

Thank you to our reviewer and the editors for taking the time to review our submission and provide specific and helpful feedback for our work. Your contributions are greatly appreciated.

**Review with responses:**

1. This submission was well-written, and I enjoyed reading it. I found the writing generally quite clear and easy to understand.
  - a. Thank you for the comments and for reviewing our manuscript. Your comments and suggestions are important to us in revising our work. Our responses to each point are described in detail below.
2. I thought the work was motivated well and although it seemed a tad long - I recommend the authors double check the word count - I didn't see any typos or errors. There are few things that I found confusing, so I recommend the authors clarify some of the following.
  - a. The word count via Overleaf for our original submission was 2341 words, our apologies if that was inaccurate. The current submission has been more heavily edited to 2295 words. If our paper is still too long, we can do additional revisions. We are following the submission guidelines of 2500 words/15 pages maximum.
3. How were the parameters in the prior distributions selected? Was this done via k-fold cross-validation as in the frequentist regularization methods?
  - a. Hyperparameters for the priors were selected via previous literature recommendations (Hsiang, 1975; Park & Casella, 2008; Piironen & Vehtari, 2017) to control shrinkage towards zero. A sentence has been added to the simulation study setup to direct readers towards those sections of our work and original papers for additional information on how these regularization priors are specified.
4. I was a bit confused about the simulation study setup. What was the data generating model? Was it a mixture of the 5 or 6 models? Were the regression coefficients the same across the models? Or were the models different? More information here would be useful.
  - a. We have added additional information on how our simulation study was setup. We acknowledge our original manuscript was quite vague and short,

we added more detail in the simulation study introduction to explain how the data were generated from a random population and for each iteration all the prior condition models were fit using the same data sample.

5. In the description of the simulation setup, 24 cells were done (6 priors x 4 sample sizes). The addition of the 3 weighting methods seemed extraneous - I think it should either be part of the study (or appear as the primary investigation) or removed.
  - a. This is an excellent point, we have decided to remove the addition of the 3 weighting methods in our simulation study as well as details on them in the introductions, as those findings are not central to our work and removing them aids the paper in meeting the length requirements.
6. What is Figure 3 showing? i was confused because y-axis says Coefficient Estimate (is there a truth that should be on the plot?), but the caption says "Total" - is this then the sum of the 8 coefficients? The text says "induced shrinkage". I think I understand what you are saying, but not all readers will.
  - a. We have added additional explanations in the body of the paper, the figure caption, and changed the y-axis label to "Total Coefficient Estimates" to help clarify this. Figure 3 shows the mean sum of coefficients for each condition in the simulation study. Smaller sums of coefficients demonstrate greater amounts of induced shrinkage. We have further clarified this in the body and figure caption.
7. Figure 4 - Why is there not a model 1?
  - a. Model 1 is just an intercept model, so it is not regularized and thus has the same results within the same sample size conditions. We excluded it from figures and results because of this. This has been explained in the figure caption now, thank you for bringing up that point of confusion.