<u>Lesson Plan – Introductory Econometrics</u>
BA (Hons) Economics, Semester IV

Dear Students,

In order to keep up with our syllabus during this unanticipated suspension of classes we will be sharing directions and material for you to work on at home. You may reach out to your instructor via email to discuss queries.

1. Revision of past material will be through an assignment found below.

2. New material is as follows:
    <u>Topic</u>: Qualitative (dummy) independent variables

    <u>Prescribed readings</u>: Already available with students
    *   Chapter 6 (6.1, 6.2 and 6.5) from Essentials of Econometrics, D. N. Gujarati and D.C. Porter, 4th Edition, McGraw Hill International Edition, 2010
    *   Chapter 5 (5.1 and 5.4) from Introduction to Econometrics, Christopher Dougherty, 4th Edition, OUP, Indian Edition, 2011

    <u>Additional e-resources</u>: Lecture slides to supplement your reading for this topic may be found at
    https://global.oup.com/uk/orc/busecon/economics/dougherty5e/student/ppts/ch05/

We strongly encourage you to make use of these resources and also to spend this time addressing any gaps in your understanding of previous topics or exercises.

Stay safe and be productive!

INTRODUCTORY ECONOMETRICS REVISION ASSIGNMENT
(March, 2020)

Q1. State whether the following statements are true or false. Give reasons or proof for your answer.

   a)   The means of the actual Y values and the estimated Y values are always the same, if the least squares method is used for estimating the PRF.

   b)   In a simple regression model, the F-test of goodness-of-fit is equal to the square of t-statistic of estimated slope coefficient.

   c)   The OLS estimators are best linear unbiased estimators (BLUE).

Q2. The following estimated equation was obtained by ordinary least squares regression using quarterly data for 1991 to 2010 (inclusive):

$$Y_i = 2.2 + 0.104X_{2i} + 3.48 X_{3i} + 0.34X_{4i}$$
$$(3.4) \quad (0.005) \quad (2.2) \quad (0.15)$$
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Figures in the parentheses are standard errors, the explained sum of squares and residual sum of squares were 112.5, and 19.5 respectively.

   i. Which of the slope coefficients are significantly different from zero at 5% level of significance?

   ii. Calculate the R^2 and adjusted R^2 values for this regression equation.

   iii. Test the overall significance of the estimated regression equation.

Q3. Explain the 'Jarque-Bera Test' used for testing normality of error term.

Q4. The following table gives data on the quantity supplied (in million tons) and its price (in Rs per ton) during 2003-2010.

Year	2003	2004	2005	2006	2007	2008	2009	2010
Quantity supplied (Y)	2	4	6	8	5	8	9	8
Price (X)	2	5	6	7	4	6	7	3

   i.   Obtain the regression equation for the supply function $Y_i = B_1 + B_2X_i + u_i$ and interpret your results.

   ii.   Estimate the quantity supplied when price is Rs 10 per ton.

   iii. Test the hypothesis that quantity supplied and price are positively related.

   iv. How would the regression coefficients change if quantity supplied is measured in billion tons, instead?

Q5.

A nine variable regression model gave the following results:

SOURCE OF VARIATION	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SUM OF SQUARES
DUE TO REGRESSION	10357	-	-
DUE TO RESIDUALS	-	-	-
TOTAL	33668	176	

i.   Complete the table.

ii.   State the null and alternative hypothesis for testing overall significance of the estimated multiple regression equation.

iii.   Test the model for overall goodness of fit at 1% level of significance.