

# Bayesian Model Report

Art Tay

## Marginal Effects

```
beta_tables <- tar_read(beta_tables)

for(tbl in beta_tables) {
  print(tbl)
}
```

Table 1: Summary of count Normal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
min_phred	110.3897	1.9628	107.1174	113.5811	1.0004	0.5487
min_length	71.1408	1.2587	69.1144	73.1936	1.0016	0.6661
min_phred_x_min_length	-2.6449	0.0453	-2.7202	-2.5678	1.0073	0.9903
min_phred_x_aligner_kallisto	-17.7730	2.2173	-21.3498	-13.9836	1.0044	0.8564
min_phred_x_aligner_salmon	-15.5172	2.3050	-19.1005	-11.6049	1.0010	0.6290
min_phred_x_aligner_STAR	10.3410	2.0638	6.8336	13.6301	1.0049	0.6674
min_phred_x_trim_poly_x_X1	3.2301	1.6622	0.4657	6.0519	0.9995	0.5141
min_length_x_aligner_kallisto	-7.4303	1.4219	-9.8130	-5.2129	1.0028	0.7989
min_length_x_aligner_salmon	-6.4483	1.3748	-8.7503	-4.2674	1.0006	0.5930
min_length_x_aligner_STAR	3.4976	1.2846	1.4378	5.7183	1.0044	0.7264
min_length_x_trim_poly_x_X1	-1.9250	1.0393	-3.6740	-0.2689	0.9998	0.4417

Table 2: Summary of effect size Normal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 3: Summary of p-value Normal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 4: Summary of count logNormal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 5: Summary of effect size logNormal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 6: Summary of p-value logNormal model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 7: Summary of count Gamma model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 8: Summary of effect size Gamma model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 9: Summary of p-value Gamma model with ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 10: Summary of count Normal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
min_phred	112.3678	2.4595	108.0750	116.2000	1.0056	0.4074
min_length	69.0226	1.5985	66.2729	71.4995	1.0051	0.3586
aligner_STAR	233.3481	106.7375	45.8835	408.1810	1.0014	0.6632
min_phred_x_min_length	-2.6283	0.0633	-2.7239	-2.5222	1.0039	0.3835
min_phred_x_aligner_kallisto	-19.4868	2.0374	-22.7958	-16.1648	1.0022	0.6228
min_phred_x_aligner_salmon	-17.1904	2.2617	-21.0136	-13.6517	1.0029	0.6301
min_length_x_aligner_kallisto	-6.2890	1.2693	-8.4024	-4.2148	0.9988	0.7009
min_length_x_aligner_salmon	-5.2643	1.3522	-7.4547	-2.8904	1.0037	0.6935

Table 11: Summary of effect size Normal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 12: Summary of p-value Normal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 13: Summary of count logNormal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 14: Summary of effect size logNormal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 15: Summary of p-value logNormal model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 16: Summary of count Gamma model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 17: Summary of effect size Gamma model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 18: Summary of p-value Gamma model with lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 19: Summary of count Normal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
intercept	1128.5005	129.0251	924.4704	1348.7315	1.0021	0.8640
min_phred	68.7501	5.0548	59.9572	76.8973	1.0015	0.8173
min_length	42.2864	3.0961	37.0304	47.1889	1.0016	0.8327
aligner_kallisto	-360.3229	56.7717	-453.5108	-266.2739	1.0040	0.8056
aligner_salmon	-383.4106	57.2523	-469.7884	-284.8662	1.0039	0.8311
aligner_STAR	558.6998	48.0978	480.2801	636.7402	1.0012	1.3251
trim_poly_x_X1	111.4864	40.6953	46.5585	176.6378	1.0054	0.5791
min_phred_x_min_length	-1.5624	0.1205	-1.7522	-1.3593	1.0009	0.8845
min_phred_x_aligner_kallisto	-10.5765	1.8745	-13.5789	-7.6919	0.9991	0.8547
min_phred_x_aligner_salmon	-7.7219	1.9102	-11.1346	-4.7365	1.0020	0.7779
min_phred_x_aligner_STAR	-3.0956	1.5300	-5.6589	-0.5112	1.0008	1.2367
min_length_x_aligner_kallisto	-2.9119	0.9418	-4.4698	-1.3737	1.0058	0.8354
min_length_x_aligner_salmon	-2.2466	0.9013	-3.7404	-0.7411	1.0018	0.8191
min_length_x_aligner_STAR	-1.4407	0.8286	-2.8016	-0.0830	1.0031	1.2663
min_length_x_trim_poly_g_X1	-1.1717	0.7121	-2.3478	-0.0062	1.0024	0.8041
min_length_x_trim_poly_x_X1	-2.1750	0.6868	-3.3161	-1.0605	1.0036	0.5621

Table 20: Summary of effect size Normal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 21: Summary of p-value Normal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 22: Summary of count logNormal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 23: Summary of effect size logNormal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 24: Summary of p-value logNormal model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 25: Summary of count Gamma model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 26: Summary of effect size Gamma model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 27: Summary of p-value Gamma model with weak ridge prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 28: Summary of count Normal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
intercept	2971.9746	48.7453	2890.1740	3048.8675	1.0125	0.7814
aligner_kallisto	-737.2895	24.4001	-774.2467	-696.0081	1.0066	0.5689
aligner_salmon	-656.5474	23.3291	-694.4793	-618.7522	1.0092	0.6121
aligner_STAR	453.0934	28.8774	404.4833	500.3252	1.0046	0.6177

Table 29: Summary of effect size Normal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 30: Summary of p-value Normal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 31: Summary of count logNormal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 32: Summary of effect size logNormal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 33: Summary of p-value logNormal model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 34: Summary of count Gamma model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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Table 35: Summary of effect size Gamma model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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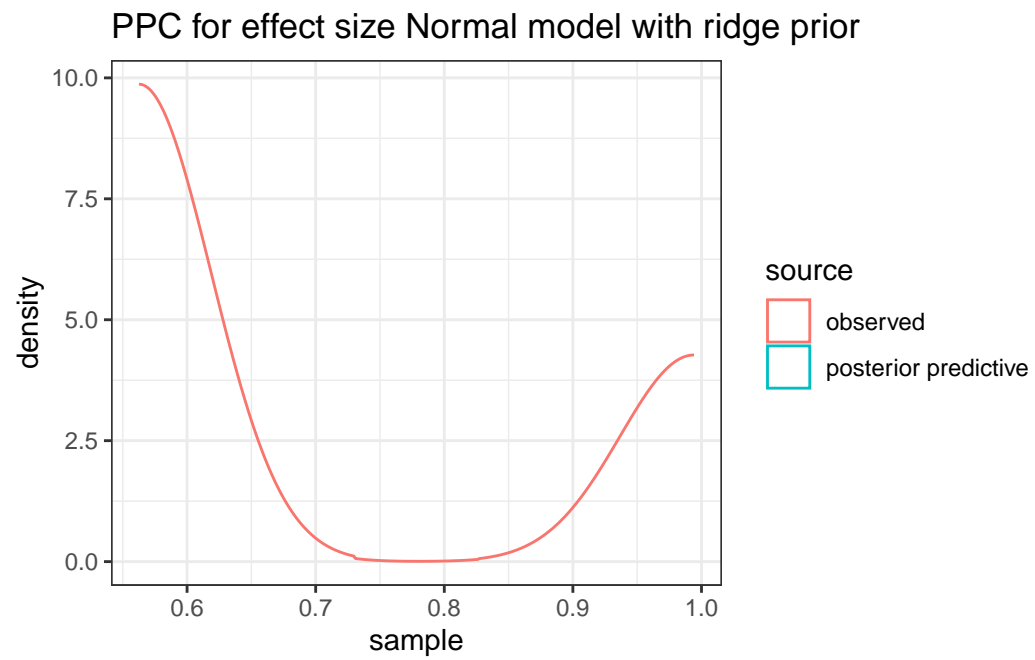
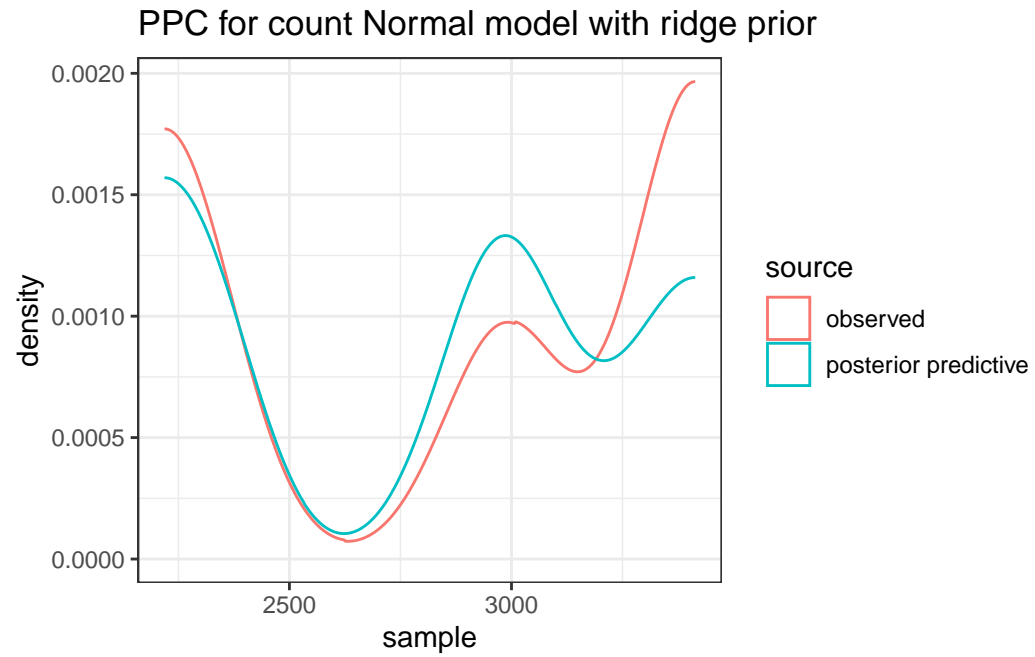
Table 36: Summary of p-value Gamma model with weak lasso prior

