

APPENDICES

Microsimulation model calibration with approximate Bayesian computation in R: A tutorial

eTable 1 Model Parameters Prior to Calibration

Coefficient	Transition to Nursing Home Model	Transition Out of Nursing Home Model
Intercept	-10.320	-0.110
Age at Diagnosis	0.024	-0.010
Gender (ref = Female)	-0.193	-0.175
Race: Black (ref = White)	-0.590	0.047
Race: Other (ref = White)	-0.519	0.027
Shape	1.796	0.523

eTable 2 ABC Rejection Sampler and ABC MCMC Posterior for Single Dimensional Example

Tolerance (ϵ)	Posterior Predictive Mean [90% Credible Interval]
0.005	0.488 [0.484, 0.492]
0.01	0.488 [0.479, 0.497]
0.025	0.488 [0.467, 0.508]
0.05	0.484 [0.444, 0.528]
Scale parameter (h)	Posterior Predictive Mean [90% Credible Interval]
0.01	0.489 [0.469, 0.505]
0.025	0.490 [0.453, 0.526]
0.05	0.493 [0.418, 0.578]
0.1	0.481 [0.294, 0.662]

eTable 3 Preliminary Analysis and Prior Distribution for Multidimensional Example

Parameter	Tested Values	Chosen Prior Distribution
Weibull Shape	Unif(1, 3)	Unif(1, 3)
Weibull Intercept	Unif(-20, 0)	$(-3.815 * \text{Shape}) - 1.963 + N(0, 0.608)$
Gender coefficient	Unif(-1.61, 0.7) [HR: Unif(0.2, 2)]	Unif(-1.61, 0.7)
Race coefficient (black)	Unif(-1.61, 0.7) [HR: Unif(0.2, 2)]	Unif(-1.61, 0.7)
Race coefficient (other)	Unif(-1.61, 0.7) [HR: Unif(0.2, 2)]	Unif(-1.61, 0.7)

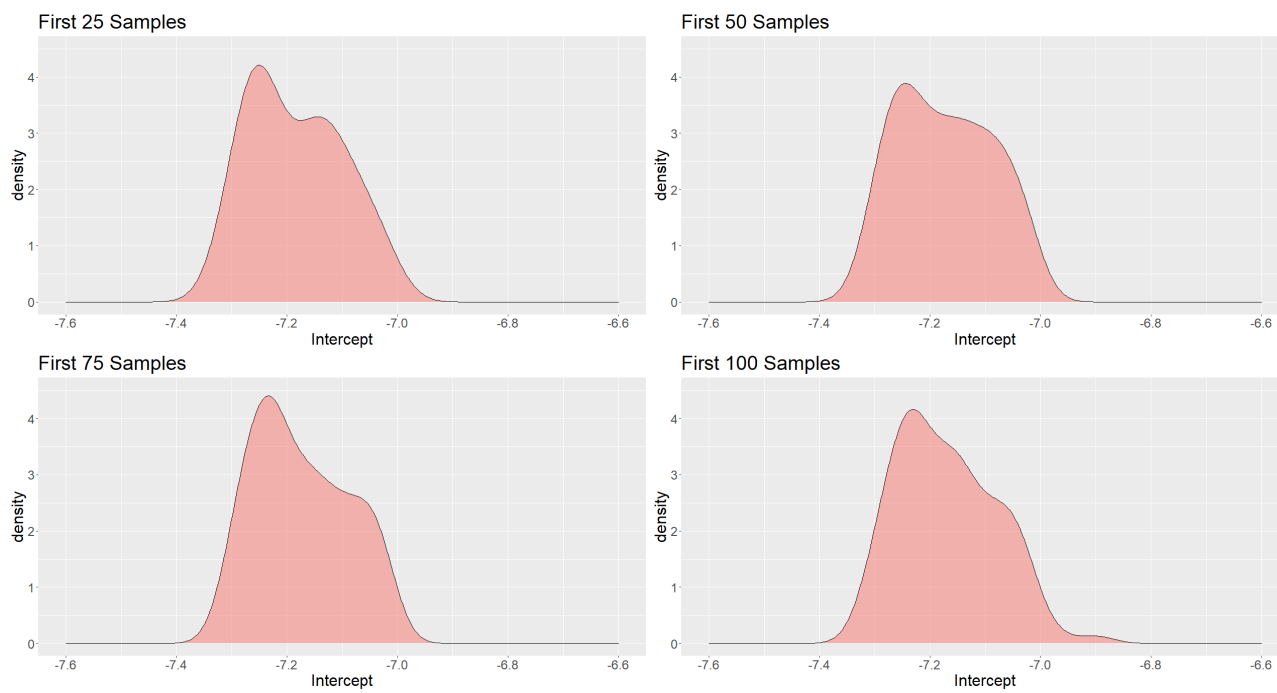
Figure 1. eFigure 1: Evolution of Sampled Parameters, ABC Rejection Sampler

