Figures for ‘Detecting’ Manuscript

Justin Pomeranz1,✉, James R. Junker2,3, Vojsava Gjoni4, and Jeff S. Wesner4

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1 Colorado Mesa University, Grand Junction, CO, USA  
2 Great Lakes Research Center, Michigan Technological University, Houghton, MI USA  
3 Louisiana Universities Marine Consortium, Chauvin, LA USA  
4 Dept. of Biology, University of South Dakota, Vermillion, SD, USA

✉ Correspondence: [Justin Pomeranz <[jfpomeranz@gmail.com](mailto:jfpomeranz@gmail.com)>](mailto:jfpomeranz@gmail.com)

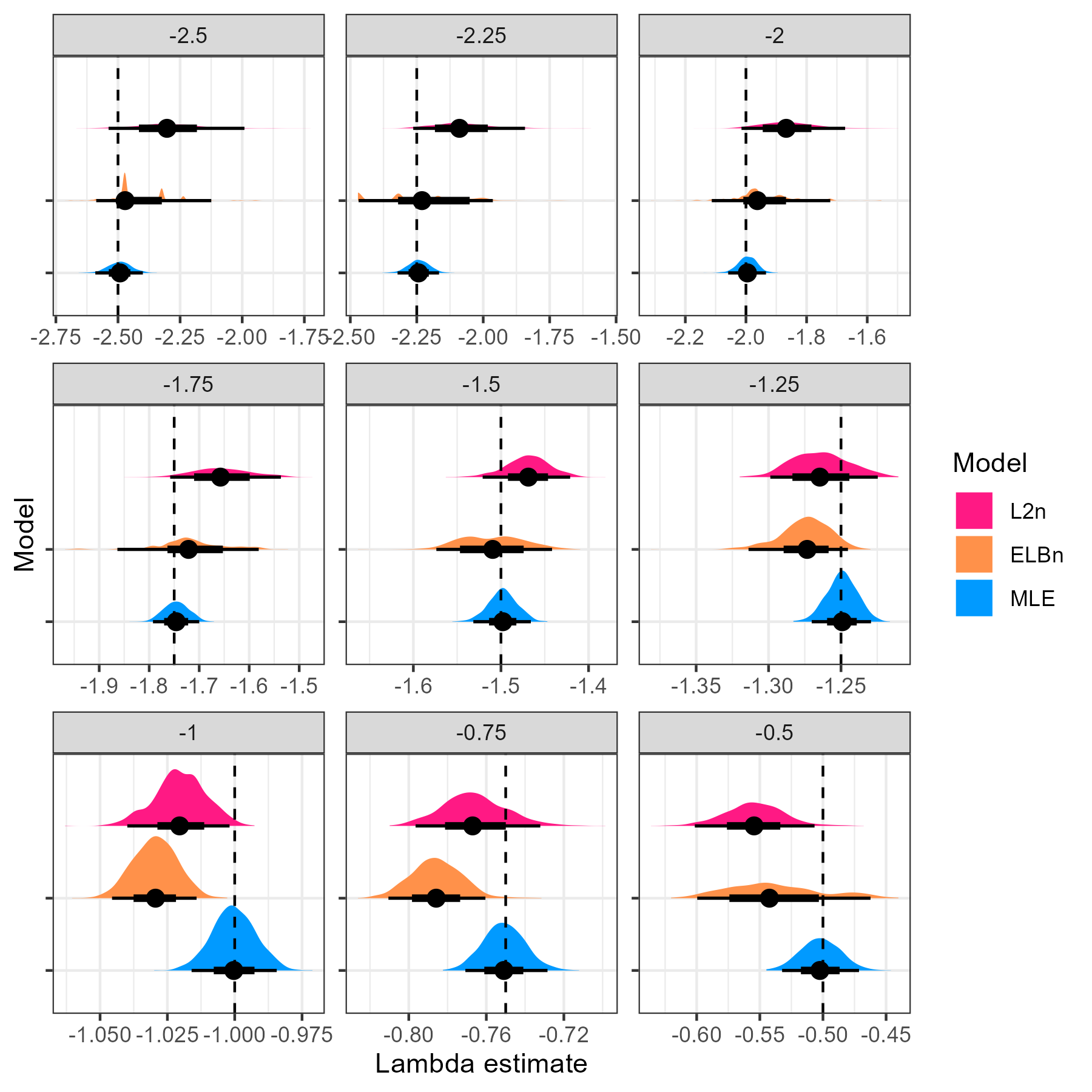


Figure 1. Distribution of Lambda estimates by method (color) from random samples of body sizes from bounded power law distributions with varying exponents (-2.5 to -0.5). The figure is facetted by the known lambda parameter (facet title) and is also shown as the dashed line in each facet. Note that the x-axis varies in each facet.