predictor	mean	sd	q5	q95	rhat	avg_ess_percent
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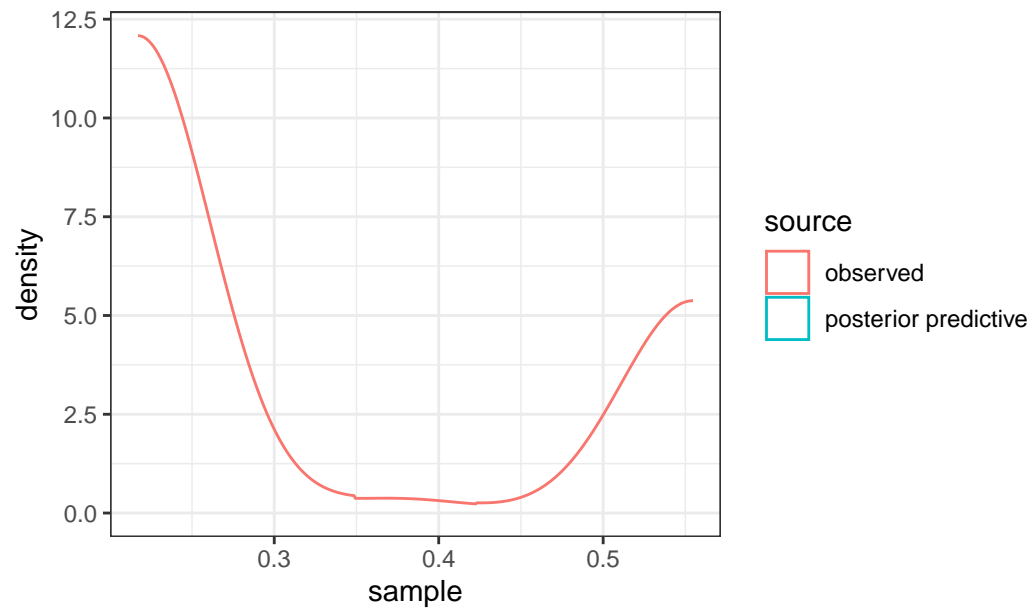
## Posterior Predictive Check

```
ppc_plots <- tar_read(ppc_plots)

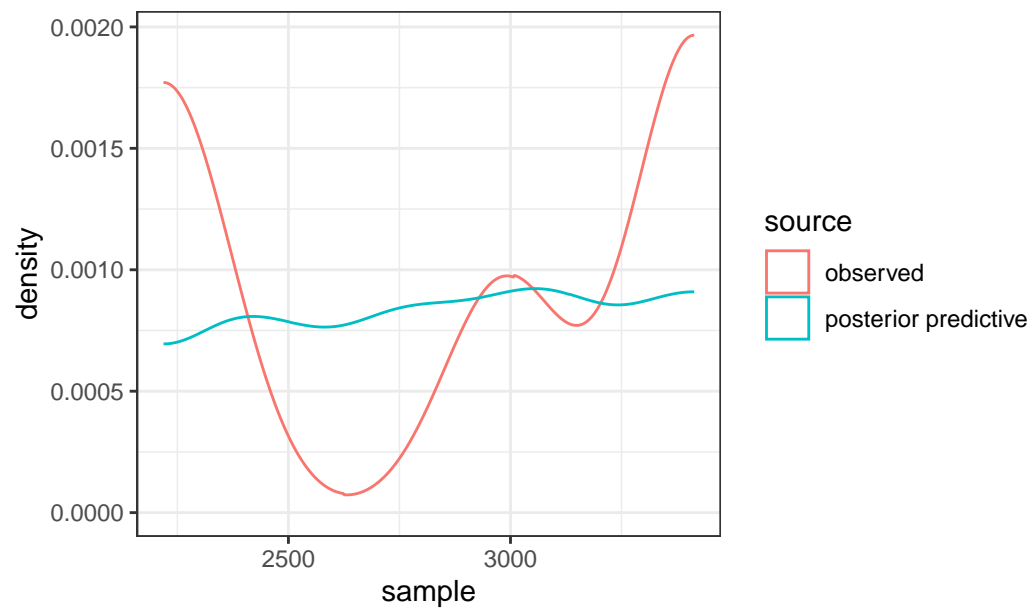
for(plot in ppc_plots) {
  print(plot)
}
```



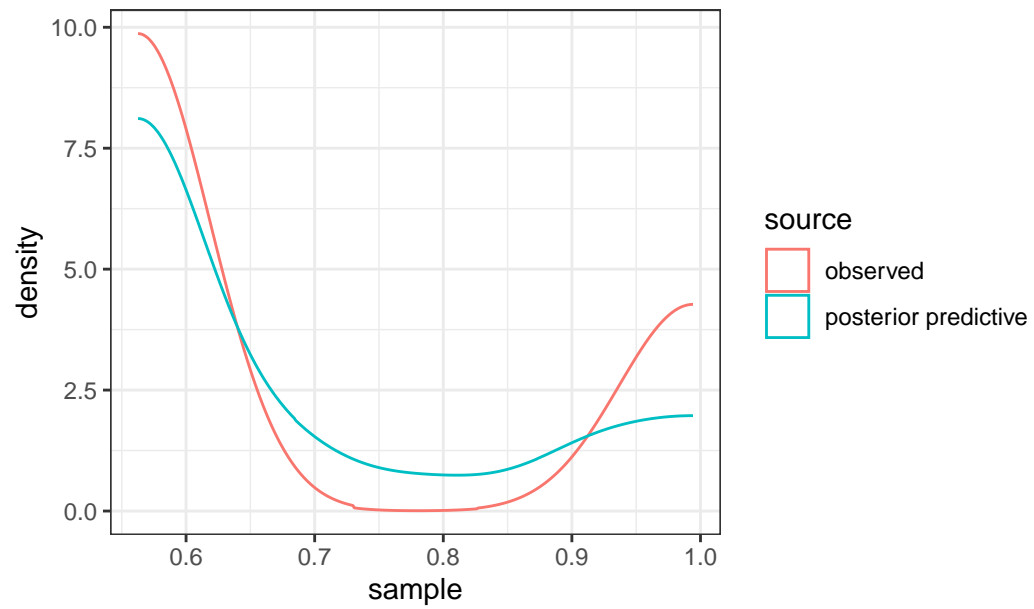
PPC for p-value Normal model with ridge prior



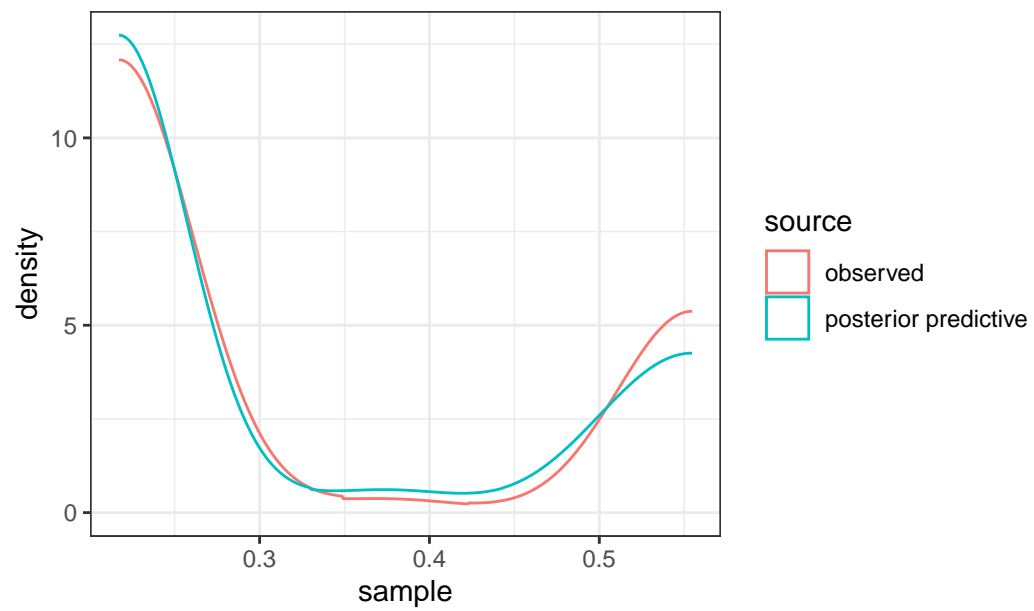
PPC for count logNormal model with ridge prior



