

# STA 6360, Report 4.8

**Carson Slater** *Baylor University*

1

Examine the induced prior for  $\rho(\alpha, \beta) = -\alpha/\beta$ . Is it a familiar density?

This is a familiar density – it appears to be at the very least proportional to a Cauchy random variable, if they are assumed to be independent.

2

Create a histogram and kernel density plot of the induced prior on  $\rho$  by simulating  $\alpha$  and  $\beta$ .

Suppose we induce two diffuse normal priors on  $\alpha \sim \mathcal{N}(0, 100)$  and  $\beta \sim \mathcal{N}(0, 100)$ .

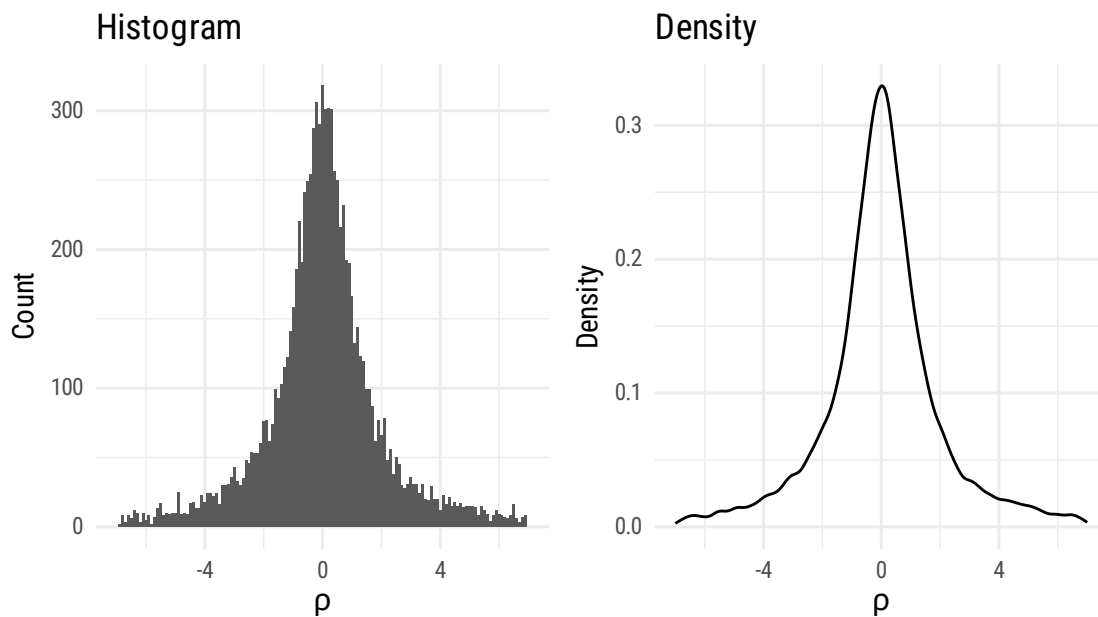


Figure 1: Induced prior on the coefficients for the logistic regression.

3

Create a histogram and kernel density plot of the induced prior on  $\theta(30)$ , similar to that in Figure 4.18.