Figure 2. eFigure 2: Evolution of Sampled Parameters, ABC MCMC



Figure 3. eFigure 3: Trace Plot of MCMC Chain, Single Target Example

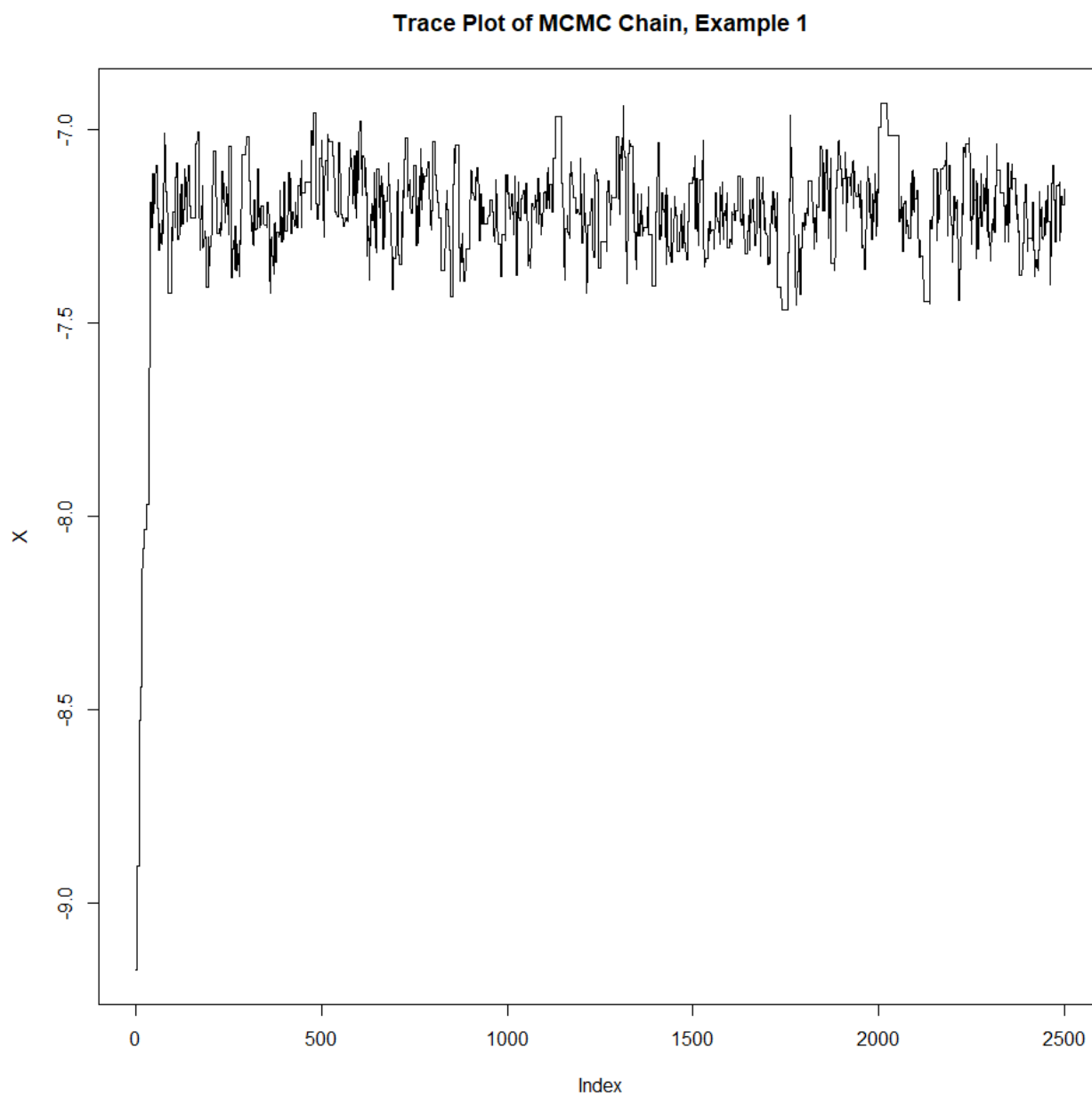


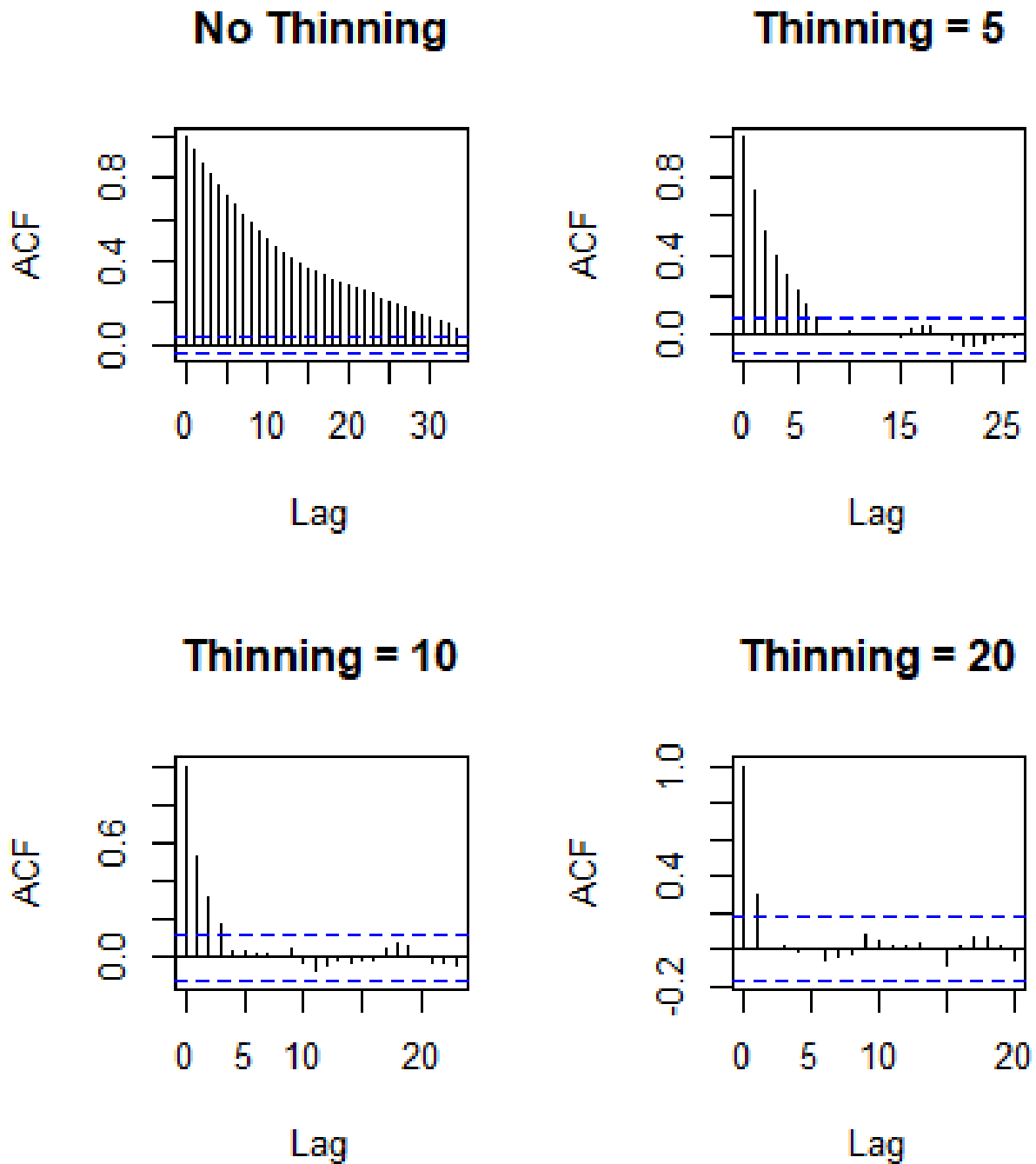
