20 \times 10^{-2}/6.393/1$	$1.97 \times 10^{-2}/3.949/1$	$3.33 \times 10^{-2}/6.661/1$	$2.01 \times 10^{-2}/4.029/1$
	0.70	$3.18 \times 10^{-2}/6.351/1$	$1.96 \times 10^{-2}/3.927/1$	$3.29 \times 10^{-2}/6.575/1$	$2.00 \times 10^{-2}/3.991/1$
	$[0.6, 0.625, 0.65, 0.675, 0.7]$	$3.39 \times 10^{-2}/6.778/1$	$2.09 \times 10^{-2}/4.185/1$	$3.52 \times 10^{-2}/7.043/1$	$2.12 \times 10^{-2}/4.249/1$
Pareto	0.60	$3.35 \times 10^{-2}/6.708/1$	$2.22 \times 10^{-2}/4.431/1$	$3.38 \times 10^{-2}/6.768/1$	$2.21 \times 10^{-2}/4.413/1$
	0.62	$3.31 \times 10^{-2}/6.629/1$	$2.20 \times 10^{-2}/4.396/1$	$3.35 \times 10^{-2}/6.693/1$	$2.18 \times 10^{-2}/4.355/1$
	0.65	$3.27 \times 10^{-2}/6.542/1$	$2.18 \times 10^{-2}/4.354/1$	$3.31 \times 10^{-2}/6.619/1$	$2.16 \times 10^{-2}/4.320/1$
	0.68	$3.22 \times 10^{-2}/6.446/1$	$2.15 \times 10^{-2}/4.309/1$	$3.26 \times 10^{-2}/6.526/1$	$2.14 \times 10^{-2}/4.279/1$
	0.70	$3.20 \times 10^{-2}/6.393/1$	$2.15 \times 10^{-2}/4.293/1$	$3.22 \times 10^{-2}/6.443/1$	$2.11 \times 10^{-2}/4.230/1$
	$[0.6, 0.625, 0.65, 0.675, 0.7]$	$3.45 \times 10^{-2}/6.905/1$	$2.31 \times 10^{-2}/4.613/1$	$3.47 \times 10^{-2}/6.938/1$	$2.27 \times 10^{-2}/4.536/1$
Gamma	0.65	$2.77 \times 10^{-2}/5.544/1$	$1.53 \times 10^{-2}/3.051/1$	$2.54 \times 10^{-2}/5.085/1$	$1.40 \times 10^{-2}/2.801/1$
	0.68	$2.75 \times 10^{-2}/5.499/1$	$1.51 \times 10^{-2}/3.021/1$	$2.53 \times 10^{-2}/5.058/1$	$1.39 \times 10^{-2}/2.785/1$
	0.70	$2.73 \times 10^{-2}/5.457/1$	$1.50 \times 10^{-2}/2.994/1$	$2.50 \times 10^{-2}/5.003/1$	$1.38 \times 10^{-2}/2.764/1$
	0.72	$2.71 \times 10^{-2}/5.415/1$	$1.49 \times 10^{-2}/2.983/1$	$2.48 \times 10^{-2}/4.952/1$	$1.37 \times 10^{-2}/2.739/1$
	0.75	$2.68 \times 10^{-2}/5.359/1$	$1.49 \times 10^{-2}/2.970/1$	$2.45 \times 10^{-2}/4.903/1$	$1.36 \times 10^{-2}/2.727/1$
	$[0.65, 0.675, 0.7, 0.725, 0.75]$	$2.85 \times 10^{-2}/5.708/1$	$1.57 \times 10^{-2}/3.145/1$	$2.61 \times 10^{-2}/5.217/1$	$1.44 \times 10^{-2}/2.888/1$
Lognorm	0.65	$3.23 \times 10^{-2}/6.460/1$	$1.99 \times 10^{-2}/3.980/1$	$3.37 \times 10^{-2}/6.738/1$	$2.03 \times 10^{-2}/4.060/1$
	0.68	$3.20 \times 10^{-2}/6.393/1$	$1.97 \times 10^{-2}/3.949/1$	$3.33 \times 10^{-2}/6.661/1$	$2.01 \times 10^{-2}/4.029/1$
	0.70	$3.18 \times 10^{-2}/6.351/1$	$1.96 \times 10^{-2}/3.927/1$	$3.29 \times 10^{-2}/6.575/1$	$2.00 \times 10^{-2}/3.991/1$
	0.72	$3.15 \times 10^{-2}/6.296/1$	$1.95 \times 10^{-2}/3.906/1$	$3.23 \times 10^{-2}/6.463/1$	$1.97 \times 10^{-2}/3.943/1$