PPC for effect size logNormal model with ridge prior

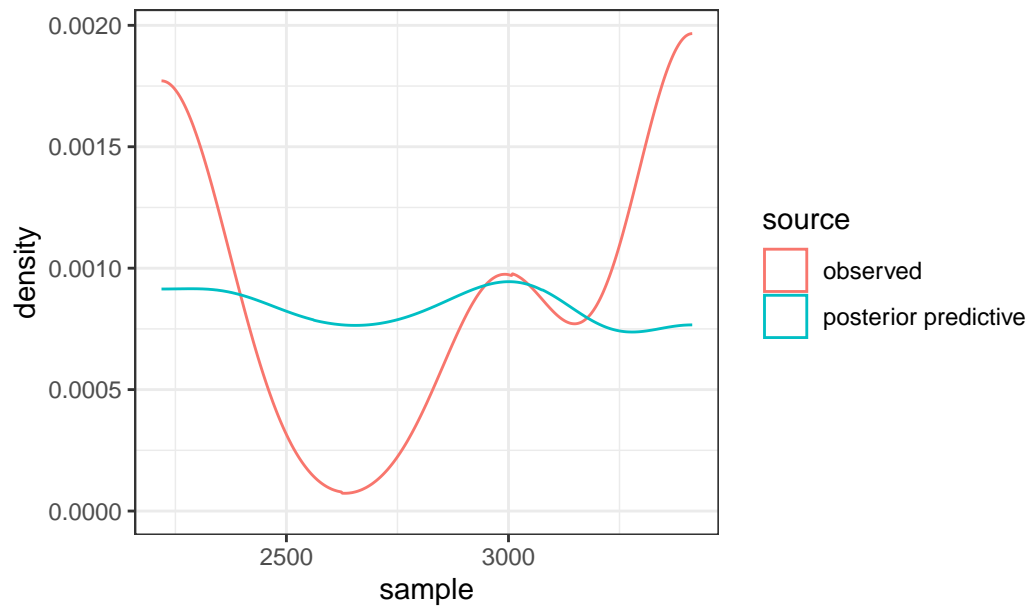


PPC for p-value logNormal model with ridge prior

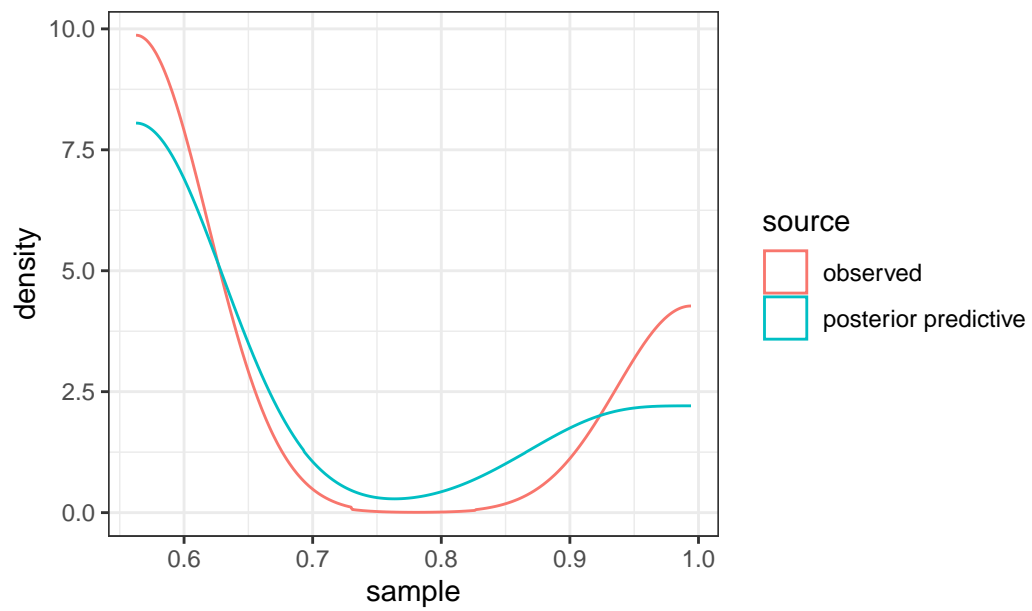




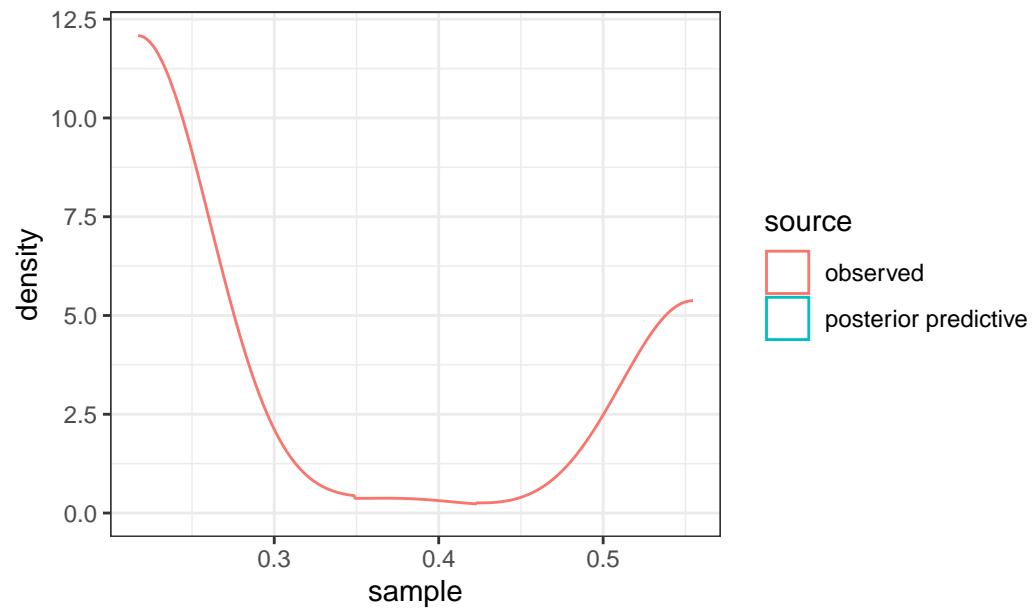
PPC for count Gamma model with ridge prior



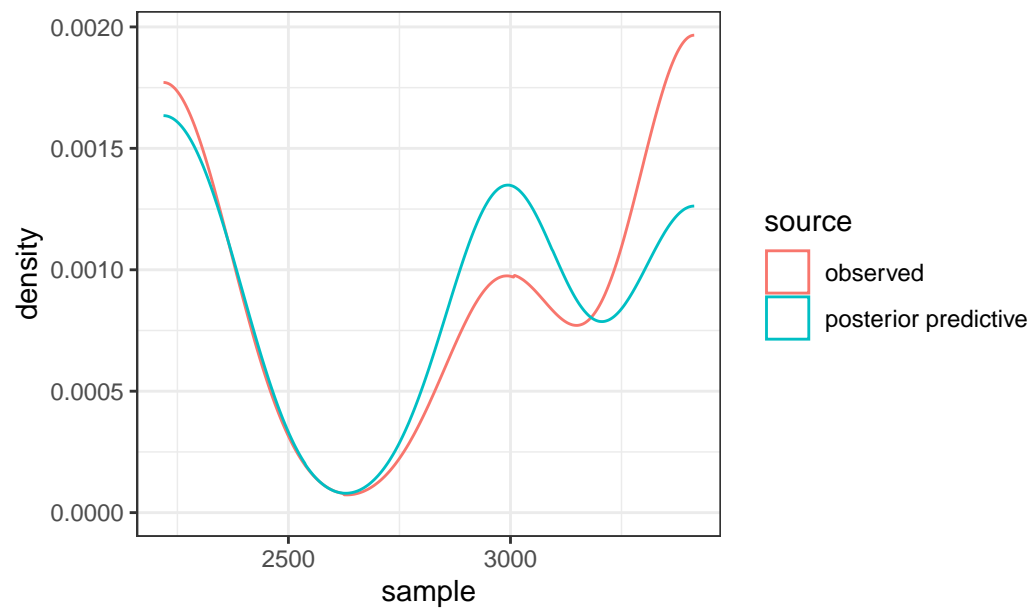
PPC for effect size Gamma model with ridge prior



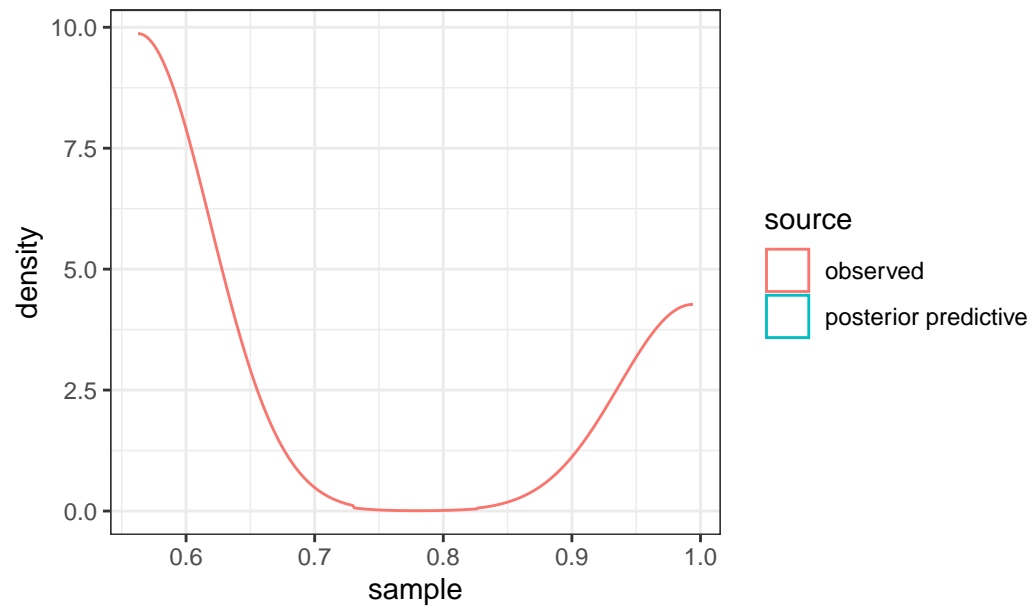
PPC for p-value Gamma model with ridge prior



