

B.A. (Honours) Examination, 2022

Semester – VI

Economics

Paper CC -14

(Introduction to Econometrics)

Time: 3 Hours

Full Marks – 60

Questions are of value as indicated in margin.

Answer question number 1 and any three from the rest.

1. Choose the correct alternative for each question

(6x2)+(1x3)=15

(i) Studying the dependence of one variable on only a single explanatory variable is known as

- (a) One- variable regression analysis
- (b) Two variable regression analysis
- (c) Three –variable regression analysis
- (d) Multiple variable regression analysis

(ii) When we reject null hypothesis, then our finding said to be

- (a) 95% probability finding
- (b) 5 % confidence finding
- (c) Not statistically significant
- (d) Statistically significant

(iii) The lowest significance level at which a null hypothesis can be rejected by

- (a) t – value
- (b) p – value
- (c) Significance test
- (d) Confidence interval

(iv) In double log regression model, the regression slope gives

- (a) The relative change in Y for a given percentage change in X
- (b) The percentage change in Y for a given percentage change in X
- (c) The absolute change in Y for a given percentage change in X
- (d) By how many units Y changes for a given change in X

(V) Which of the following statements is NOT TRUE about a regression model in the presence of near exact multicollinearity

- (a) t ratio of the coefficient tends to be statistically insignificant
- (b) R-square is high
- (c) OLS estimators are not BLUE
- (d) OLS estimators very sensitive to small change in data

(VI) The coefficient estimated in the presence of heteroscedasticity

- (a) Unbiased estimators
- (b) Consistent estimators
- (c) Efficient estimators
- (d) Linear estimators

(VII) In regression model $u_t = \rho u_{t-1} + \varepsilon_t$, $-1 < \rho < 1$, $\rho \neq 0$, ρ is the:

- (a) Coefficient of autocorrelation.
- (b) First order coefficient of autocorrelation.
- (c) Coefficient of autocorrelation at lag 1.
- (d) All of the above

2. (a) Explain briefly the methodology of Econometrics.

7+8=15

(b) State and explain the CLRM assumptions in the context of Two Variable Linear Regression Model.

3. (a) How do you estimate the parameters in the context of Two Variable Linear Regression Model? 10+5 =15

(b) In the context of CLRM (Two Variable case) show that total sum of square is the sum of explained sum square and residual sum square.

4. (a) Set up a K variable linear regression model in a matrix form stating clearly the order of the matrix and column vectors. 5+4+6 =15

(b) What are dummy variables? Explain clearly the ANOVA and ANCOVA models in the context of dummy variables.

5. Explain the concept of heteroscedasticity problem in regression model. State and explain the remedial measures of multicollinearity. 3+12=15

6. Consider the following estimated regression equation:

7+8=15

$$\hat{Y}_i = -0.0144 + 0.7241X_i$$

(0.93173) (0.07007)

$r^2 = 0.9521$, $t_{0.05, 11} = 2.2010$ (two tailed), $df = 11$

(Figures in brackets are standard errors)

- (i) Interpret the regression results.
- (ii) Test the null hypothesis of the coefficient of X_i is equal to 0.90. Also do the same for the coefficient is equal to 1.85.

7. Write any two short notes on the following

7.5 X2 =15

- (a) ANOVA test in the context of simple linear regression model
- (b) Chi – Square distribution
- (c) Remedial measures of heteroscedasticity
- (d) Specification of autocorrelation in regression model
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