LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.A. DEGREE EXAMINATION – SOCIOLOGY

THIRD SEMESTER – NOVEMBER 2019

16/17/18PSO3MC03 – HUMAN RESOURCES MANAGEMENT

Date: 02-11-2019   Dept. No.   Max. : 100 Marks

Time: 09:00-12:00

PART A

Answer any **FIVE** of the following questions:-   [5x4=20 marks]

1. State the concept of structural break using suitable diagram.
2. Write a note on Chow's prediction failure test.
3. State the parameter values of the error term in Random effects approach.
4. Differentiate between Random Walk without Drift and Random Walk with Drift.
5. State the properties of Integrated Time series.
6. Which test statistic is applied for testing the incremental effect of an additional regressor added into a regression model?
7. What is the employability of ARCH and GARCH models?

PART B

Answer any **FOUR** of the following questions:-   [4X10=40 marks]

8. State the procedure for testing the equality of two regression coefficients in a K variable model.
9. Examine the superiority of Probit model over the Linear Probability Model.
10. Using suitable diagram, explain the Logit model highlighting its features.
11. Outline the procedure of the CUSUM test for model stability.
12. From the data for 54 standard metropolitan statistical areas (SMSA), the SIT estimated the following Logit model to explain high murder rate versus low murder rate:

$$ln\ \widehat{O_i} = 1.1387 + 0.0014P_i + 0.0561C_i - 0.4050R_i$$

SE =   (0.0009) (0.0227)   (0.1568)

Where, O = the odds of a high murder rate, P = 2000 population size in thousands,   C = population rate from 1990 to 2000, R = reading quotient and SE are the asymptotic standard errors.

   a. How would you interpret the various coefficients?   (3 marks)

   b. Which of the coefficients are individually statistically significant?   (5 marks)

   c. What is the effect of a unit increase in the reading quotient on the odds of having a higher murder rate?
                         (2 marks)

13. A sample of 21 firms were collected to estimate the advertising impressions retained and advertising expenditure incurred by the firm. The results are as follows:

Model I: $\widehat{Y_i} = 22.163 + 0.3631\ X_i$

           SE = (7.089)   (0.0971)

                           $R^2 = 0.424$

Model II: $\widehat{Y_i} = 7.059 + 1.0847\ X_i - 0.0040\ X_i^2$

           SE = (9.986)   (0.3699)   (0.0019)

                           $R^2 = 0.53$

   a. Interpret both the models.   (3 marks)

   b. Which statistical test (s) would you use to choose between the two models? (5 marks)

   c. Which is a better model and why?   (2 marks)

14. Explain the Dicky-Fuller and Augmented Dicky-Fuller tests of stationarity.

PART C

Answer any **TWO** of the following questions:- [2X20=40 marks]

15. Examine the key concepts in Time-series Econometrics.
16. Given the Cobb – Douglas production function $Y_i = \beta_1 X_{2i}{}^{\beta_2} X_{3i}{}^{\beta_3} e^{u_i}$ which follows constant returns to scale ; How can we test whether the model satisfy some restrictions? Support your answer using suitable test procedure.
17. Discuss the possibilities of Panel data models using Least Square Dummy Variable approach.
18. 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 as follows:

$$\widehat{CM}i = 263.6416 - 0.0056\, PGNP_i - 2.2316\, FLR_i \ldots\ldots\ldots\ldots$$
$$(1)SE = (11.5932)(0.0019) \qquad (0.2099)$$
$$R^2 = 0.7077$$

The result of extended regression model is:
$$\widehat{CM}_i = 168.3067 - 0.0055\, PGNP_i - 1.7680\, FLR_i + 12.8686\, TFR_i \ldots\ldots\ldots\ldots(2)$$
$$SE = (32.8916)(0.0018)(0.2480) \qquad (?)$$
$$R^2 = 0.7474$$

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. (5 marks)

c. Have the coefficient values of PGNP and FLR changed between the two models and why? Which test do you use for tesing the significance and why? (5 marks)

d. Using appropriate statistical test, find the appropriate model of choice and why? Show the calculations.

(7 marks)

e. Find the Standard Error of the coefficient of TFR.[Recall the relatioship between 't' and 'F' distributions].

(3 marks)

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