	0.75	$3.14 \times 10^{-2}/6.276/1$	$1.95 \times 10^{-2}/3.896/1$	$3.19 \times 10^{-2}/6.383/1$	$1.95 \times 10^{-2}/3.908/1$
	$[0.65, 0.675, 0.7, 0.725, 0.75]$	$3.34 \times 10^{-2}/6.687/1$	$2.07 \times 10^{-2}/4.132/1$	$3.45 \times 10^{-2}/6.904/1$	$2.10 \times 10^{-2}/4.192/1$
Pareto	0.65	$3.27 \times 10^{-2}/6.542/1$	$2.18 \times 10^{-2}/4.354/1$	$3.31 \times 10^{-2}/6.619/1$	$2.16 \times 10^{-2}/4.320/1$
	0.68	$3.22 \times 10^{-2}/6.446/1$	$2.15 \times 10^{-2}/4.309/1$	$3.26 \times 10^{-2}/6.526/1$	$2.14 \times 10^{-2}/4.279/1$
	0.70	$3.20 \times 10^{-2}/6.393/1$	$2.15 \times 10^{-2}/4.293/1$	$3.22 \times 10^{-2}/6.443/1$	$2.11 \times 10^{-2}/4.230/1$
	0.72	$3.15 \times 10^{-2}/6.301/1$	$2.13 \times 10^{-2}/4.252/1$	$3.17 \times 10^{-2}/6.339/1$	$2.09 \times 10^{-2}/4.171/1$
	0.75	$3.11 \times 10^{-2}/6.215/1$	$2.11 \times 10^{-2}/4.214/1$	$3.12 \times 10^{-2}/6.239/1$	$2.06 \times 10^{-2}/4.127/1$
	$[0.65, 0.675, 0.7, 0.725, 0.75]$	$3.37 \times 10^{-2}/6.737/1$	$2.27 \times 10^{-2}/4.535/1$	$3.39 \times 10^{-2}/6.779/1$	$2.23 \times 10^{-2}/4.462/1$
Gamma	0.70	$2.73 \times 10^{-2}/5.457/1$	$1.50 \times 10^{-2}/2.994/1$	$2.50 \times 10^{-2}/5.003/1$	$1.38 \times 10^{-2}/2.764/1$
	0.72	$2.71 \times 10^{-2}/5.415/1$	$1.49 \times 10^{-2}/2.983/1$	$2.48 \times 10^{-2}/4.952/1$	$1.37 \times 10^{-2}/2.739/1$
	0.75	$2.68 \times 10^{-2}/5.359/1$	$1.49 \times 10^{-2}/2.970/1$	$2.45 \times 10^{-2}/4.903/1$	$1.36 \times 10^{-2}/2.727/1$
	0.78	$2.65 \times 10^{-2}/5.308/1$	$1.48 \times 10^{-2}/2.953/1$	$2.43 \times 10^{-2}/4.854/1$	$1.36 \times 10^{-2}/2.710/1$
	0.80	$2.62 \times 10^{-2}/5.232/1$	$1.47 \times 10^{-2}/2.934/1$	$2.40 \times 10^{-2}/4.799/1$	$1.35 \times 10^{-2}/2.695/1$
	$[0.7, 0.725, 0.75, 0.775, 0.8]$	$2.81 \times 10^{-2}/5.613/1$	$1.55 \times 10^{-2}/3.099/1$	$2.56 \times 10^{-2}/5.115/1$	$1.42 \times 10^{-2}/2.845/1$
Lognorm	0.70	$3.18 \times 10^{-2}/6.351/1$	$1.96 \times 10^{-2}/3.927/1$	$3.29 \times 10^{-2}/6.575/1$	$2.00 \times 10^{-2}/3.991/1$
	0.72	$3.15 \times 10^{-2}/6.296/1$	$1.95 \times 10^{-2}/3.906/1$	$3.23 \times 10^{-2}/6.463/1$	$1.97 \times 10^{-2}/3.943/1$
	0.75	$3.14 \times 10^{-2}/6.276/1$	$1.95 \times 10^{-2}/3.896/1$	$3.19 \times 10^{-2}/6.383/1$	$1.95 \times 10^{-2}/3.908/1$
	0.78	$3.10 \times 10^{-2}/6.193/1$	$1.92 \times 10^{-2}/3.839/1$	$3.15 \times 10^{-2}/6.295/1$	$1.92 \times 10^{-2}/3.850/1$
	0.80	$3.06 \times 10^{-2}/6.120/1$	$1.90 \times 10^{-2}/3.790/1$	$3.11 \times 10^{-2}/6.215/1$	$1.91 \times 10^{-2}/3.826/1$
