Name: _____

Score: _____ / _____

Assignment_9

Part 1:

Each of the following 4 data sets contains the n iid pairs of sample data (y, x1)_1, (y, x1)_2, ..., (y, x1)_n, randomly draw from the population space X and Y. Suppose the assumption 1-3 hold for all of the data set. Pick up the dataset with heteroskedasticity and use this data set only to answer the following questions. No need to answer this question. This question sets up the parameter of the following questions and serves as a separator. (Round your answer in 3 decimal Places as always).

Attachments

Dataset_Hetero_3.csv
Dataset_Hetero_4.csv
Dataset_Hetero_1.csv
Dataset_Hetero_2.csv

(1) Which data set exists heteroskedasticity

- A. 1
- B. 2
- C. 3
- D. 4

(2) What are the bad consequences of heteroskedasticity

- A. estimator is no longer unbiased
- B. estimator is no longer consistent
- C. estimator is no longer efficient
- D. all of above

Accepted characters: numbers, decimal point markers (period or comma), sign indicators (-), spaces (e.g., as thousands separator, 5 000), "E" or "e" (used in scientific notation). NOTE: For scientific notation, a period MUST be used as the decimal point marker.

(3) Suppose the variance of the uncertainty is a linear function of the x1. Use the algorithm in slides to implement a WLS estimation. What is your estimation of for each of the linear coefficient?
beta0 =____
beta1 = ____

(4) Which of the underlying theorem guarantees the WLS estimator is the most efficient linear estimator?

- A. Spectral Theorem
- B. Central Limit Theorem
- C. Gauss Markov Theorem
- D. Law of Large Number

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(5) If we conduct the OLS estimation, then the original Homoskedasticity standard deviation is no longer valid for statistical inference. Fill in the below the heteroskedasticity-robust standard deviation of each of the linear coefficients:
sd(beta0) = ____
sd(beta1) = ____