TSP-Problem Set 7:  
Time Series

Preparations

Please create a new folder for this exercise session with your name in directory T:. Then go to L:\Applied Econometrics\ex07 and copy the files into your folder.

1) Unemployment

(Based on Wooldridge, Example C10.5, p.374)

Use the data in “ex07_1.xls” 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).

\[ uclms \] unemployment claims
\[ ez \] =1 in the months Anderson had an EZ
\[ y81–y88 \] e.g. \( y81=1 \) if data from the year 1981
\[ jan–dec \] e.g. \( jan=1 \) if data from january

(a) Regress \( \log(uclms) \) on a constant, 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?

(b) Add \( ez \), a dummy variable equal to one in the months Anderson had an EZ, to the regression in part (a). Does having the enterprise zone seem to decrease unemployment claims? By how much? You can calculate the exact percentage difference using the following formula (see Wooldridge, p. 238):
100 \cdot (\exp(\beta_{ez}) - 1)

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

2) Consumption

(Based on Wooldridge, Example C10.7, p. 374)

Use the data set “ex07_2.xls” for this exercise. It contains yearly data on real disposable income and consumption for the years 1959-1995. The variables of interest are:

- $y$: per capita real disposable income
- $\text{consump}$: per capita real consumption
- $r3$: 3 months real ex post interest rate

(a) Estimate a simple regression model relating the growth in real per capita consumption (of nondurables and services) to the growth in real per capita disposable income. Use the change in the logarithms in both cases. Report the results in the usual form. Interpret the equation and discuss statistical significance.

(b) Add a lag of the growth in real per capita disposable income to the equation from part (a). What do you conclude about adjustment lags in consumption growth?

(c) Add the real interest rate to the equation in part (a). Does it affect consumption growth?

3) Appendix: TSP-commands

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<tr>
<th>trend</th>
<th>trend(nofreq) t ;</th>
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<tr>
<td></td>
<td>→ Generates a series with a linear growth trend called t. The option nofreq stops the trend from being restarted every time there is a new year.</td>
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