EE 325 ☺☺ **STATA Session**

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 Metropolitian 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. $\beta_2, \beta_3, and\ \beta_4$ 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 7.11 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:

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

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.

3. 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?

4. Table 8.9 Savings and Personal Disposable income (billions of dollars), United States, 1970-1995.

a. Given the data in the table, estimate the following linear savings function using personal disposable income

Time period 1970-1981: $Y_t = \lambda_1 + \lambda_2 X_t + u_{1t} \quad n_1 = 12$

Time period 1982-1995: $Y_t = \gamma_1 + \gamma_2 X_t + u_{2t} \quad n_2 = 14$

Time period 1970-1995: $Y_t = \alpha_1 + \alpha_2 X_t + u_{3t} \quad n_1 + n_2 = 26$

b. On the basis of the Chow test that there was a difference in the regression of savings on income between the two periods. Consider and estimate the following model with the dummy variable:

$$Y_t = \alpha_1 + \alpha_2 D_t + \beta_1 X_t + \beta_2 (D_t X_t) + u_t$$

Where Y = Savings

X= Personal disposable income

t = time

D = 1 for observations in 1970-1981

= 0 otherwise

i. Test the coefficients individually statistically significant at the 5 percent level? From this test, how would you describe the difference in the two regressions (coincident regression, parallel regression, concurrent regression, dissimilar regression)?

ii. Write down the mean personal savings function for 1970-1981 and the mean personal savings function for 1982-2005.