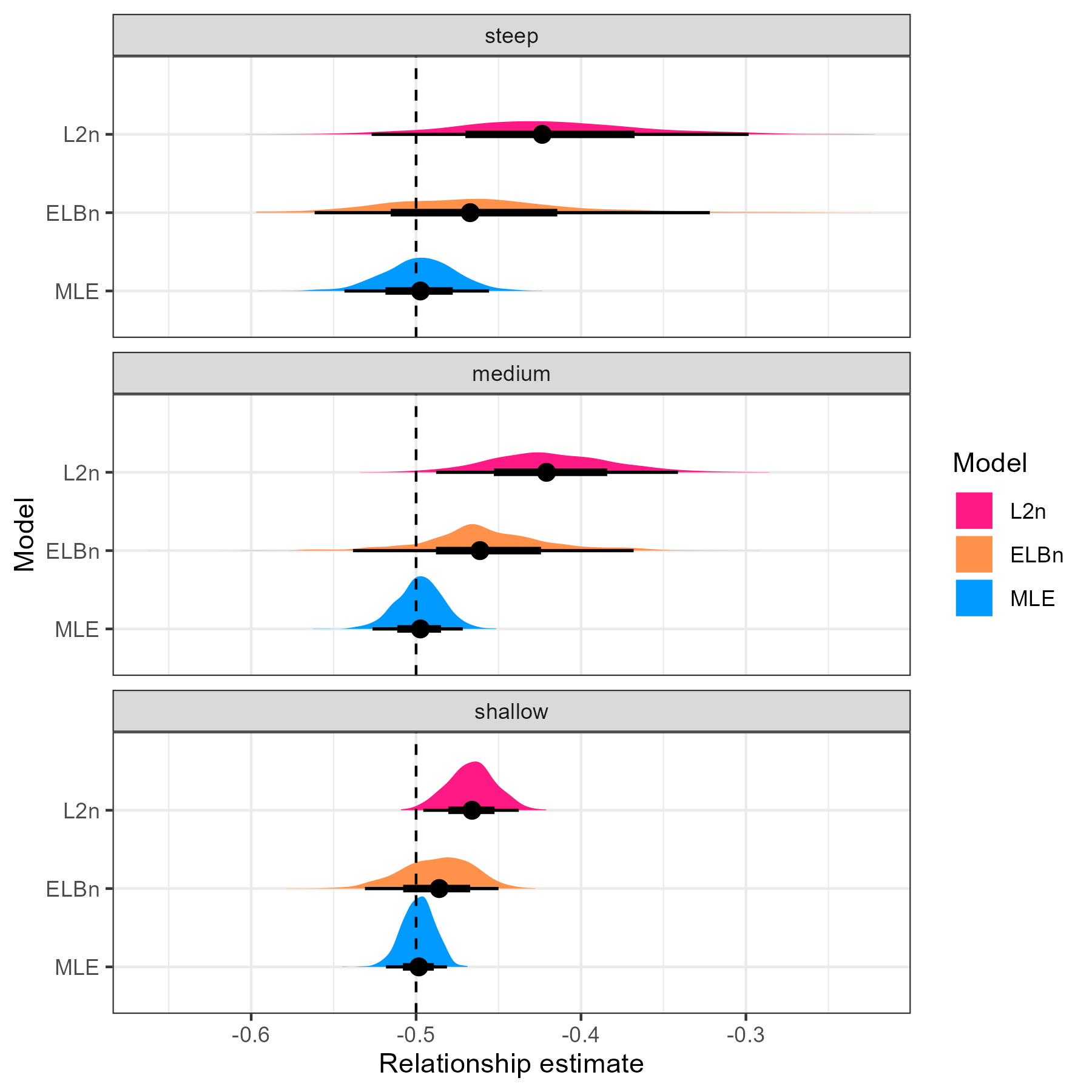


Figure 2. Distribution of relationship estimates () in three different “windows” of lambda values. The dashed vertical line is the known relationship value of -0.5.