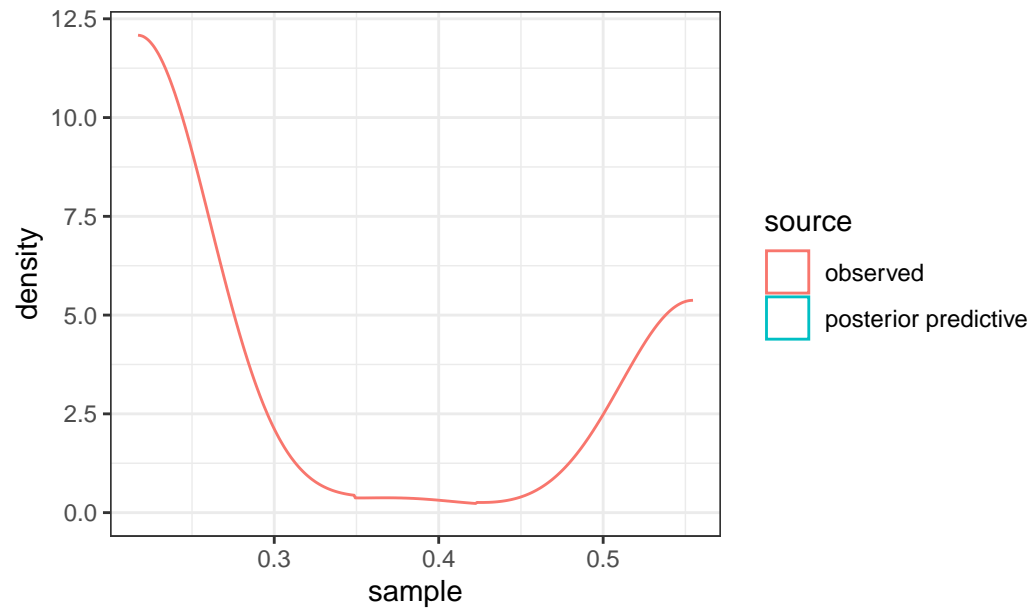
PPC for count Normal model with lasso prior



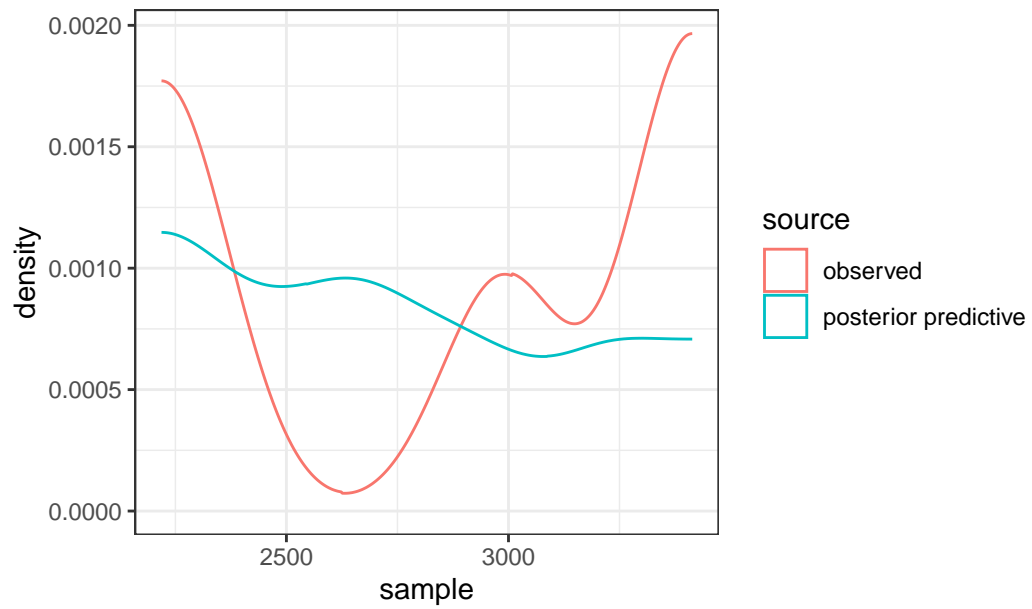
PPC for effect size Normal model with lasso prior



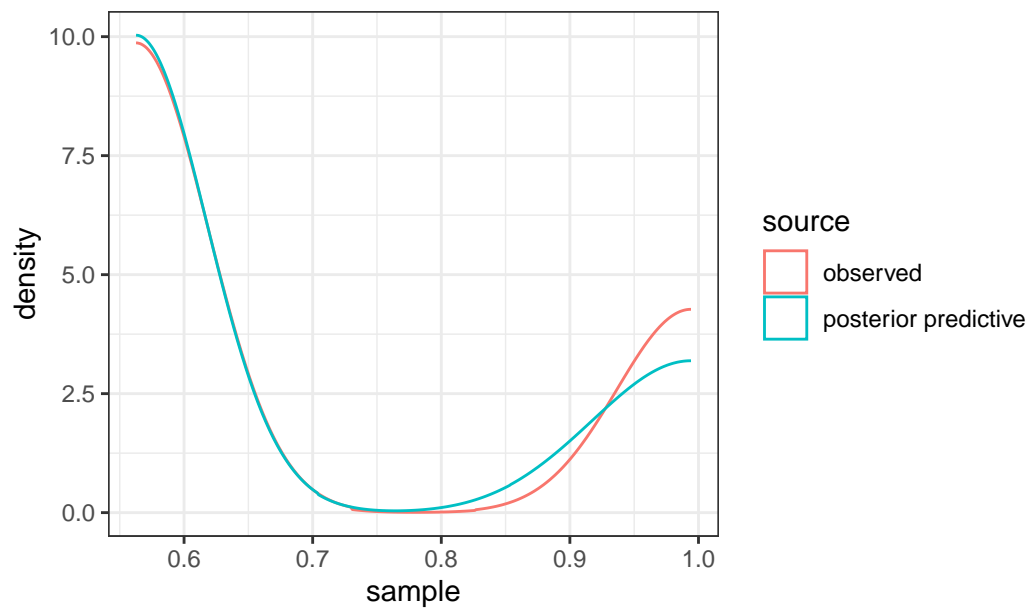
PPC for p-value Normal model with lasso prior



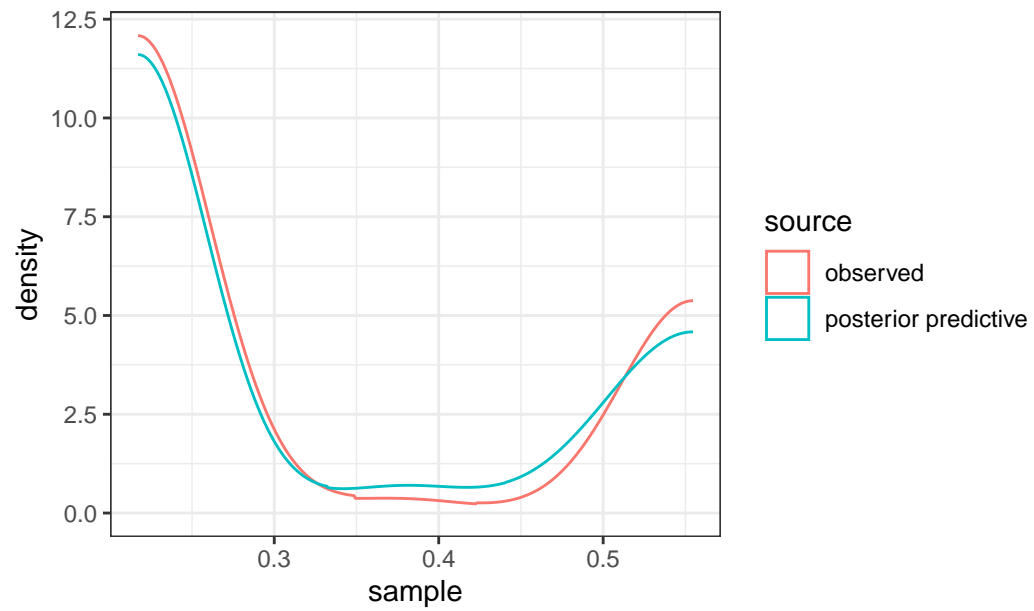
PPC for count logNormal model with lasso prior



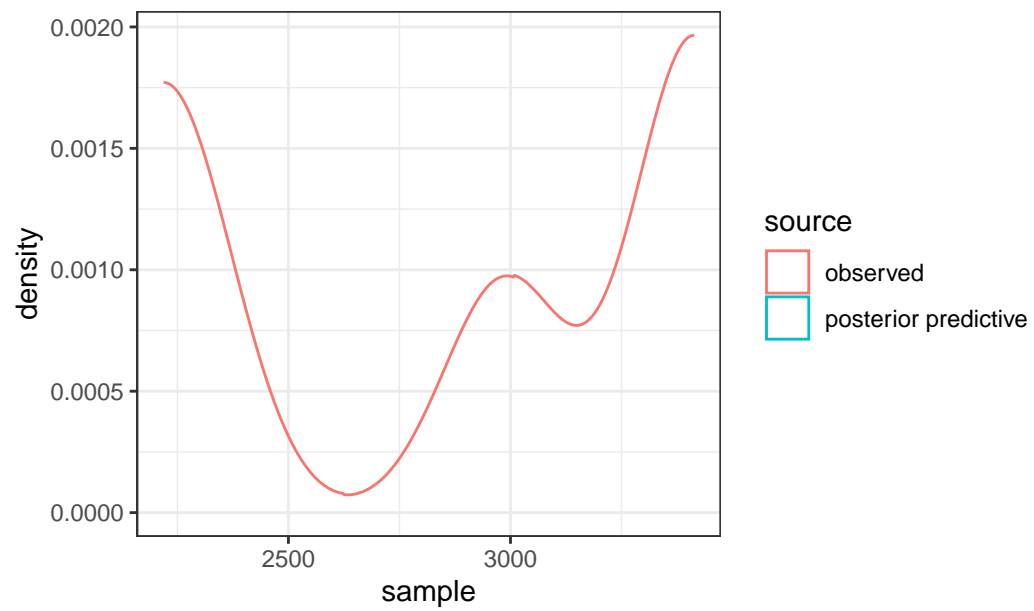
PPC for effect size logNormal model with lasso prior



