

Midterm Exam

Please answer the following questions and submit your answers in class.

1. What is Ordinary Least Squares? What is Maximum Likelihood Estimation?
2. What are the Gauss-Markov assumptions?
3. Why are the OLS estimates of regression coefficients equal to the MLE estimates?
4. Why doesn't OLS provide an estimate of the standard error?
5. What is the standard error of regression? What is the standard error of a regression coefficient?
6. Why do the MLE first-order conditions provide us with an estimate of the standard error of the regression? Why do the MLE second-order conditions provide us with estimates of the standard error of the regression coefficients?
7. Why is the standard error of a parameter estimate smaller when the log-likelihood surface comes to a sharp peak along its dimension?