Supplemental Materials for "Variable Selection for Explaining Inter-Individual Heterogeneity in Longitudinal Growth Trajectories"

1 Comparison of Bayesian Penalization, Bayesian with Non-informative Priors, and REML

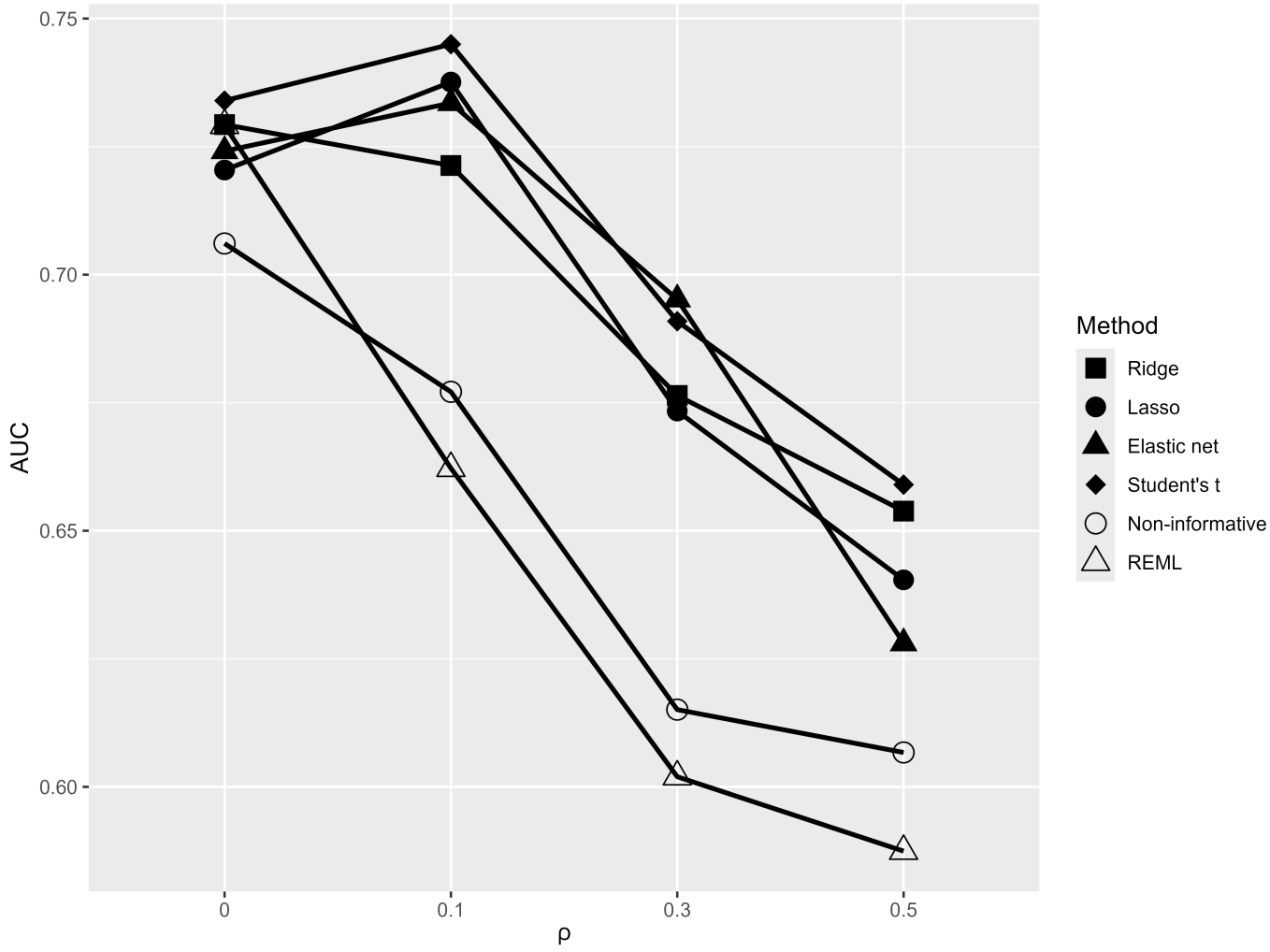


Figure 1: Area Under the Curve (AUC) When $N = 50$, $P = 20$, and the signal-to-noise ratio is .05. The performance of four Bayesian penalization priors, ridge, lasso, elastic net, and Student's t, is compared to that of the Bayesian non-informative priors and t test based on restricted maximum likelihood (REML) estimation. The x-axis represents the mutual correlation among covariates, and the y-axis shows AUC.

