Exercise 6

Problem 1) Use the data in **EZANDERS** for this exercise. The data are on monthly unemployment claims in Anderson Township in Indiana, from January 1980 through November 1988. In 1984, an enterprise zone (EZ) was located in Anderson (as well as other cities in Indiana). [See Papke (1994) for details.]

i. Regress log(*uclms*) on a linear time trend and 11 monthly dummy variables. What was the overall trend in unemployment claims over this period? (Interpret the coefficient on the time trend.) Is there evidence of seasonality in unemployment claims?

ii. Add *ez*, a dummy variable equal to 1 in the months Anderson had an EZ, to the regression in part (i). Does having the enterprise zone seem to decrease unemployment claims? By how much?

iii. What assumptions do you need to make to attribute the effect in part (ii) to the creation of an EZ?

Problem 2) Use Phillips.GDT data for this exercise.

i. In a static Phillips Curve model, we modelled the relationship between the unemployment rate and inflation in the following way:

$$inf_t = \beta_0 + \beta_1 * unem_t + u_t \qquad (1)$$

Estimate the model and interpret results. Check whether time series used follow unit root process.

ii. Alternative formulation of the Phillips curve is used by economists: expectations augmented Phillips curve:

$$\Delta inf_t = \beta_0 + \beta_1 * \Delta unem_t + u_t \qquad (2)$$

where $\Delta inf_t = inf_t - inf_{t-1}$ and $\Delta unem_t = unem_t - unem_{t-1}$. Check whether the series in this second model follow unit root. Make any necessary adjustments and estimate the model 2. Which model do you think best describes the relationship?

Problem 3) The data in INTDEF come from the ***2004 Economic Report of the President*** (Tables B-73 and B-79) and span the years 1948 through 2003. The variable *i3* is the three-month T-bill rate, *inf* is the annual inflation rate based on the consumer price index (CPI), and *def* is the federal budget deficit as a percentage of GDP. Use the data to estimate the following model:

$$i3_t = \beta_0 + \beta_1 * inf_t + \beta_2 * def_t + u_t$$

Interpret the coefficients. Argue whether all assumptions of TS model are satisfied.

In October 1979, the Federal Reserve changed its policy of using finely tuned interest rate adjustments and instead began targeting the money supply. Define a dummy variable equal to 1 for years after 1979. Include this dummy in equation above to see if there is a shift in the interest rate equation after 1979. What do you conclude?