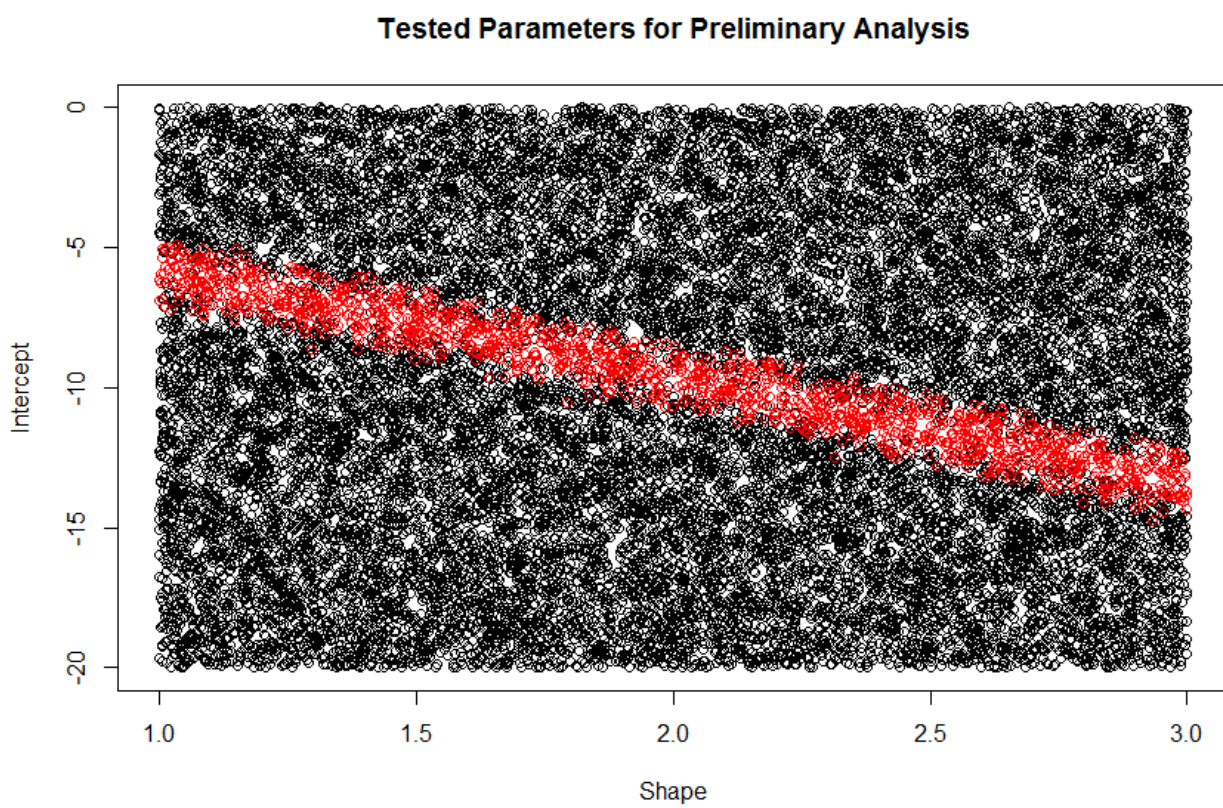
Figure 4. eFigure 4: Autocorrelation Plots for MCMC Chain, Single Target Example