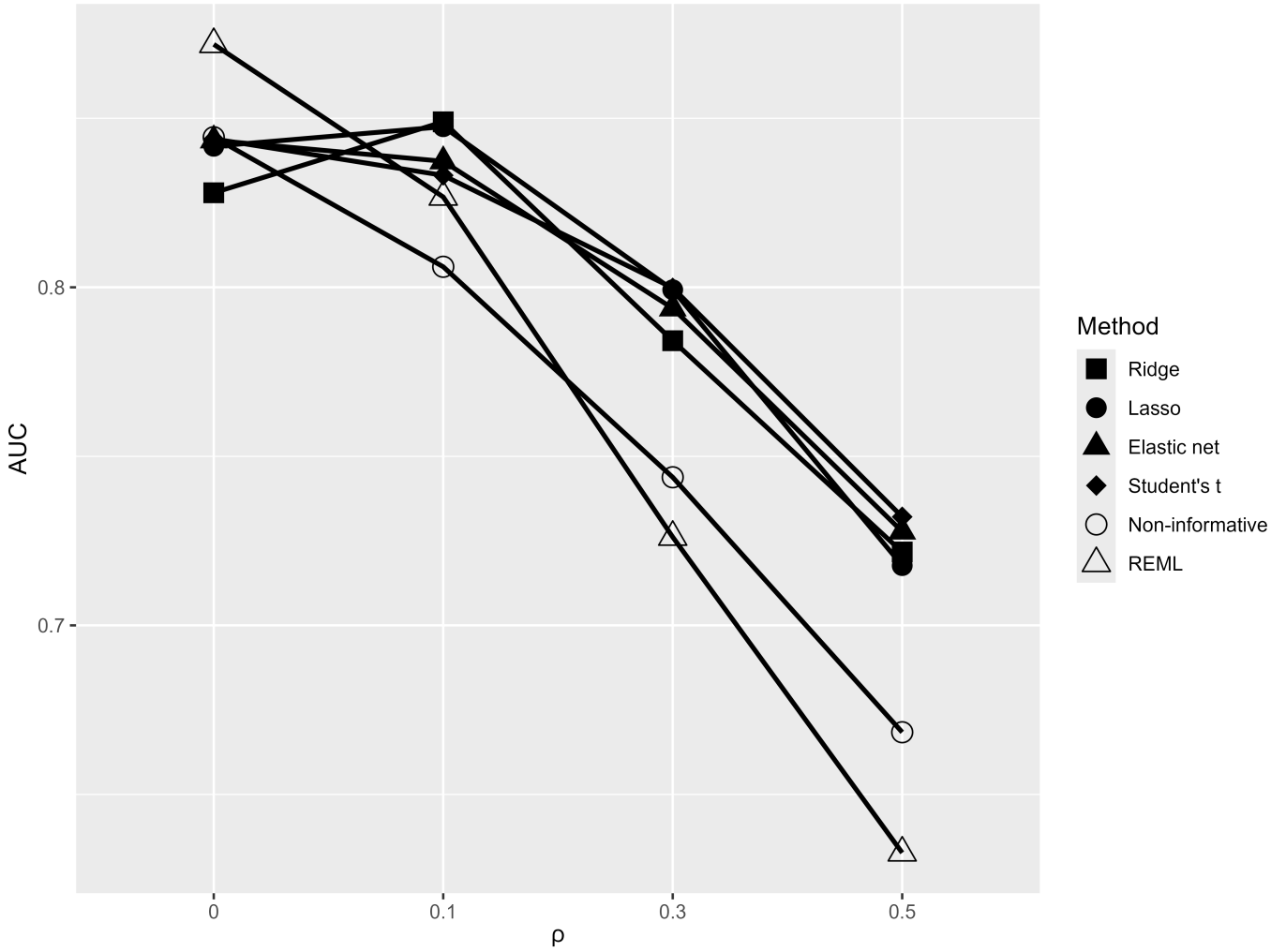


Figure 2: Area Under the Curve (AUC) When $N = 100$, $P = 20$, and the signal-to-noise ratio is .05. The performance of four Bayesian penalization priors, ridge, lasso, elastic net, and Student's t, is compared to that of the Bayesian non-informative priors and t test based on restricted maximum likelihood (REML) estimation. The x-axis represents the mutual correlation among covariates, and the y-axis shows AUC.