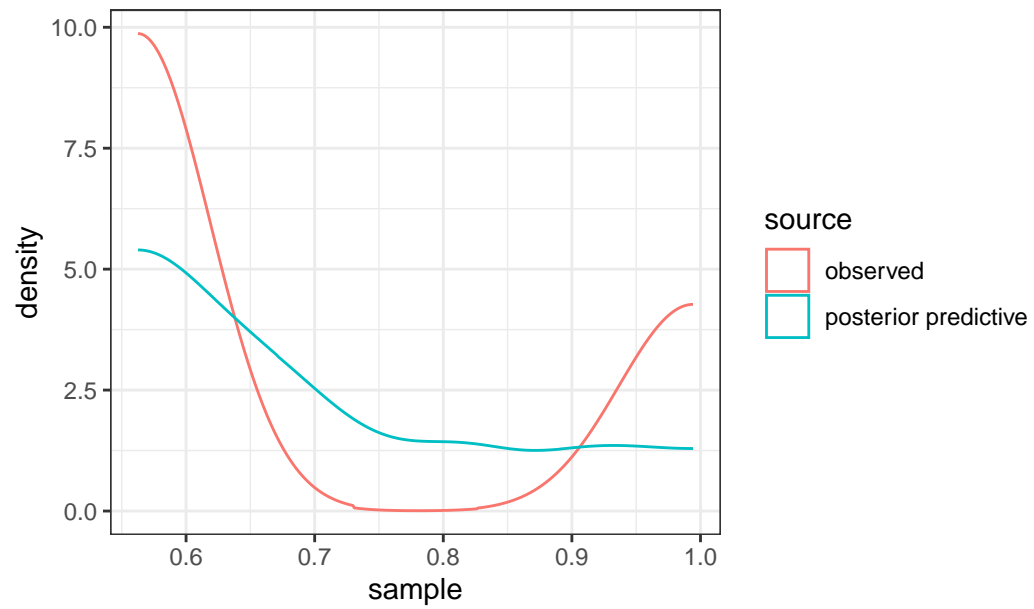
PPC for p-value logNormal model with lasso prior



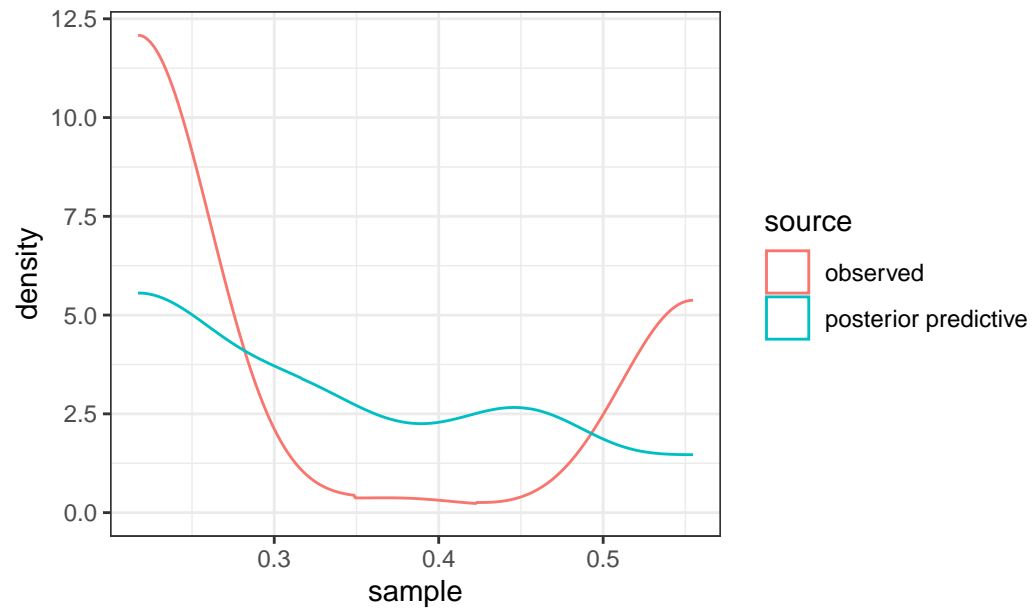
PPC for count Gamma model with lasso prior



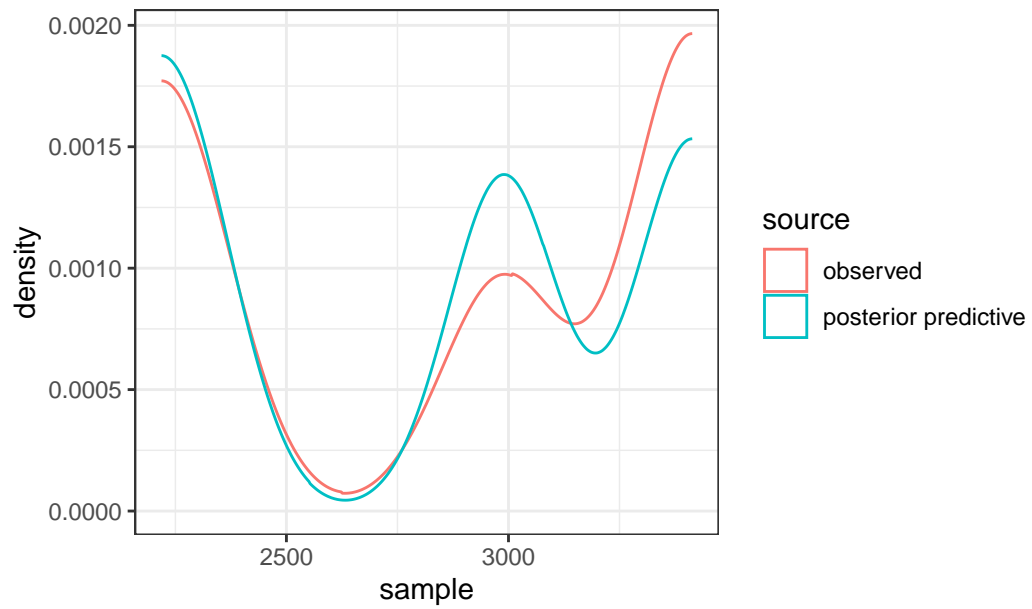
PPC for effect size Gamma model with lasso prior



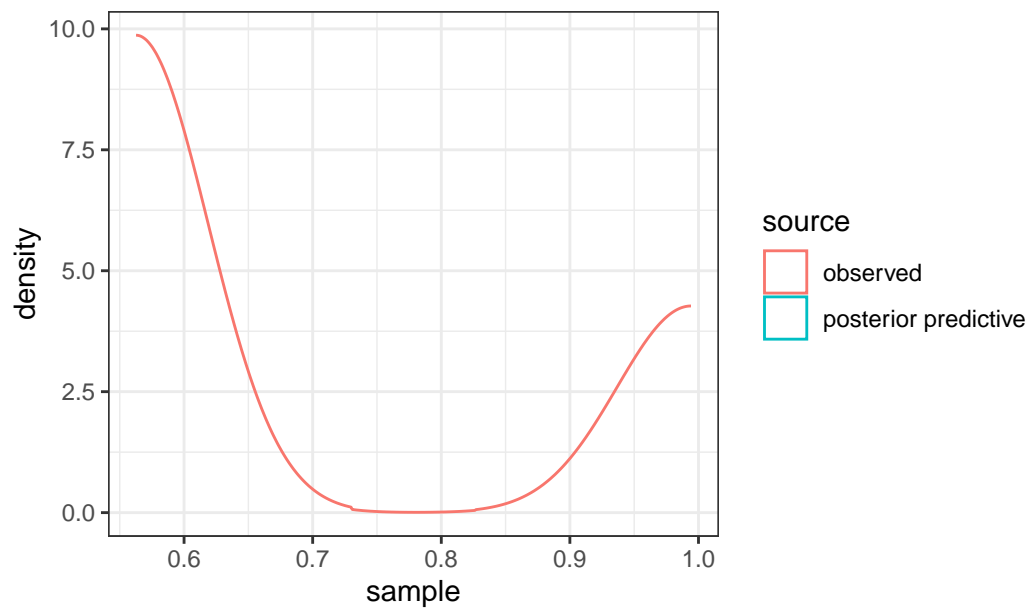
PPC for p-value Gamma model with lasso prior



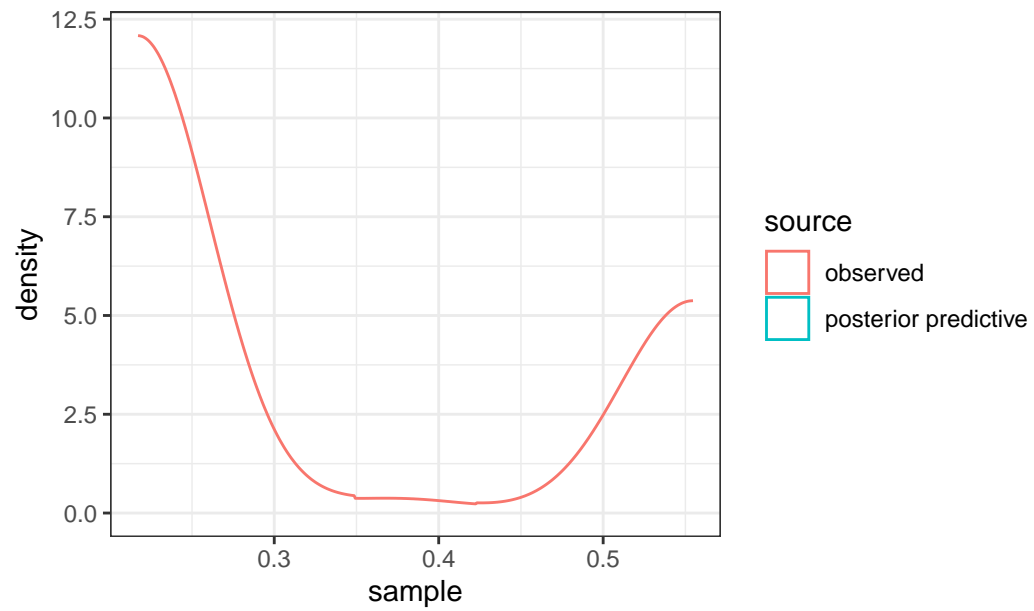
PPC for count Normal model with weak ridge prior



