

EE325 STATA session I part 2 ☺

Class lecture examples:

- I. Consider the data given in Table 6.4 Fertility and other data for 64 countries. These are cross-sectional data for 64 countries on child mortality and a few other variables. For now, concentrate on the variables child mortality (CM), PGNP, and female literacy rate (FLR).

$$CM_i = \beta_1 + \beta_2 PGNP_i + u_i \quad (1)$$

$$CM_i = \beta_1 + \beta_2 \frac{1}{PGNP_i} + u_i \quad (2)$$

$$CM_i = \beta_1 + \beta_2 PGNP_i + \beta_3 FLR_i + u_i \quad (3)$$

- II. Estimating the Total cost function. Consider the data on output and total cost of production of a commodity in the short run given in Table 7.4. What type of regression model will fit these data?

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 X_i^2 + \beta_3 X_i^3 + u_i \quad (1)$$

- III. The Cobb-Douglas Production Function for the Mexican Economy, 1955-1974 (Table 8.8).

$$\ln Y_i = \beta_1 + \beta_2 \ln X_{2i} + \beta_3 \ln X_{3i} + u_i \quad (1)$$

$$\ln \frac{GDP_i}{Labor_i} = \beta_1 + \beta_2 \frac{Capital_i}{Labor_i} + u_i \quad (2)$$

- IV. The Demand for Chicken in the United States, 1960-1982 (Table 7.9).

$$\ln Y_t = \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + \beta_4 \ln X_{4t} + \beta_5 \ln X_{5t} + u_t \quad (1)$$

$$\ln Y_t = \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + u_t \quad (2)$$

- V. Table 8.9 Savings and Personal Disposal Income (billions of dollars), United States, 1970-1995.

$$\text{Time period 1970-1981: } Y_t = \lambda_1 + \lambda_2 X_t + u_t \quad (1)$$

$$\text{Time period 1982-1995: } Y_t = \gamma_1 + \gamma_2 X_t + u_t \quad (2)$$

$$\text{Time period 1970-1995: } Y_t = \alpha_1 + \alpha_2 X_t + u_t \quad (3)$$

Class exercise

(Participation credit #5 submit your stata output table with your answers part a and b by Email (Due date March 31, 2024))

1. The demand for roses. **Table 7.6** gives quarterly data on these variables:

Y = quantity of roses sold, dozens

X_2 = average wholesale price of roses, \$ / dozen

X_3 = average wholesale price of carnations, \$ / dozen

X_4 = average weekly family disposable income, \$ / week

X_5 = the trend Variable taking values of 1, 2, and so on,, for the period 1971 – III to 1975 – II in the Detroit Metropolitan area

You are asked to consider the following demand functions:

$$Y_t = \alpha_1 + \alpha_2 X_{2t} + \alpha_3 X_{3t} + \alpha_4 X_{4t} + \alpha_5 X_{5t} + u_t$$

$$\ln Y_t = \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + \beta_4 \ln X_{4t} + \beta_5 X_{5t} + u_t$$

- a) Estimate the parameters of the linear model and interpret the results.
 - b) Estimate the parameters of the log-linear model and interpret the results.
 - c) β_2 , β_3 , and β_4 give, respectively, the own-price, cross-price, and income elasticities of demand. What are their a priori signs? Do the results concur with the a priori expectations?
2. **Table 7.12** gives data for real consumption expenditure, real income, real wealth, and real interest rates for the U.S. for the years 1947-2000.
 - a) Given the data in the table, estimate the linear consumption function using income, wealth, and interest rate. What is the fitted equation?
 - b) What do you estimated coefficients indicate about the variables' relationships to consumption expenditure?

3. **Table 7.11** gives data for the manufacturing sector of the Greek economy for the period 1961-1987
- a) See if the Cobb-Douglas production function fits the data given in the table and interpret the results. What general conclusion do you draw?
 - b) Now consider the following model:

$$\text{Output} / \text{labor} = A(K / L)^{\beta} e^u$$

where the regressand represents labor productivity and the regressor represents the capital labor ratio. What is the economic significance of such a relationship, if any? Estimate the parameters of this model and interpret your results.