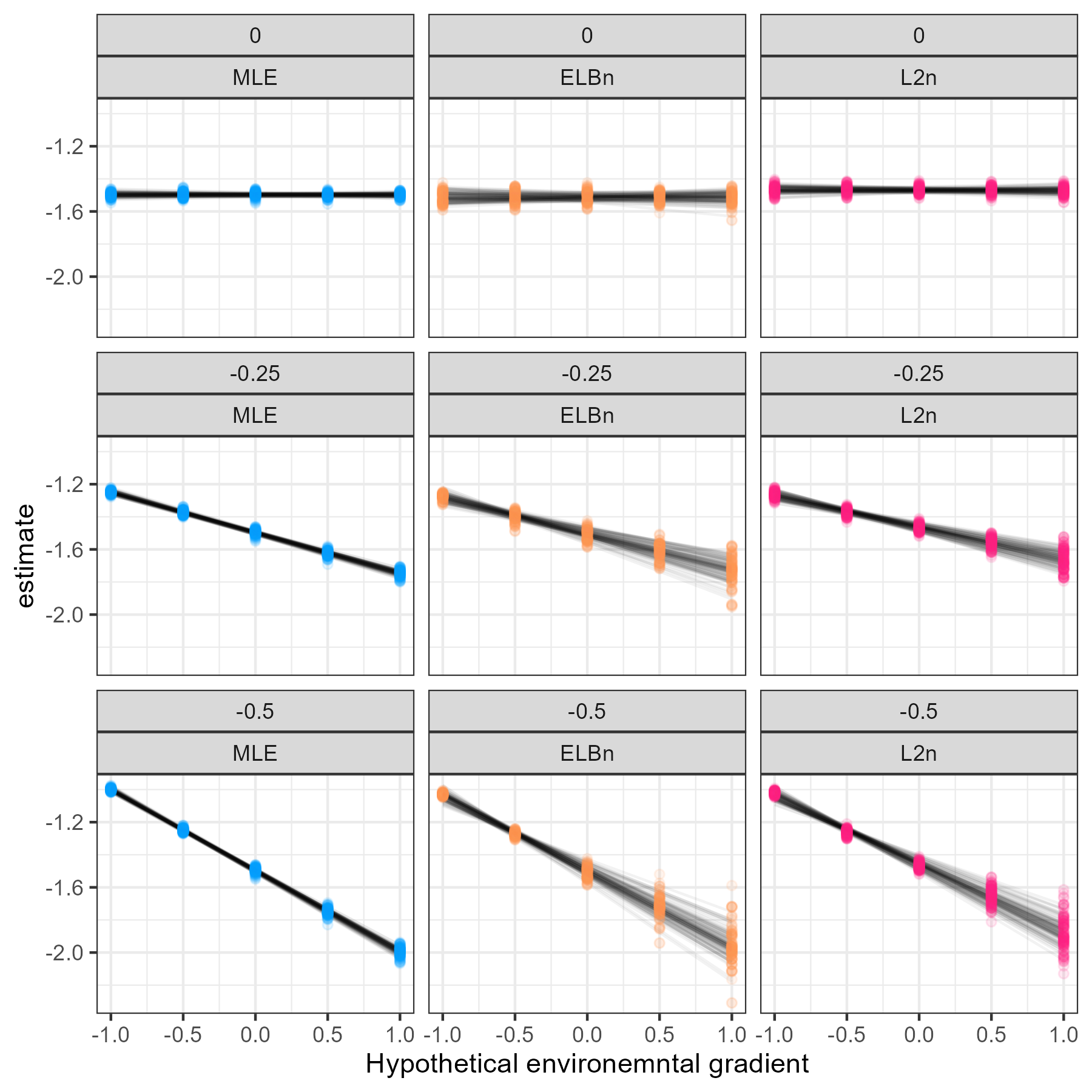


Figure 3. Individual regressions by method (columns) for three different known relationship values (rows from bottom to top): 0, 0.25, and 0.5. There were a total of 1000 replicates simulated, but only 100 replicates are plotted here with alpha = 0.05 to illustrate the variability in the regression lines.