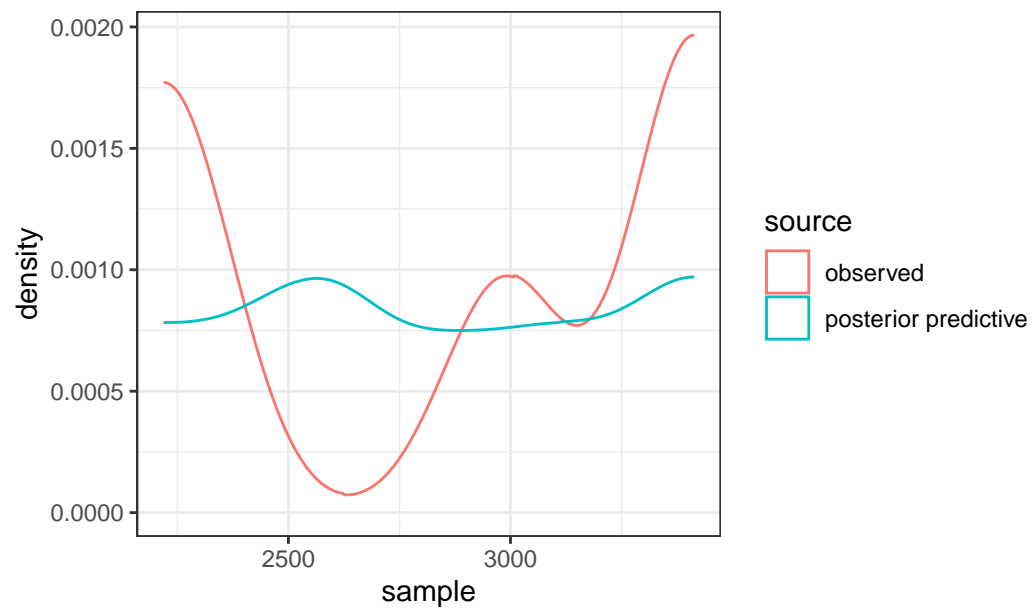
PPC for effect size Normal model with weak ridge prior



PPC for p-value Normal model with weak ridge prior

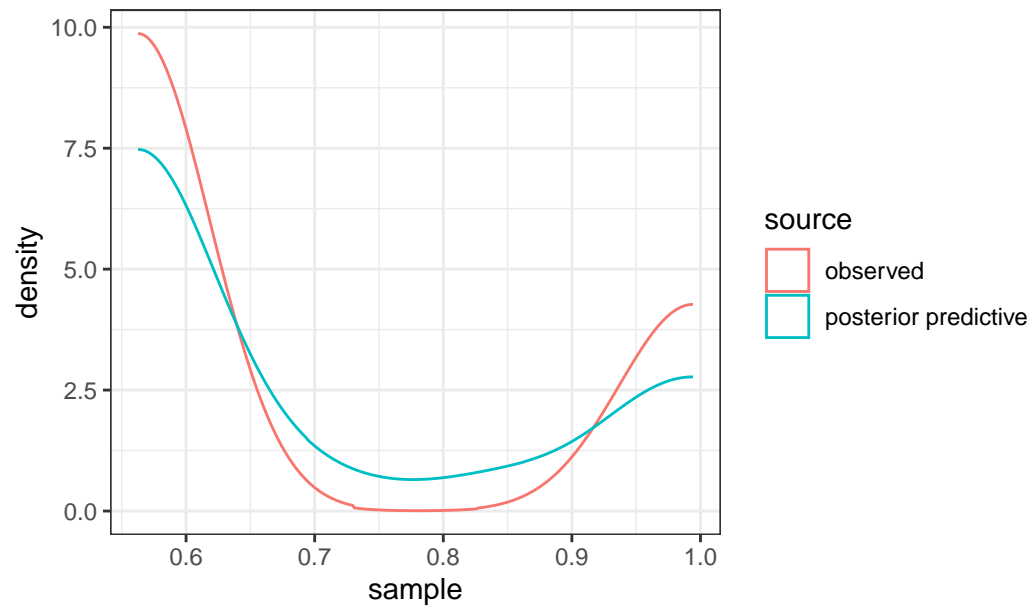


PPC for count logNormal model with weak ridge prior

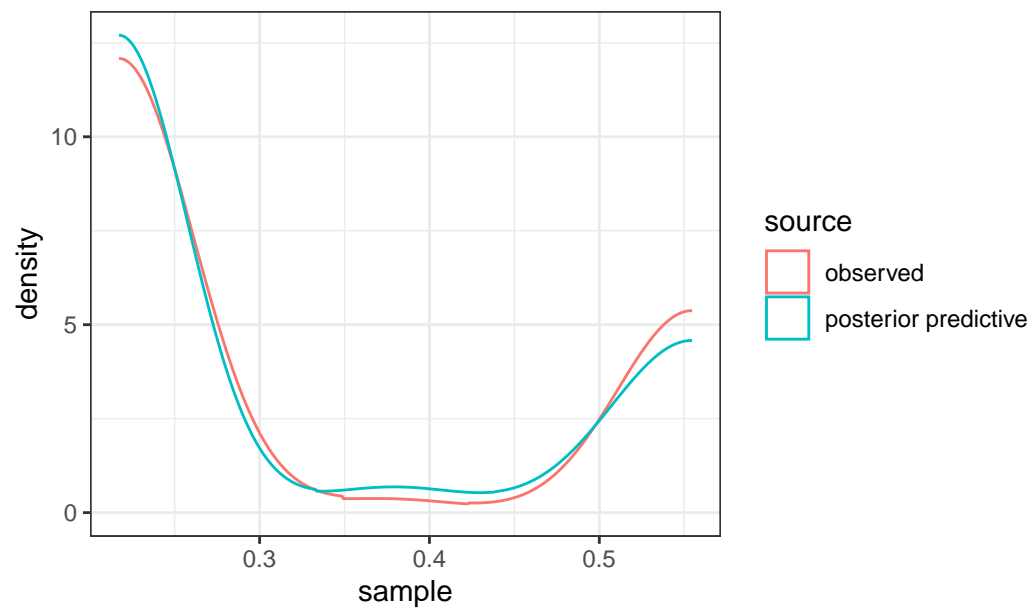




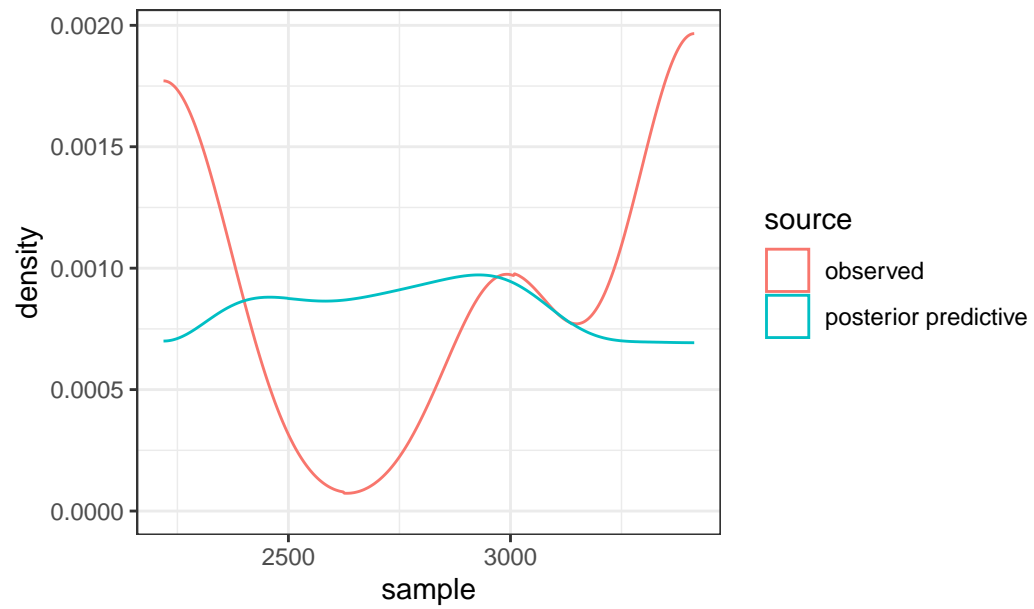
PPC for effect size logNormal model with weak ridge prior



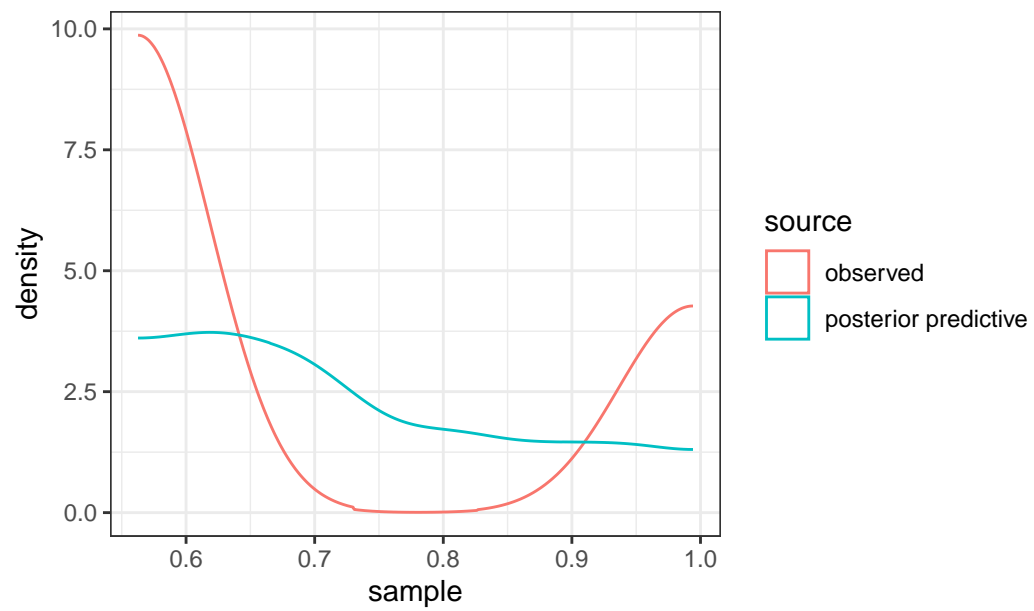
PPC for p-value logNormal model with weak ridge prior



