14.385. Midterm.

1 Question 1.

(30 minutes)

(a) Briefly explain the Skorohod representation for linear quantile regression model. Explain some special cases (location or location-scale models).

(b) Briefly explain the equivariance to monotone transformations that quantile regression models have and conditional mean models don't. State some interesting examples.

2 Question 2.

(30 minutes)

(a) What is the bootstrap bias correction method? State the pseudo-code for bias correction.

(b) Briefly explain when the bootstrap might fail.

3 Question 3.

(30 minutes)

(a) Explain briefly what Bayesian estimators do. Explain what posterior mean, median, and quantiles are.

(b) Are posterior mean and medians inferior estimators compared to the maximum likelihood estimators? Are they consistent, asymptotically normal? Brief answers suffice.