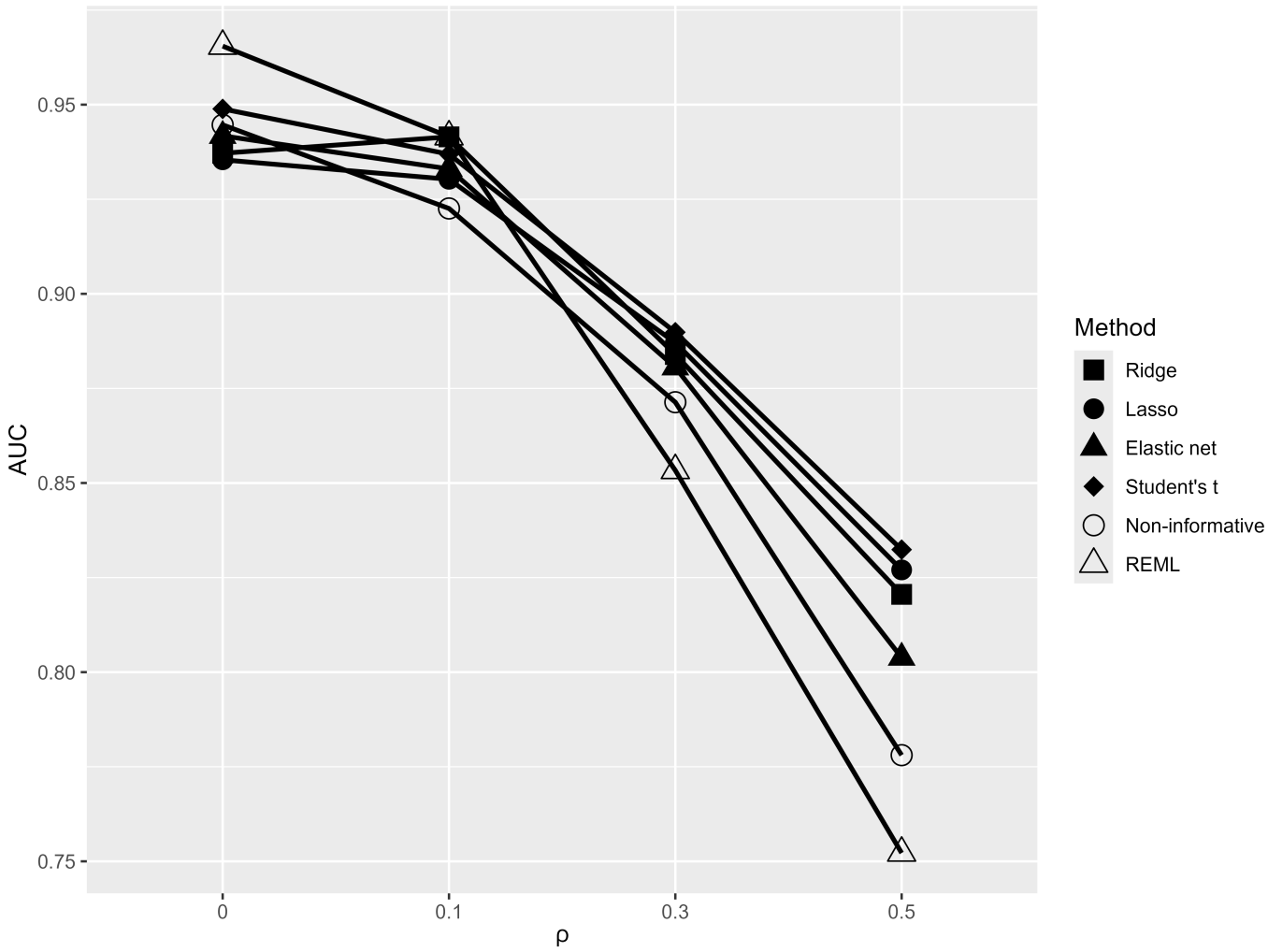


Figure 3: Area Under the Curve (AUC) When $N = 200$, $P = 20$, and the signal-to-noise ratio is .05. The performance of four Bayesian penalization priors, ridge, lasso, elastic net, and Student's t, is compared to that of the Bayesian non-informative priors and t test based on restricted maximum likelihood (REML) estimation. The x-axis represents the mutual correlation among covariates, and the y-axis shows AUC.