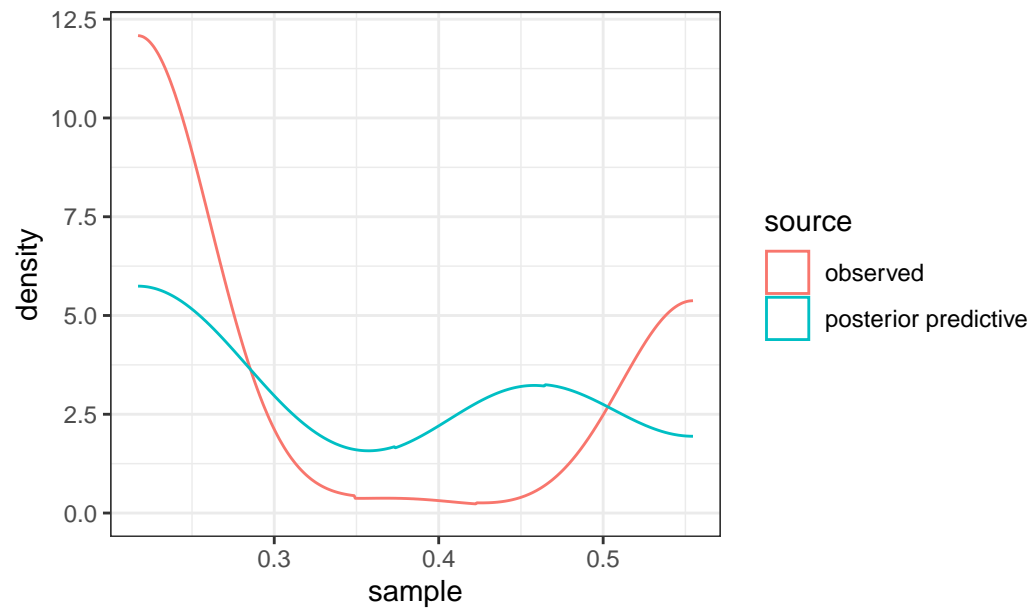
PPC for count Gamma model with weak ridge prior



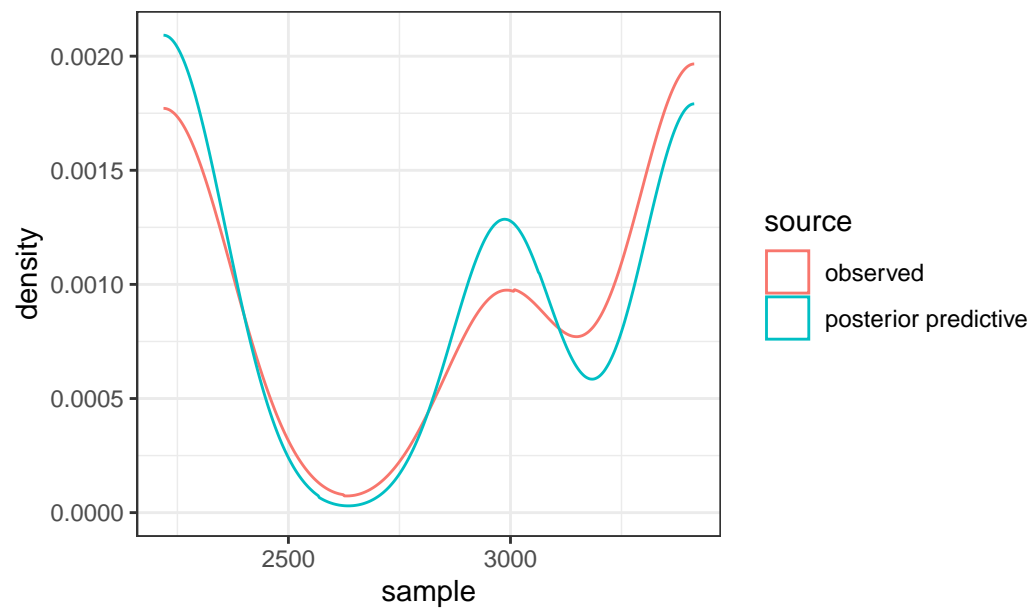
PPC for effect size Gamma model with weak ridge prior



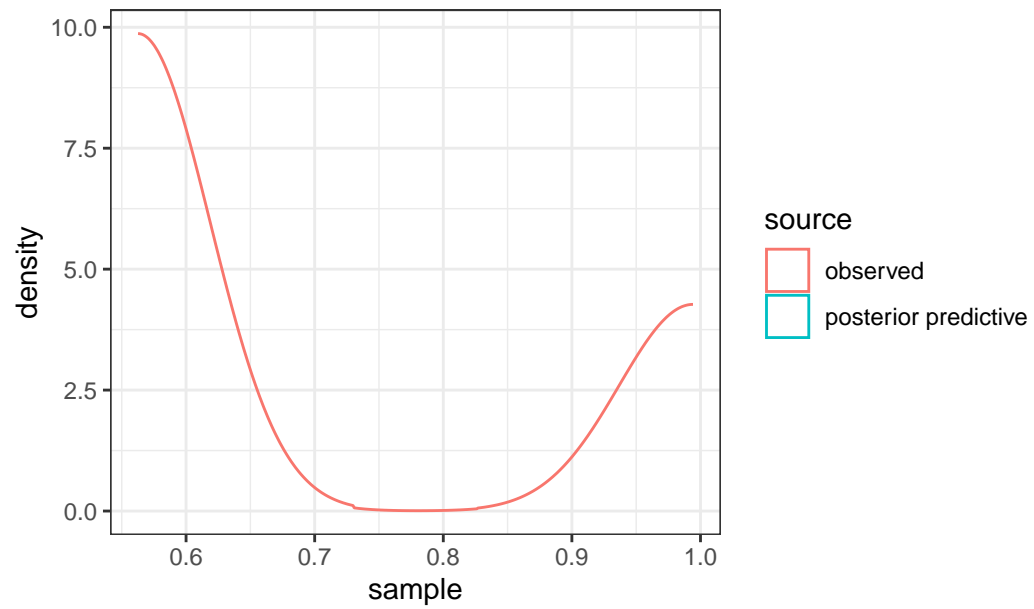
PPC for p-value Gamma model with weak ridge prior



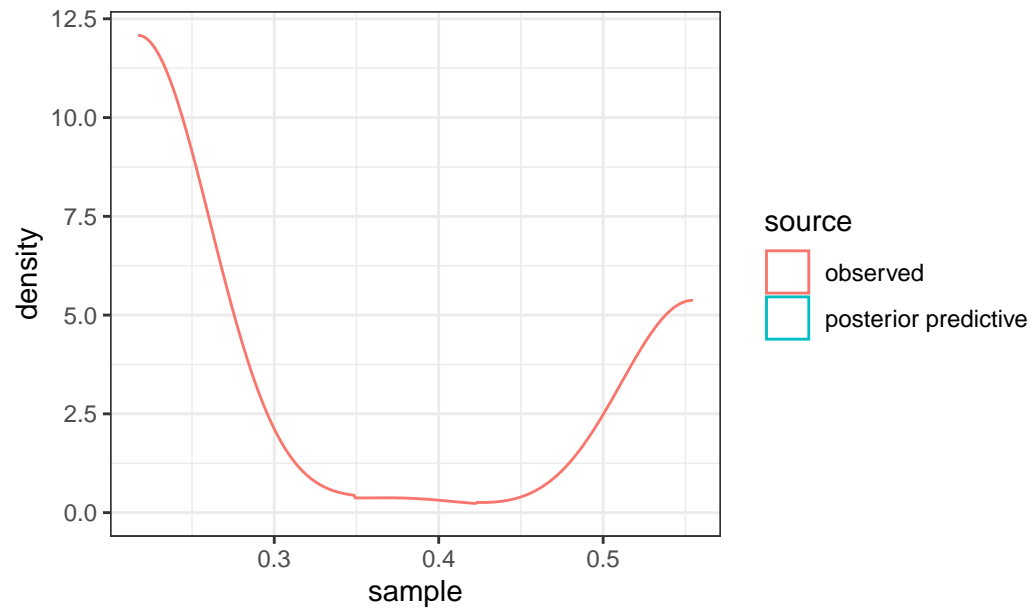
PPC for count Normal model with weak lasso prior