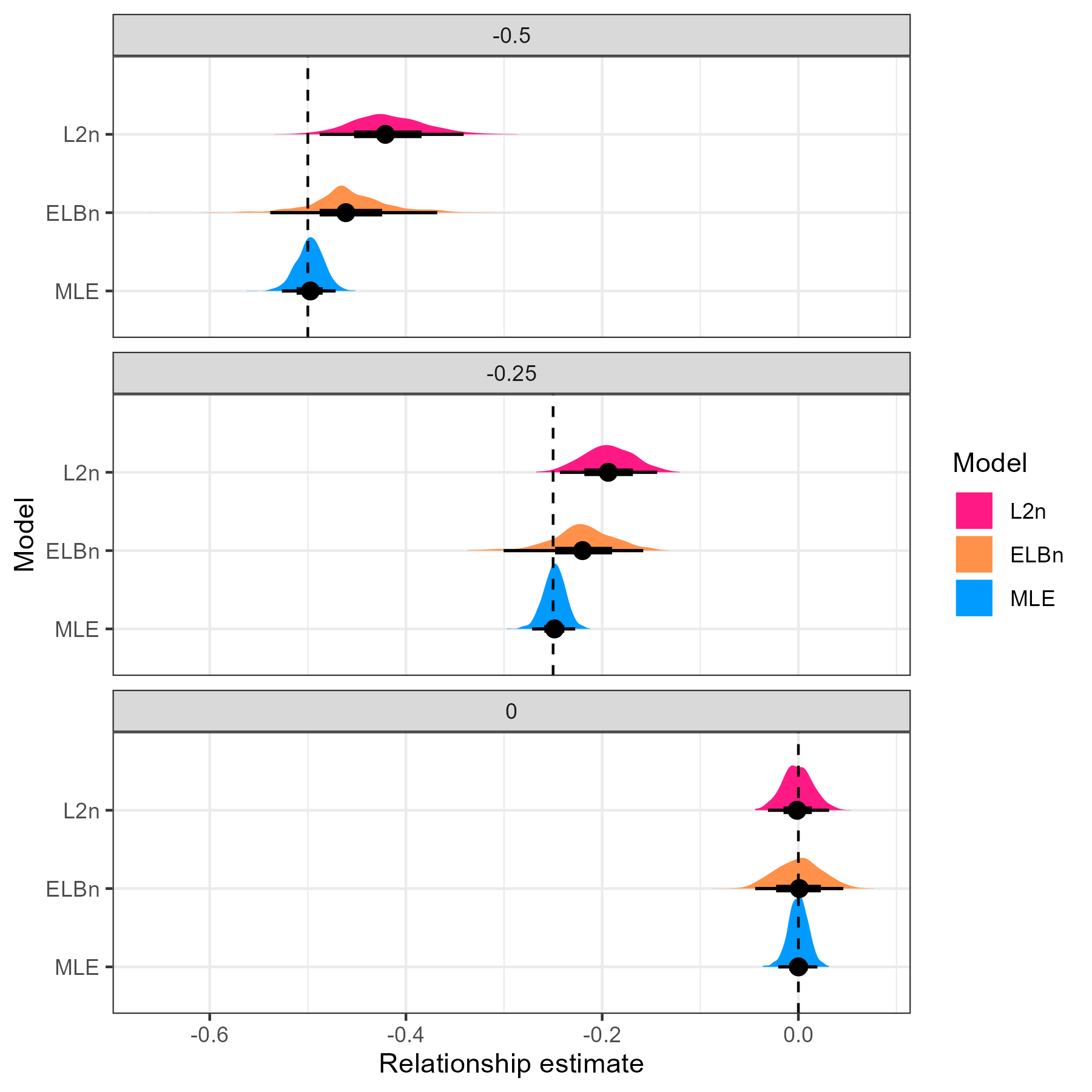


Figure 4. Distribution of relationship estimates () when estimating from different known relationships

