

Quiz 2

Econ 526 - Introduction to Econometrics

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Name:

SECTION A - MULTIPLE CHOICE

1. If X is a random variable such that $X \sim N(\mu, \sigma^2)$. What's $S^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$?
- A. an estimator of μ
 - B. an estimate of σ
 - C. an estimator of σ^2
 - D. an estimate of $\text{Cov}(\mu, \sigma^2)$

SECTION B - TRUE OR FALSE

1. Consider n independent and identically distributed random variables. The *Law of Large Numbers* (LLN) states that when n increases, the sample average converges in distribution to a Chi-Square random variable.
 True False
2. The *Law of Large Numbers* (LLN) states that the sample average of n independent and identically distributed random variables, for n large, follows a Normal distribution.
 True False
3. We say that an estimator is unbiased if its variance is equal to the variance of the estimated parameter.
 True False
4. Consistency of an estimator is related to its asymptotic properties, i.e., with the idea of what happens to the estimator when the samples size n gets large.
 True False

SECTION C - SHORT ANSWER

1. Suppose an econometrician would like to know what is the mean CEO's salary of all companies in the European Union (EU). In order to do that s/he randomly collected the CEO's salary of 800 companies in the EU.
- (a) What is the population of his/her problem? [1 or 2 line(s) answer]
 - (b) What is the sample? [1 or 2 line(s) answer]
 - (c) What (populational) parameter s/he wants to know? [1 line answer]
 - (d) What estimator could s/he use to accomplish the task? [1 line answer]