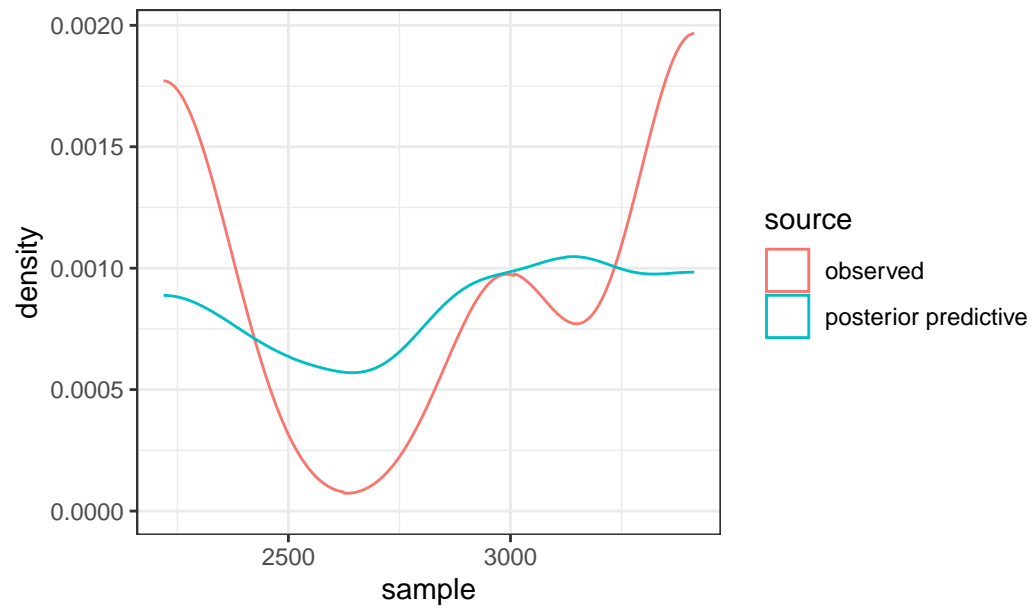
PPC for effect size Normal model with weak lasso prior



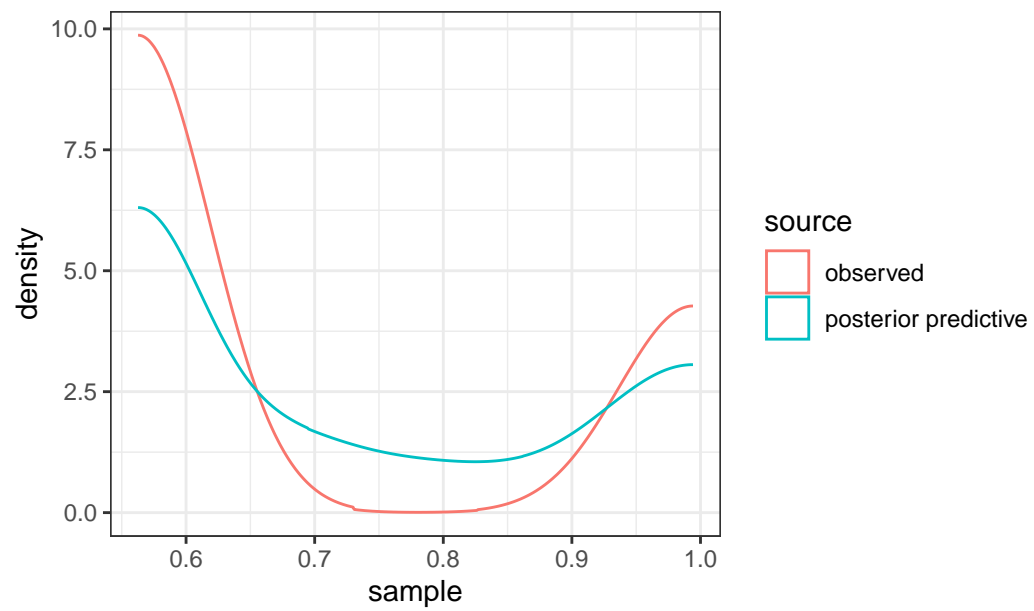
PPC for p-value Normal model with weak lasso prior



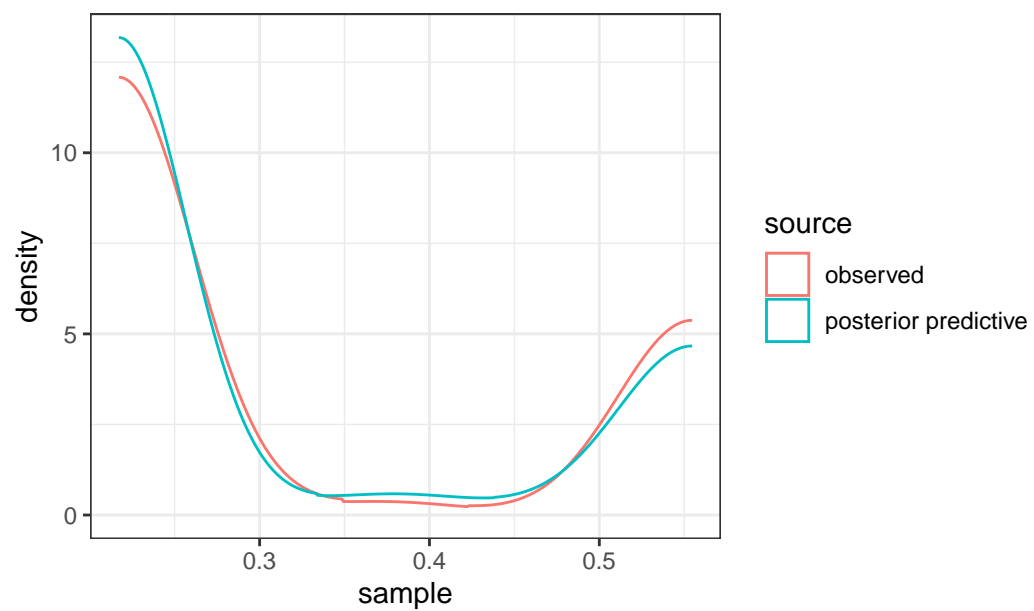
PPC for count logNormal model with weak lasso prior



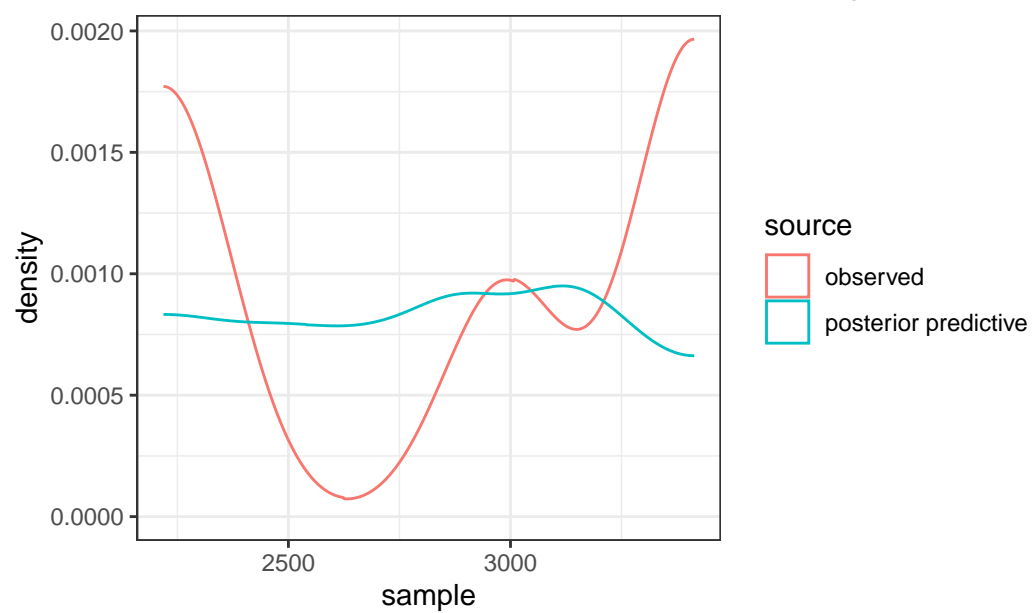
PPC for effect size logNormal model with weak lasso prior



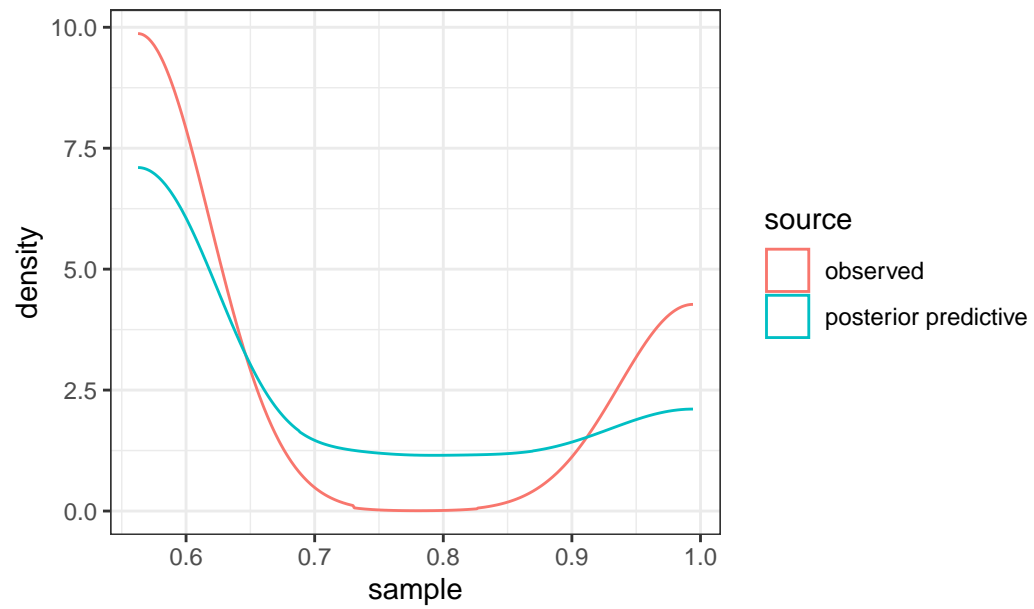
PPC for p-value logNormal model with weak lasso prior



PPC for count Gamma model with weak lasso prior



PPC for effect size Gamma model with weak lasso prior



PPC for p-value Gamma model with weak lasso prior