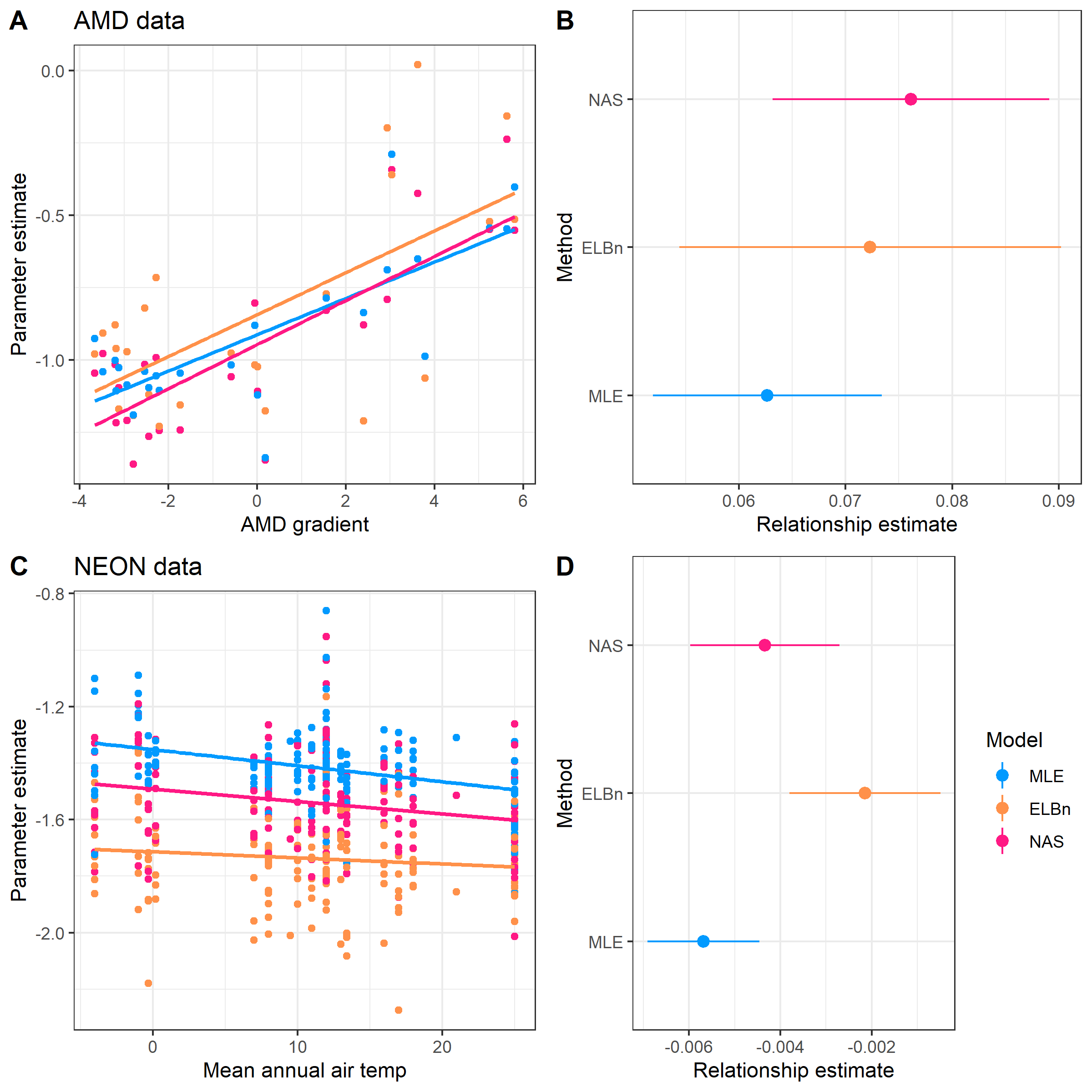


Figure 5. Estimates of change in exponent for size-abundance relationships across gradients from empirical data estimates. Panels A and C show the individual λ estimates for each site and the the line shows the estimated relationship based on method (color) for the natural pollution and temperature gradients, respectively. Panels B and D show the mean estimated relationship coefficient (, point) ± 1 standard deviation (error bars) from the OLS model for both empirical data sets. All the methods estimate the same sign of the relationship, but the estimates from the binning methods are generally larger than the MLE estimates.