



NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
2025_1 EXAMINATION...

COURSE TITLE: APPLIED ECONOMETRICS

COURSE CODE: ECO713

UNITS: 3

TIME ALLOWED: 3 HOURS

INSTRUCTION: ANSWER QUESTION ONE, AND ANY OTHER THREE QUESTIONS

1. Given two variables, and two Parametres linear stochastic model such that:

$Y_i = b_0 + b_1X_i + u_i$, derive the least squares estimates of \bar{b}_0 , \bar{b}_1 and \bar{u}_i using the following data shown on the table below.

Y	64	68	44	48	50	65	45	56
X	8	10	6	9	6	10	7	8

Where Y is the demand for normal goods, X stands for the price of the goods, and N is the number of observations. (15 Marks)

- 1b. List and explain Properties of the OLS estimators (10 marks)
2. The outcome of linear estimation of the relationship between consumption (C_t) and disposable income (Y_t^d) expressed in stochastic functional form as; $C_t = f(Y_t^d)$ was obtained. If the linear model is stated as; $C_t = \alpha_1 + \beta_1 Y_t^d + \varepsilon_{1t}$ and the estimated parametres are; $\alpha_1 = 25.0900$; $\hat{\beta}_1 = 0.57682$, t-statistic = 2.935261, Prob = 0.0030 and $R^2 = 0.95994$.
- (i) State the existing relationship, (ii) Explain R^2 and (iii) determine the relevance of the result in policy forecasting. (15 Marks)
3. Discuss the intending difficulties when estimating the parameters of the linear probability model using the Ordinary Least Squares estimator. (15 Marks)
4. Ordinary Least Squares (OLS) could be used to estimate a purely distributed lag model, but the problem of multicollinearity since successive lagged values of a regressor tend to be correlated has been a serious challenge.
Explain the suggested short-cut methods to avert this problem. (15 Marks)
5. Cointegrating series may or may not be a problem in economic analysis. Explain (15 Marks)