	$[0.7, 0.725, 0.75, 0.775, 0.8]$	$3.30 \times 10^{-2}/6.591/1$	$2.05 \times 10^{-2}/4.097/1$	$3.35 \times 10^{-2}/6.694/1$	$2.05 \times 10^{-2}/4.102/1$
Pareto	0.70	$3.20 \times 10^{-2}/6.393/1$	$2.15 \times 10^{-2}/4.293/1$	$3.22 \times 10^{-2}/6.443/1$	$2.11 \times 10^{-2}/4.230/1$
	0.72	$3.15 \times 10^{-2}/6.301/1$	$2.13 \times 10^{-2}/4.252/1$	$3.17 \times 10^{-2}/6.339/1$	$2.09 \times 10^{-2}/4.171/1$
	0.75	$3.11 \times 10^{-2}/6.215/1$	$2.11 \times 10^{-2}/4.214/1$	$3.12 \times 10^{-2}/6.239/1$	$2.06 \times 10^{-2}/4.127/1$
	0.78	$3.06 \times 10^{-2}/6.117/1$	$2.09 \times 10^{-2}/4.176/1$	$3.07 \times 10^{-2}/6.133/1$	$2.04 \times 10^{-2}/4.079/1$
	0.80	$3.03 \times 10^{-2}/6.057/1$	$2.08 \times 10^{-2}/4.153/1$	$3.02 \times 10^{-2}/6.037/1$	$2.02 \times 10^{-2}/4.039/1$
	$[0.7, 0.725, 0.75, 0.775, 0.8]$	$3.30 \times 10^{-2}/6.595/1$	$2.24 \times 10^{-2}/4.481/1$	$3.29 \times 10^{-2}/6.575/1$	$2.18 \times 10^{-2}/4.358/1$
Gamma	0.75	$2.68 \times 10^{-2}/5.359/1$	$1.49 \times 10^{-2}/2.970/1$	$2.45 \times 10^{-2}/4.903/1$	$1.36 \times 10^{-2}/2.727/1$
	0.78	$2.65 \times 10^{-2}/5.308/1$	$1.48 \times 10^{-2}/2.953/1$	$2.43 \times 10^{-2}/4.854/1$	$1.36 \times 10^{-2}/2.710/1$
	0.80	$2.62 \times 10^{-2}/5.232/1$	$1.47 \times 10^{-2}/2.934/1$	$2.40 \times 10^{-2}/4.799/1$	$1.35 \times 10^{-2}/2.695/1$
	0.82	$2.56 \times 10^{-2}/5.127/1$	$1.45 \times 10^{-2}/2.895/1$	$2.38 \times 10^{-2}/4.759/1$	$1.34 \times 10^{-2}/2.672/1$
	0.85	$2.55 \times 10^{-2}/5.091/1$	$1.44 \times 10^{-2}/2.890/1$	$2.35 \times 10^{-2}/4.704/1$	$1.33 \times 10^{-2}/2.657/1$
	$[0.75, 0.775, 0.8, 0.825, 0.85]$	$2.74 \times 10^{-2}/5.489/1$	$1.54 \times 10^{-2}/3.077/1$	$2.50 \times 10^{-2}/5.008/1$	$1.40 \times 10^{-2}/2.809/1$
Lognorm	0.75	$3.14 \times 10^{-2}/6.276/1$	$1.95 \times 10^{-2}/3.896/1$	$3.19 \times 10^{-2}/6.383/1$	$1.95 \times 10^{-2}/3.908/1$
	0.78	$3.10 \times 10^{-2}/6.193/1$	$1.92 \times 10^{-2}/3.839/1$	$3.15 \times 10^{-2}/6.295/1$	$1.92 \times 10^{-2}/3.850/1$
	0.80	$3.06 \times 10^{-2}/6.120/1$	$1.90 \times 10^{-2}/3.790/1$	$3.11 \times 10^{-2}/6.215/1$	$1.91 \times 10^{-2}/3.826/1$
	0.82	$3.01 \times 10^{-2}/6.017/1$	$1.87 \times 10^{-2}/3.732/1$	$3.05 \times 10^{-2}/6.106/1$	$1.89 \times 10^{-2}/3.779/1$
	0.85	$2.94 \times 10^{-2}/5.889/1$	$1.83 \times 10^{-2}/3.663/1$	$3.03 \times 10^{-2}/6.051/1$	$1.87 \times 10^{-2}/3.749/1$
	$[0.75, 0.775, 0.8, 0.825, 0.85]$	$3.23 \times 10^{-2}/6.464/1$	$2.00 \times 10^{-2}/4.006/1$	$3.26 \times 10^{-2}/6.519/1$	$2.01 \times 10^{-2}/4.014/1$