2 Results with $N = 1,000$ and $P = 80$

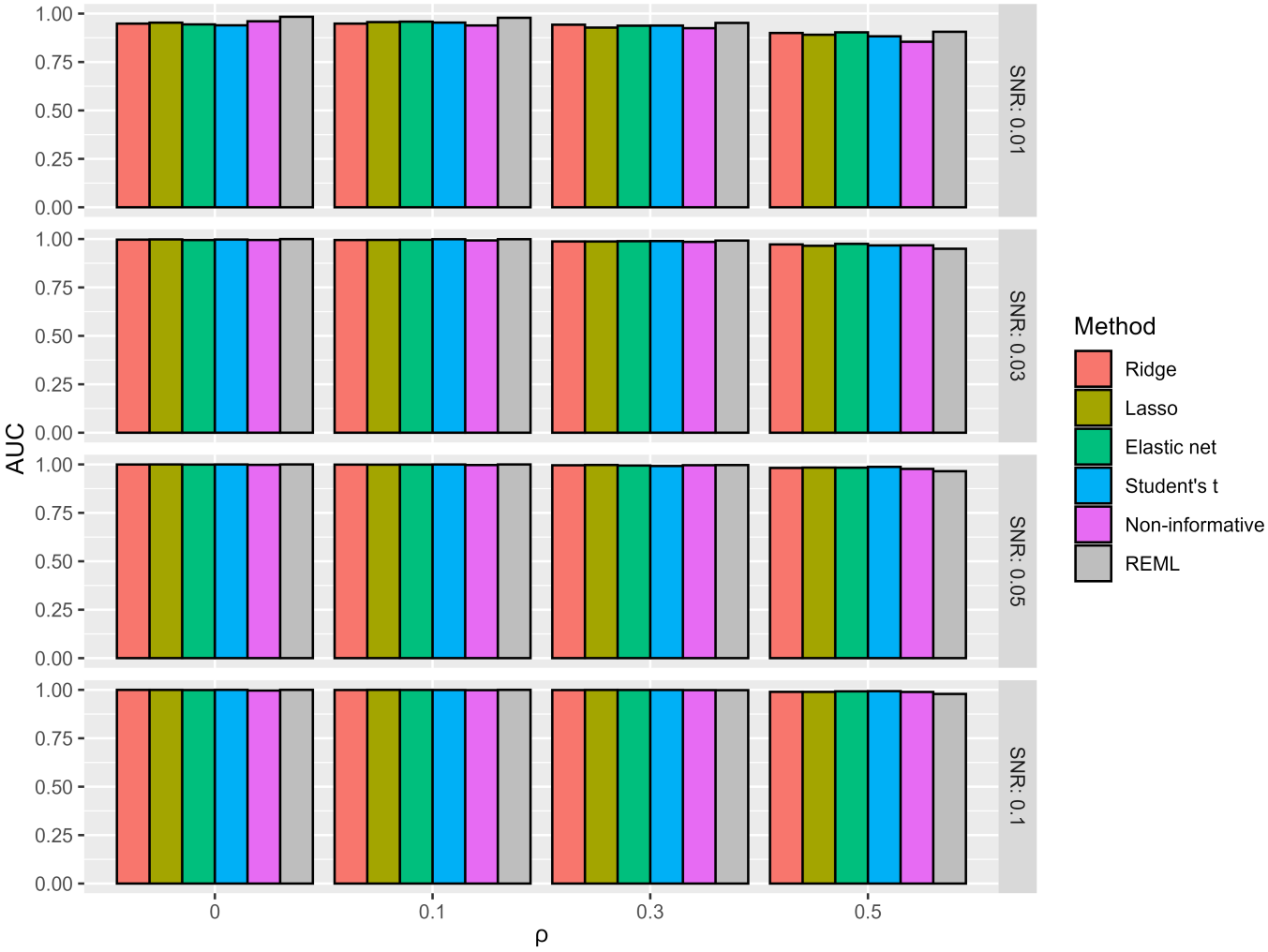


Figure 4: Area Under the Curve (AUC) When $N = 1000$, $P = 80$. The performance of four Bayesian penalization priors, ridge, lasso, elastic net, and Student's t, is compared to that of the Bayesian non-informative priors and t test based on restricted maximum likelihood (REML) estimation. The x-axis represents the mutual correlation among covariates, and the y-axis shows the area under the curve (AUC). SNR refers to the signal-to-noise ratio, defined for each relevant covariate in Equation (8).

