



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.A. DEGREE EXAMINATION – ECONOMICS

THIRD SEMESTER – NOVEMBER 2015

EC 3813 - MODERN ECONOMETRICS

Date : 13/11/2015

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

PART A

Answer any **FIVE** of the following questions:

[5x4=20 marks]

1. Differentiate parameter stability and structural change.
2. Write a note on Chow's prediction failure test.
3. Point out the limitations of Linear Probability Model.
4. Write a note on MWD test.
5. Differentiate balanced panel and unbalanced panel using a suitable illustration.
6. State any four advantages of panel data.
7. What is meant by Control Category? Give an example.

PART B

Answer any **FOUR** of the following questions:-

[4X10=40 marks]

8. Outline the procedure for testing linear restrictions for a sample data representing Cobb-Douglas production function $Y_i = \beta_1 X_{2i}^{\beta_2} X_{3i}^{\beta_3} e^{u_i}$ which is linearly homogeneous of degree one.
9. Explain the mechanics of Chow test.
10. Examine the Granger Causality test.
11. Briefly explain the procedure of CUSUM test for testing parameter stability.
12. Using a suitable example examine the dummy variable regression model for the following:
 - a. Same intercept different slope. **[2.5 marks]**
 - b. Different intercept same slope. **[2.5 marks]**
 - c. Different intercept different slope. **[2.5 marks]**
 - d. Same intercept same slope. **[2.5 marks]**
13. Explain the Error Component Model used in Panel data regression analysis.
14. Examine the Graphical analysis and Unit root tests applied for the test of Stationarity.

PART C

Answer any **TWO** of the following questions:-

[2X20=40 marks]

15. Compare and contrast the Logit and Probit models applied for estimating Quality Response Models.
 16. Using a sample of 64 countries the model for estimation is as follows :

$$\widehat{CM}_i = \beta_1 + \beta_2 PGNP_i + \beta_3 FLR_i + U_i$$

where, CM (Child Mortality rate is a function of Per- capita GNP and Female Literacy rate).

The regression results are :

$$\widehat{CM}_i = 263.6416 - 0.0056 PGNP_i - 2.2316 FLR_i \dots \dots \dots (1)$$

$$se = (11.5932) \quad (0.0019) \quad (0.2099)$$

$$R^2 = 0.7077$$

The result of extended regression model is:

$$\widehat{CM}_i = 168.3067 - 0.0055 PGNP_i - 1.7680 FLR_i + 12.8686 TFR_i \dots \dots (2)$$

$$se = (32.8916) \quad (0.0018) \quad (0.2480) \quad (?)$$

$$R^2 = 0.7474$$

where, TFR is Total Fertility Rate.

- a. How would you interpret the co-efficient of TFR? A priori, would you expect a positive or negative relationship between CM and TFR? Justify your answer.
- b. Have the coefficient values of PGNP and TFR changed between the two models and why? Which test do you use for testing the significance and why?
- c. Using appropriate statistical test, find the appropriate model of choice and why? Show the calculations.
- d. Find the Standard Error of the coefficient of TFR.[Recall the relationship between ‘t’ and ‘F’ distributions].

17. Consider the following panel data by creating dummy variable and estimate the model for slope coefficients are constant but the intercept varies across individuals.

Panel	Time	X	Y
1	1	7	4
1	2	2	3
2	1	8	5
2	2	9	6

18. Describe the following models:

- a. Auto Regressive Process (1). **(3 marks)**
- b. Moving Average Process (1). **(3marks)**
- c. Auto Regressive Moving Average Process (1,1). **(4 marks)**
- d. Auto Regressive Integrated Moving Average Process. **(10 marks)**