Figure 5. eFigure 5: Plot of Tested Parameters for Preliminary Analysis



*Points colored red represent parameters whose predictions were within 5 (using the RMSE distance function) of the calibration target.

Figure 6. eFigure 6: Approximate Posterior Distributions for Multidimensional Example, ABC Rejection Sampler

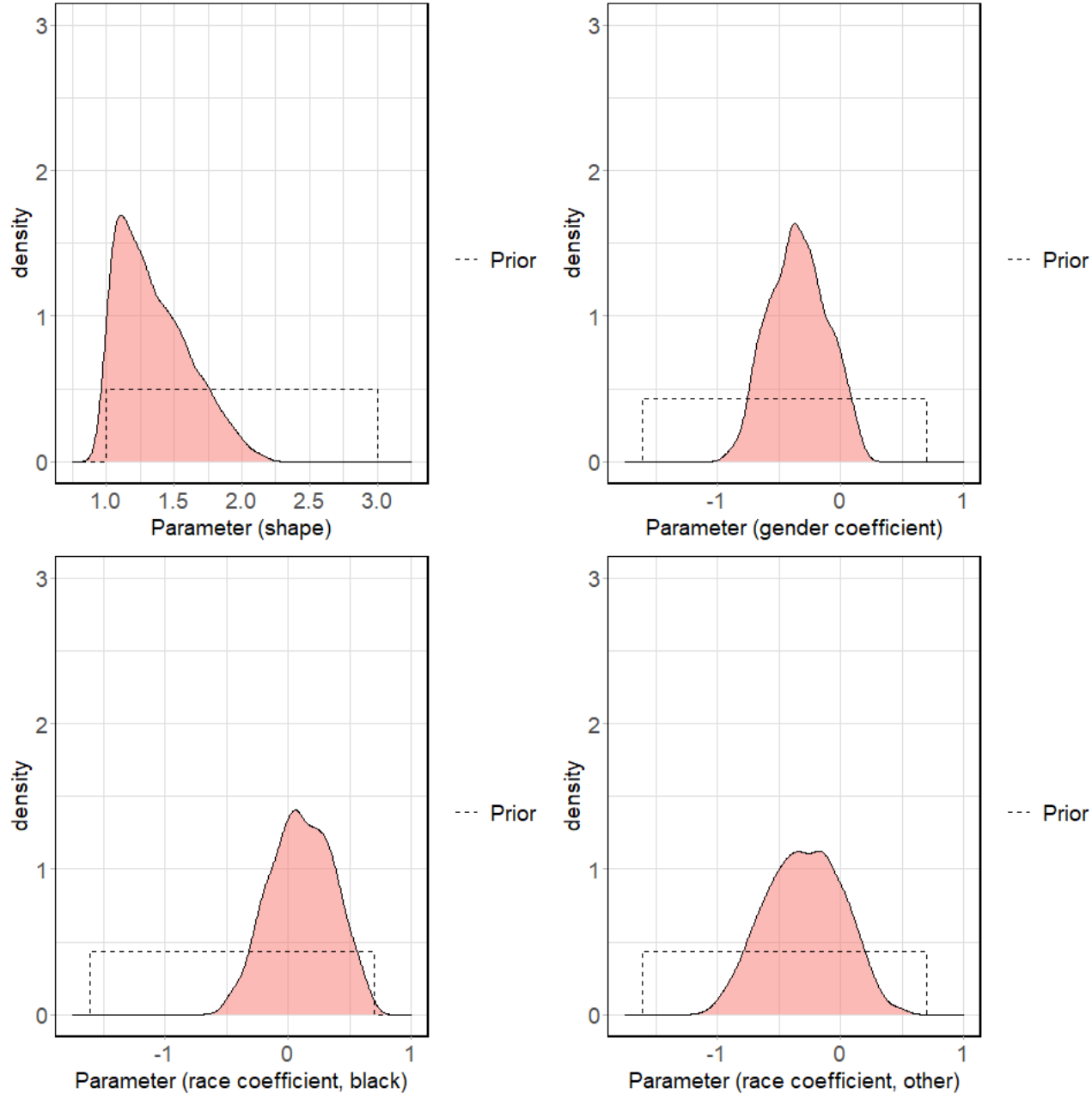