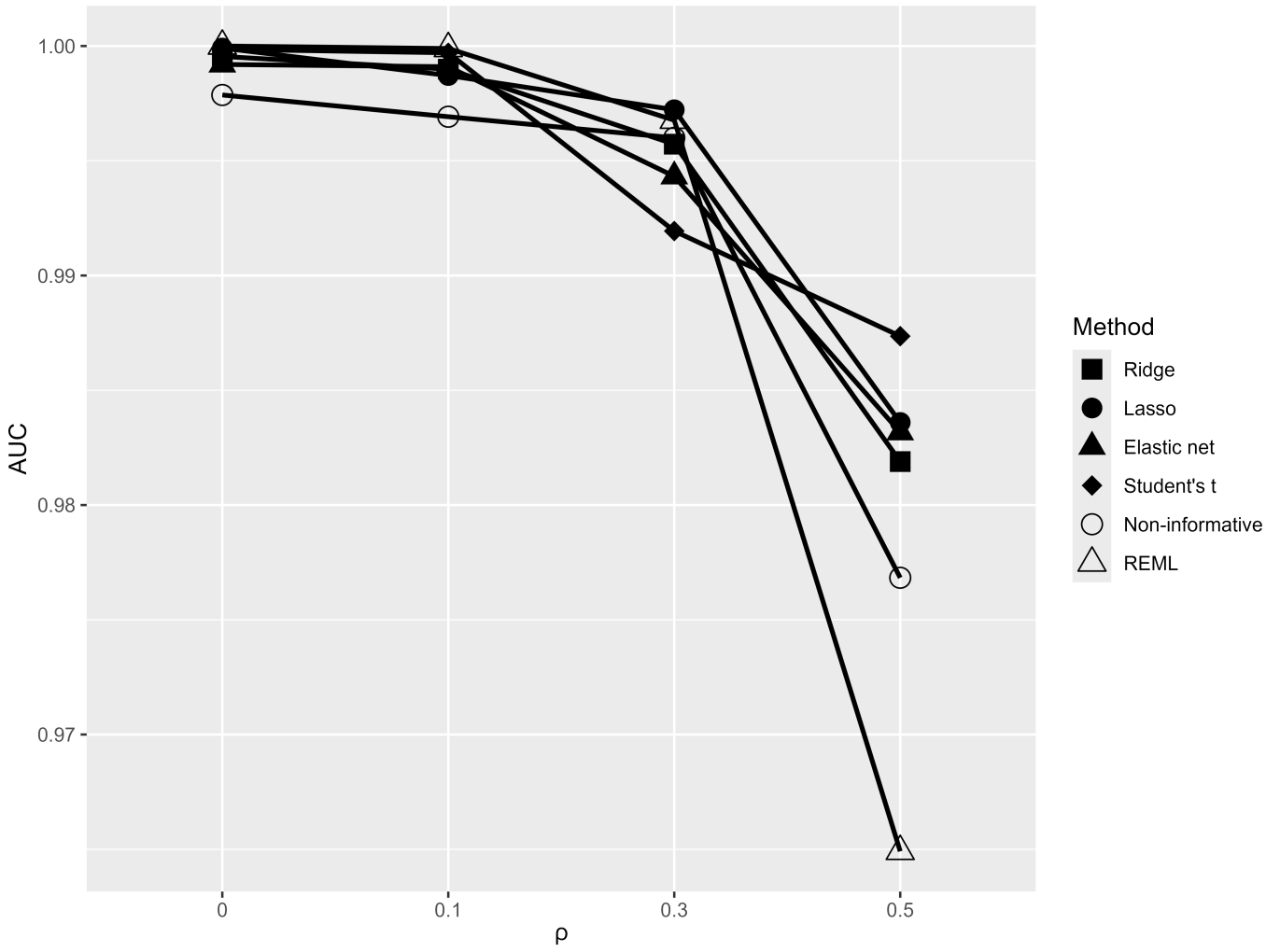


Figure 5: Area Under the Curve (AUC) when $N = 1000$, $P = 80$, and the signal-to-noise ratio is .05. The performance of four Bayesian penalization priors, ridge, lasso, elastic net, and Student's t, is compared to that of the Bayesian non-informative priors and t test based on restricted maximum likelihood (REML) estimation. The x-axis represents the mutual correlation among covariates, and the y-axis shows AUC.