

FINM3123 Introduction to Econometrics

Chapter 04

Class exercises

Multiple Choice Questions

1. The normality assumption implies that:
 - a. the population error u is dependent on the explanatory variables and is normally distributed with mean equal to one and variance σ^2 .
 - b. the population error u is independent of the explanatory variables and is normally distributed with mean equal to one and variance σ .
 - c. the population error u is dependent on the explanatory variables and is normally distributed with mean zero and variance σ .
 - d. the population error u is independent of the explanatory variables and is normally distributed with mean zero and variance σ^2 .
2. Which of the following statements is true?
 - a. Taking a log of a nonnormal distribution yields a distribution that is closer to normal.
 - b. The mean of a nonnormal distribution is 0 and the variance is σ^2 .
 - c. The CLT assumes that the dependent variable is unaffected by unobserved factors.
 - d. OLS estimators have the highest variance among unbiased estimators.
3. Which of the following correctly defines F statistic if SSR_r represents sum of squared residuals from the restricted model of hypothesis testing, SSR_{ur} represents sum of squared residuals of the unrestricted model, and q is the number of restrictions placed?
 - a. $F = \frac{(SSR_{ur} - SSR_r)/q}{SSR_{ur}/(n-k-1)}$
 - b. $F = \frac{(SSR_r - SSR_{ur})/q}{SSR_{ur}/(n-k-1)}$
 - c. $F = \frac{(SSR_{ur} - SSR_r)/q}{SSR_r/(n-k-1)}$
 - d. $F = \frac{(SSR_{ur} - SSR_r)/(n-k-1)}{SSR_{ur}/q}$

4. Consider the equation, $Y = \beta_1 + \beta_2 X_2 + u$. A null hypothesis, $H_0: \beta_2 = 0$ states that:
- X_2 has no effect on the expected value of β_2 .
 - X_2 has no effect on the expected value of Y .
 - β_2 has no effect on the expected value of Y .
 - Y has no effect on the expected value of X_2 .
5. Which of the following correctly identifies a reason why some authors prefer to report the standard errors rather than the t statistic?
- Having standard errors makes it easier to compute confidence intervals.
 - Standard errors are always positive.
 - The F statistic can be reported just by looking at the standard errors.
 - Standard errors can be used directly to test multiple linear regressions.

True or False

6. If $\hat{\beta}_1$ and $\hat{\beta}_2$ are estimated values of regression coefficients associated with two explanatory variables in a regression equation, then the standard error $(\hat{\beta}_1 - \hat{\beta}_2) = \text{standard error } (\hat{\beta}_1) - \text{standard error } (\hat{\beta}_2)$.