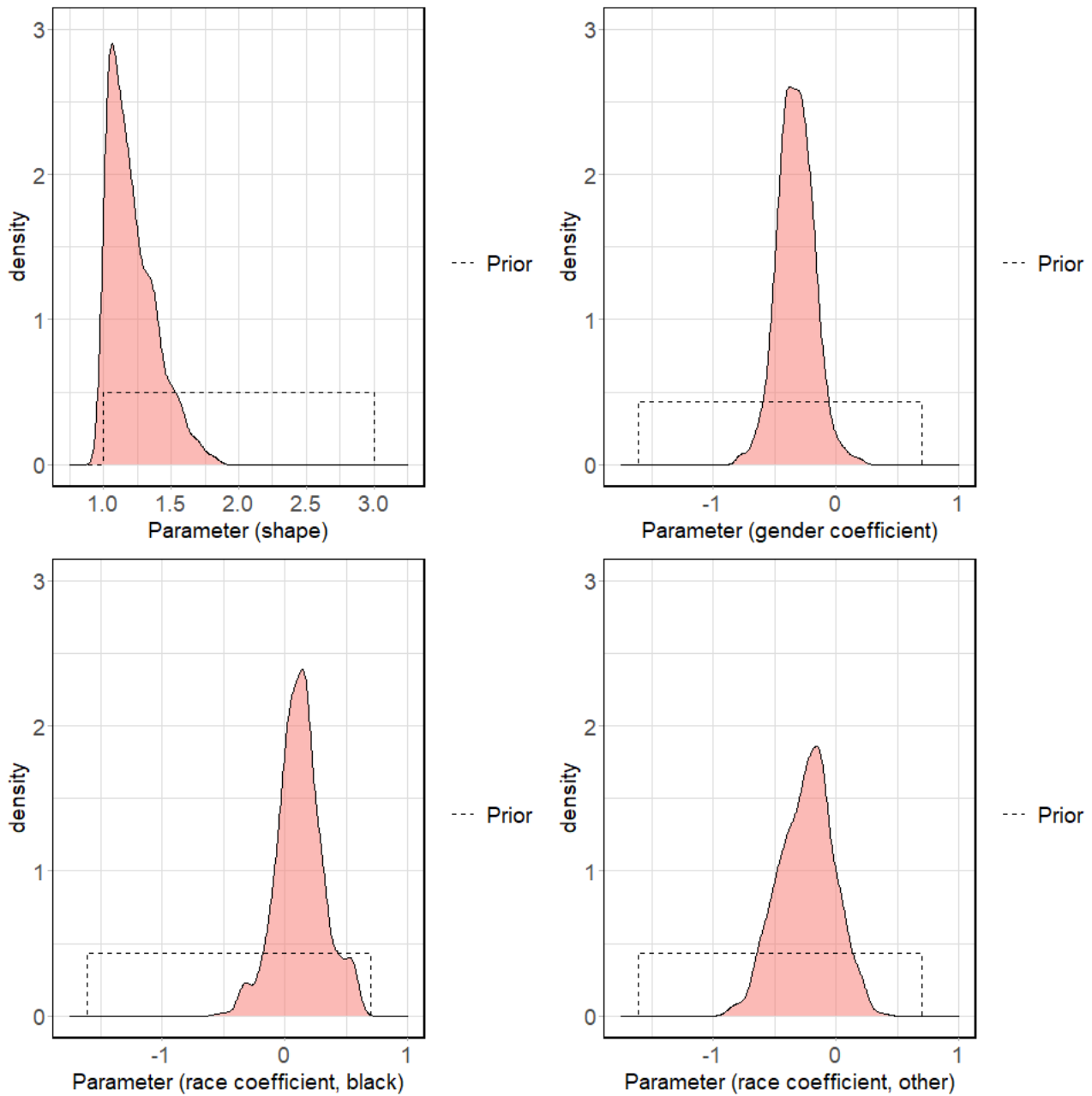
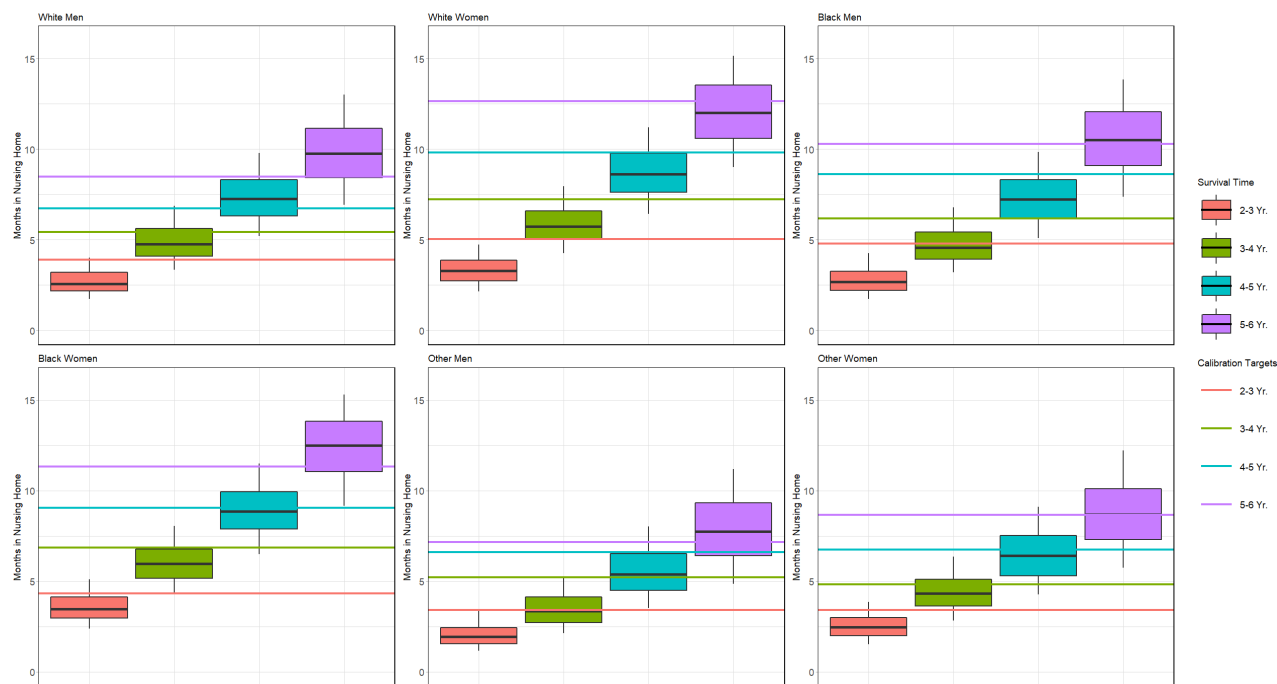
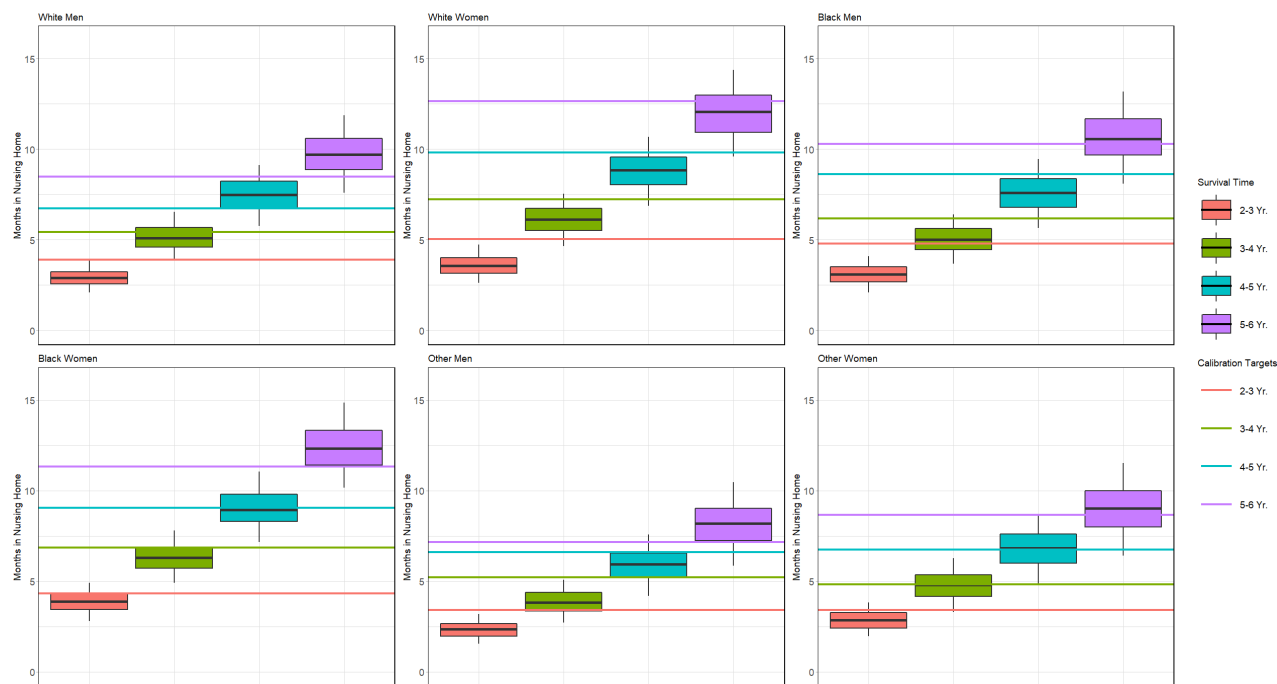
Figure 7. eFigure 7: Approximate Posterior Distributions for Multidimensional Example, ABC MCMC

Figure 8. eFigure 8: Approximate Posterior Predictive Distributions for Multidimensional Example, ABC Rejection Sampler *



* Boxplot whiskers represent the 90% credible interval for the distribution, instead of the common usage of 1.5 times the interquartile range.

Figure 9. eFigure 9: Approximate Posterior Predictive Distributions for Multidimensional Example, ABC MCMC *



* Boxplot whiskers represent the 90% credible interval for the distribution, instead of the common usage of 1.5 times the interquartile range.