Pareto	0.75	$3.11 \times 10^{-2}/6.215/1$	$2.11 \times 10^{-2}/4.214/1$	$3.12 \times 10^{-2}/6.239/1$	$2.06 \times 10^{-2}/4.127/1$
	0.78	$3.06 \times 10^{-2}/6.117/1$	$2.09 \times 10^{-2}/4.176/1$	$3.07 \times 10^{-2}/6.133/1$	$2.04 \times 10^{-2}/4.079/1$
	0.80	$3.03 \times 10^{-2}/6.057/1$	$2.08 \times 10^{-2}/4.153/1$	$3.02 \times 10^{-2}/6.037/1$	$2.02 \times 10^{-2}/4.039/1$
	0.82	$2.97 \times 10^{-2}/5.936/1$	$2.05 \times 10^{-2}/4.099/1$	$2.95 \times 10^{-2}/5.897/1$	$1.99 \times 10^{-2}/3.979/1$
	0.85	$2.93 \times 10^{-2}/5.864/1$	$2.02 \times 10^{-2}/4.046/1$	$2.90 \times 10^{-2}/5.809/1$	$1.97 \times 10^{-2}/3.937/1$
	$[0.75, 0.775, 0.8, 0.825, 0.85]$	$3.20 \times 10^{-2}/6.403/1$	$2.20 \times 10^{-2}/4.398/1$	$3.18 \times 10^{-2}/6.355/1$	$2.13 \times 10^{-2}/4.256/1$

Table 3: Tail probablity estimation under different cutoff threshold(s). The true value is 0.005.

		n = 500		n = 800	
Data Source	LHS Quantitle	$(2, \chi^2)$	$(2, \mathrm{KS})$	$(2, \chi^2)$	$(2, \mathrm{KS})$
Gamma	0.900	$7.69 \times 10^{-3}/1.538/1$	$7.89 \times 10^{-3}/1.579/1$	$7.40 \times 10^{-3}/1.481/1$	$7.71 \times 10^{-3}/1.543/1$
	0.910	$7.94 \times 10^{-3}/1.589/1$	$8.07 \times 10^{-3}/1.613/1$	$7.65 \times 10^{-3}/1.530/1$	$7.85 \times 10^{-3}/1.569/1$
	0.920	$8.25 \times 10^{-3}/1.649/1$	$8.27 \times 10^{-3}/1.654/1$	$7.95 \times 10^{-3}/1.590/1$	$8.00 \times 10^{-3}/1.601/1$
	0.930	$8.61 \times 10^{-3}/1.722/1$	$8.54 \times 10^{-3}/1.708/1$	$8.30 \times 10^{-3}/1.661/1$	$8.22 \times 10^{-3}/1.643/1$
	0.940	$9.05 \times 10^{-3}/1.810/1$	$8.91 \times 10^{-3}/1.782/1$	$8.72 \times 10^{-3}/1.745/1$	$8.50 \times 10^{-3}/1.700/1$
	0.950	$9.58 \times 10^{-3}/1.917/1$	$9.39 \times 10^{-3}/1.879/1$	$9.22 \times 10^{-3}/1.845/1$	$8.90 \times 10^{-3}/1.780/1$
	0.960	$1.02 \times 10^{-2}/2.046/1$	$1.00 \times 10^{-2}/2.009/1$	$9.81 \times 10^{-3}/1.962/1$	$9.47 \times 10^{-3}/1.893/1$
	0.970	$1.10 \times 10^{-2}/2.205/1$	$1.11 \times 10^{-2}/2.215/1$	$1.05 \times 10^{-2}/2.093/1$	$1.04 \times 10^{-2}/2.075/1$
	0.980	$1.22 \times 10^{-2}/2.436/1$	$1.32 \times 10^{-2}/2.636/1$	$1.14 \times 10^{-2}/2.280/1$	$1.21 \times 10^{-2}/2.425/1$
	0.990	$1.50 \times 10^{-2}/2.994/1$	$1.98 \times 10^{-2}/3.952/1$	$1.38 \times 10^{-2}/2.764/1$	$1.77 \times 10^{-2}/3.536/1$
Lognorm	0.900	$9.33 \times 10^{-3}/1.865/1$	$9.76 \times 10^{-3}/1.951/1$	$8.95 \times 10^{-3}/1.790/1$	$9.45 \times 10^{-3}/1.889/1$
