

2020

ECONOMICS — HONOURS — PRACTICAL

Paper : DSE-A-1P

(Applied Econometrics)

Full Marks : 30

The figures in the margin indicate full marks.

Create a log file (.smcl format), put your registration number and roll number, without any blank space, as file name. If your Registration Number is XXX-XXXX-XXXX-XX and Roll Number is XXXXXX-XX-XXXX your file name will be REG XXX-XXXX-XXXX-XX ROLL XXXXXX-XX-XXXX. If there is no log file your answer-script will not be evaluated.

Answer *any three* questions.

Using STATA or R)

For **Group-B, Q 4 & Q 5** together should be considered as a single question.
For **Group-C, Q 6 & Q 7** together should be considered as a single question.

Group - A

1. Dataset Question 1 represents sex (1 for male and 2 for female), age and wage of 3877 workers. Use dataset Question 1 to
 - (a) Calculate the summary statistics of age and wage.
 - (b) Draw the histogram for wage.
 - (c) Draw a scatter plot between wage and age.
 - (d) Make a list of workers whose wages are more than 15000.
 - (e) Calculate mean, median, standard deviation, skewness and kurtosis of age and wage. 2+2+2+2+2

2. Dataset Question 2 represents expenditure on food (y1), expenditure on non-food (y2) and age (x) of 2749 respondents. Use dataset Question 2 to answer the following :
 - (a) Estimate the linear regression model of y1 on age (x).
 - (b) Is the coefficient of age significant?
 - (c) Get the predicted values of y1 and name it 'y1-hat'.
 - (d) Get the residuals of estimated regression and name the series as 'res'.
 - (e) Get the difference between y1 and y1-hat and name the series as 'r1'.
 - (f) List 'r1' and 'res' for first 20 respondents to see if they are equal. 1+1+2+2+2+2

Please Turn Over

3. Dataset Question 3 represents sex (1 for male and 2 for female), age and wage of 3,877 workers. Use dataset Question 3 to answer the following questions.
- (a) Estimate the linear regression model where wage is explained by age and gender (sex) of the worker.
 - (b) Are the coefficients of age and sex individually significant?
 - (c) What do you say about the overall significance of the estimated regression model?
 - (d) State whether the female workers are getting higher wages than the male workers.
 - (e) Get the predicted values of wage.
 - (f) List the female workers whose predicted wages are greater than 3000.
 - (g) Draw a scatter plot between predicted values of wage and age for the male workers.

2+2+1+2+1+1+1

Group - B

4. Dataset Question 4 represents annual data of export (expo), import (imp), and gross domestic product (gdp) of a country for the period (year) 1950 to 2012.
- (a) Get the line plots of export and import in the same diagram.
 - (b) Make a list of year, export and import for the period 1990 to 2000.
 - (c) Estimate the time trend of export by estimating a regression of export taking time index as a regressor.
5. Dataset Question 5 represents annual data of gross domestic product (gdp) of a country for the period (year) 1950 to 2012. Use this dataset and answer the following.
- (a) Get a line plot of gdp.
 - (b) Create a one period lagged values of gdp.
 - (c) Create a series of natural log of gdp.
 - (d) Estimate the average rate of growth of gdp for the entire period.

2+2+1

1+1+1+2

Group - C

6. Dataset Question 6 represents contribution of service sector (services) and banking and insurance (bank) in state gdp of 23 states for 19 years. Use this dataset to— Estimate how ‘services’ is affected by ‘bank’ applying fixed effect error component model assuming significant differences among state but no significant temporal effects.
- Interpret your results.
7. Dataset Question 7 represents contribution of service sector (services) and banking and insurance (bank) in state gdp of 23 states for 19 years. Use this dataset to estimate how ‘services’ is affected by ‘bank’ applying fixed effect error component model assuming significant temporal effects but no significant differences among states.
- Interpret your results.

3+2

3+2
