

ECONOMETRICS II

CONTINUOUS ASSESSMENT TEST

TIME ALLOCATION: 2 AND ½ HOURS

INSTRUCTION TO STUDENTS: ATTEMPT ALL QUESTIONS

QUESTION 1

Explain why bootstrapping the sample average works.

QUESTION 2

What is the large sample distribution of $\hat{\beta}$? Make any additional primitive assumptions you might need. [Note: high level assumptions will receive partial credit.]

QUESTION 3

Construct a consistent estimator for the large sample variance of $\hat{\beta}$. Prove its consistency by making any additional assumptions you need.

QUESTION 4

Suppose we want to test the null hypothesis $H_0 : \beta_j = 0$ vs $H_A : \beta_j < 0$. Construct a t-statistic for testing this hypothesis. Derive its limit distribution and describe how to select critical value for this test to maintain the level of significance equal to 5%.

QUESTION 5

Consider estimating the following effect

$$E[y_t|x_t = x''] - E[y_t|x_t = x'] = (x'' - x')'\beta$$

Give an economic example where such an effect might be of interest. Is $(x'' - x')'\hat{\beta}$ BLUE for this effect? Why or why not?