	0.910	$9.82 \times 10^{-3}/1.965/1$	$9.95 \times 10^{-3}/1.989/1$	$9.41 \times 10^{-3}/1.883/1$	$9.65 \times 10^{-3}/1.929/1$
	0.920	$1.04 \times 10^{-2}/2.085/1$	$1.02 \times 10^{-2}/2.046/1$	$9.98 \times 10^{-3}/1.997/1$	$9.89 \times 10^{-3}/1.977/1$
	0.930	$1.12 \times 10^{-2}/2.230/1$	$1.05 \times 10^{-2}/2.109/1$	$1.07 \times 10^{-2}/2.137/1$	$1.01 \times 10^{-2}/2.028/1$
	0.940	$1.20 \times 10^{-2}/2.405/1$	$1.10 \times 10^{-2}/2.199/1$	$1.16 \times 10^{-2}/2.311/1$	$1.05 \times 10^{-2}/2.099/1$
	0.950	$1.31 \times 10^{-2}/2.611/1$	$1.16 \times 10^{-2}/2.321/1$	$1.26 \times 10^{-2}/2.523/1$	$1.10 \times 10^{-2}/2.191/1$
	0.960	$1.42 \times 10^{-2}/2.842/1$	$1.25 \times 10^{-2}/2.493/1$	$1.39 \times 10^{-2}/2.772/1$	$1.16 \times 10^{-2}/2.325/1$
	0.970	$1.54 \times 10^{-2}/3.082/1$	$1.38 \times 10^{-2}/2.766/1$	$1.52 \times 10^{-2}/3.035/1$	$1.27 \times 10^{-2}/2.550/1$
	0.980	$1.69 \times 10^{-2}/3.388/1$	$1.66 \times 10^{-2}/3.318/1$	$1.67 \times 10^{-2}/3.339/1$	$1.51 \times 10^{-2}/3.014/1$
	0.990	$1.96 \times 10^{-2}/3.927/1$	$2.53 \times 10^{-2}/5.058/1$	$2.00 \times 10^{-2}/3.991/1$	$2.23 \times 10^{-2}/4.461/1$
Pareto	0.900	$1.01 \times 10^{-2}/2.020/1$	$1.03 \times 10^{-2}/2.061/1$	$9.75 \times 10^{-3}/1.951/1$	$9.97 \times 10^{-3}/1.993/1$
	0.910	$1.07 \times 10^{-2}/2.147/1$	$1.05 \times 10^{-2}/2.102/1$	$1.03 \times 10^{-2}/2.067/1$	$1.02 \times 10^{-2}/2.041/1$
	0.920	$1.15 \times 10^{-2}/2.301/1$	$1.08 \times 10^{-2}/2.151/1$	$1.11 \times 10^{-2}/2.212/1$	$1.04 \times 10^{-2}/2.084/1$
	0.930	$1.25 \times 10^{-2}/2.493/1$	$1.12 \times 10^{-2}/2.234/1$	$1.20 \times 10^{-2}/2.394/1$	$1.07 \times 10^{-2}/2.140/1$
	0.940	$1.37 \times 10^{-2}/2.734/1$	$1.17 \times 10^{-2}/2.333/1$	$1.31 \times 10^{-2}/2.626/1$	$1.11 \times 10^{-2}/2.221/1$
	0.950	$1.51 \times 10^{-2}/3.029/1$	$1.24 \times 10^{-2}/2.471/1$	$1.46 \times 10^{-2}/2.913/1$	$1.16 \times 10^{-2}/2.329/1$
	0.960	$1.68 \times 10^{-2}/3.367/1$	$1.34 \times 10^{-2}/2.682/1$	$1.62 \times 10^{-2}/3.247/1$	$1.25 \times 10^{-2}/2.497/1$
	0.970	$1.85 \times 10^{-2}/3.699/1$	$1.53 \times 10^{-2}/3.064/1$	$1.78 \times 10^{-2}/3.557/1$	$1.39 \times 10^{-2}/2.787/1$
	0.980	$2.00 \times 10^{-2}/3.994/1$	$1.89 \times 10^{-2}/3.773/1$	$1.92 \times 10^{-2}/3.841/1$	$1.67 \times 10^{-2}/3.340/1$
	0.990	$2.15 \times 10^{-2}/4.293/1$	$2.98 \times 10^{-2}/5.951/1$	$2.11 \times 10^{-2}/4.230/1$	$2.57 \times 10^{-2}/5.143/1$

Table 4: Tail probablity estimation under different objective functions. The true value is 0.005.