

Econ 444 Elementary Econometrics (Fall 2007)

HOMEWORK EXERCISE: 4

Due at the beginning of class on Wednesday, October 31. Note that the maximum score for this homework has 500 points because it includes computer exercises.

1 Important Rules for the Computer Homework

- **OWN WORK:** Group discussion of the exercises is fine, but each student must type in her/his spreadsheet. You must not supply a computer file of your spreadsheet to any other student. In case that any wrongdoing is suspected, the case will be reported to the Board of Academic Misconduct.
- **OUTPUT WITH YOUR NAME:** Output with the student's own name as part of the spreadsheet output must be submitted to receive any credit.
- **LATE EXERCISES** are not accepted. If you have special circumstances, discuss with me before the due date.

2 Homework Exercises

Download the two files on my homepage

<http://economics.sbs.ohio-state.edu/ogaki/index.html>

in Section 5.A, Data for Homework 4, in the Econ 444 link. Read the real consumption data in PCECC96l.txt into an Excel worksheet and save it as a Microsoft Office Excel Workbook. Read the real disposable income data in DPIC96.txt into another Excel worksheet and save it as another Microsoft Office Excel Workbook. Then copy the real disposable income data from the first quarter of 1947 to the first quarter of 2007 into the next column of the real consumption data. Save the file with the two data sets.

These are quarterly time series data for the United States.

(a) Using the Data Analysis tool of Microsoft Excel (or an equivalent tool in another spreadsheet program), run a regression with real consumption as the dependent variable and real disposable income as the independent variable for the sample period from the first quarter of 1947 to the second quarter of 2007. You do not need to submit your computer output for this part. Just write down your regression results in the class format on a sheet of paper. [50]

(b) For the rest of the exercises, use the sample period from the first quarter of 1961 to the first quarter of 1971. For this purpose, create a new spreadsheet that contain only data for this sample period. Using a spreadsheet program, plot the data in a scatter diagram with real disposable income as X and real consumption as Y . Submit your output for the plot in this part with the regression output in part (c) on the same spreadsheet with the data. [100]

(c) Using the Data Analysis tool of Microsoft Excel (or an equivalent tool in another spreadsheet program), run a regression with real consumption as the dependent variable and real disposable income as the independent variable for the sample period specified in part (b). Submit your output for your regression results in part (c) on the same spreadsheet with the plot in part (b). [100]

(d) Using the Data Analysis tool of Microsoft Excel (or an equivalent tool in another spreadsheet program), run a regression with log real consumption as the dependent variable and log real disposable income as the independent variable for the sample period specified in part (b). For this part, prepare a separate spreadsheet that contain the columns of log real consumption and log real disposable income. Submit your output for the regression. [150]

(e) Write down the regression results for part (c) and part (d) in the class format. [5]

(f) How would you interpret the estimated intercept of the regression for part (a)? Does the sign of the intercept makes sense? [5]

(g) How would you interpret the estimated slope coefficient of the regression for part (a)? Does the sign of the slope coefficient makes sense? Does the magnitude of the slope coefficient make sense? [10]

(h) Do you reject the null hypothesis that the slope coefficient is zero for the regression in part (a) at the 10%, 5%, and 1% levels based on the two-sided t -test? Explain. [15]

(i) How would you interpret the estimated intercept of the regression for part (c)? Does the sign of the intercept makes sense? [5]

(j) How would you interpret the estimated slope coefficient of the regression for part (c)? Does the sign of the slope coefficient makes sense? Does the magnitude of the slope coefficient make sense? [10]

(k) Do you reject the null hypothesis that the slope coefficient is zero for the regression in part (c) at the 10%, 5%, and 1% levels based on the two-sided t -test? Explain. [15]

(l) How would you interpret the estimated intercept of the regression for part (d)? Does the sign of the intercept makes sense? [5]

(m) How would you interpret the estimated slope coefficient of the regression for part (d)? Does the sign of the slope coefficient makes sense? Does the magnitude of the slope coefficient make sense? [10]

(n) Do you reject the null hypothesis that the slope coefficient is zero for the regression in part (c) at the 10%, 5%, and 1% levels based on the two-sided t -test? Explain. [15]

(o) Which regression among the three regressions in parts (a), (c), and (d) do you prefer? Why? Is it a good idea to compare the R^2 of these regressions for the purpose of choosing which regression is better? Why? [5]