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Quantitative Methods in Economic Analysis *1st Term, 2015*

Homework 5

Due: Tuesday, November 17, 2015, 18:00 hours in class. Late homework will not be accepted.

Instruction: Answer all questions. Homework must be handwritten. Nevertheless, when asking to use Eviews, you have to answer by copying results from Eviews and pasting in Word from which you get a computer print-out. Credit will not be given to photocopying or duplication of files.

I. Use the monthly data in hw5_wageprc_excel to estimate the following finite distributed lag (FDL) model:

$$(I.1)\ gprice = \beta_0 + \delta_0 gwage + \delta_1 gwage_{-1} + \delta_2 gwage_{-2} + \delta_3 gwage_{-3} + \delta_4 gwage + \delta_5 gwage_{-5} + \delta_6 gwage_{-6} + \delta_7 gwage_{-7} + \delta_8 gwage_{-8} + \delta_9 gwage_{-9} + \delta_{10} gwage_{-10} + \delta_{11} gwage_{-11} + \delta_{12} gwage_{-12} + u$$

Let *gprice* be the monthly growth in the overall priced level and *gwage* be the monthly growth in hourly wages.

1. Use Eviews to estimate equation (I.1) and report the results in equation form. Interpret the coefficient of $gwage_{-1}$. [Note that you may generate a new series, say for $gwage_{-1}$ (i.e., define *gwage_1 = gwage(-1)*), or use *gwage(-1)* as a variable lag one period directly in Eviews estimation.]
2. Sketch the estimated lag distribution (you should use Excel here). At what lag is the effect of *gwage* on *gprice* largest? Which lag has the smallest coefficient?
3. What is the estimated long-run propensity (LRP)? What regression would you run to obtain the standard error of the LRP directly?
4. Use Eviews to test whether LRP is statistically at the 5% significance level. Is it much different from one? What can you conclude?
5. Use Eviews to test the joint significance of six more lags of *gwage*? What would be the degrees of freedom in the F distribution? (Be careful here; you lose six more observations.)
6. Suppose we want to test whether all 13 lag coefficients are equal. What is the null hypothesis? What is the restricted equation?
7. Use Eviews to test the null hypothesis in #6 against a two-sided alternative, at the 5% significance level. What can you conclude?

II. Use the data in hw5_ezanders_Excell to estimate the following equation,

$$(II.1)\ log(uclms) = \beta_0 + \delta_0 t\ \delta_1 feb + \delta_2 mar + \delta_3 apr + \delta_4 may + \delta_5 jun + \delta_6 jul + \delta_7 aug + \delta_8 sep + \delta_9 oct + \delta_{10} nov + \delta_{11} dec + u$$

The data are on monthly unemployment claims (*uclms)* in Anderson township in Indiana, from January 1980 through Noverber 1988. The variables on time trend and

11 monthly dummy variables are *t, feb, mar, apr, may, jun, jul, aug, sep, oct, nov,* and *dec*, respectively. January is the base month.

Note that we are using time series data; thus, in the *"workfile range"* box, choose **monthly**. The "Starting date" is **1980:1**, and the **"**Ending date" is **1988:12**.

1. Use Eviews to estimate equation (II.1) and report the results in the usual OLS format. Interpret the coefficient on the time trend. Is there evidence of exponential time trend?
2. Use Eviews to test whether there is any evidence of seasonality in monthly unemployment claims at the 5% significance level.
3. Interpret the coefficient of *feb* and *dec*. The unadjusted data on *log(uclms)* in 1980 are

1980	"JAN"	"FEB"	"MAR"	"APR"	"MAY"	JUNE"
log(uclms)	9.818419	9.779114	9.701371	9.696956	9.869931	9.876681

1980	"JULY"	"AUG"	"SEPT"	"OCT"	"NOV"	"DEC"
log(uclms)	9.735601	9.603733	9.237371	8.815815	8.815815	8.730529

Report the seasonally unadjusted and seasonally adjusted unemployment claims in January, February, and December.