

Homework 3

ECON 4848

Professor Martins-Filho

Due date: 02.23.2011 in class.

Instructions: As discussed in class, this homework will be graded. The average of this grade and the grade you obtained on the first exam be your first midterm grade.

1. All questions are from your textbook:

a) Problems 2.7, 2.9 on p. 63.

b) Using the data set sleep75.dta available on the class web page do Computer exercise C2.3 on p. 65. In addition, answer the following questions: b.1) Test the hypothesis that totwork does not impact the sleep; b.2) Suppose the value of totwrk=1962. Construct a 95% confidence interval for the forecast error associated with totwork=1962.

2. Consider an univariate linear regression model which conforms with assumptions we made in class. Recall that we have defined an estimator for the regression variance σ^2 as $s^2 = (n - 2)^{-1} \sum_{i=1}^n \hat{u}_i^2$, where \hat{u}_i is the i^{th} least squares residual. Prove that $E(s^2) = \sigma^2$.