

**ECO 721 Spring 2009**  
**Homework #3**  
**(Assigned 4/13/09, Due 4/20/09)**

From the extract of longitudinal food consumption and other data from the Panel Study of Income Dynamics and using the example program *lab3\_long\_cons\_refe.do* as a template, write a program that selects observations for household heads who are men, who are 55 to 75 years old, and who are either employed or retired; constructs measures of the log of real household food consumption and the log of real household food needs; and constructs a binary measure of whether the household head is currently retired.

1. In that program, run an OLS regression of the log of real household food consumption on
  - a. the head's retirement status,
  - b. the head's age,
  - c. whether the head is currently married, and
  - d. log real food needs.

Test the individual significance of each of the explanatory variables.

2. In the same program, run a fixed effects regression with the same dependent and independent variables. Test the individual significance of each of the explanatory variables and compare the results to the OLS regression.
3. In the same program, run a random effects regression with the same dependent and independent variables. Test the individual significance of each of the explanatory variables and compare the results to the previous two specifications.
4. Run a Breusch-Pagan test of the random effects specification. Report and interpret the results.
5. Run a Hausman test of the fixed effects specification. Report and interpret the results.
6. Run a fixed effects regression, replacing the household head's age with *year*. How do these results compare with the results from the earlier fixed effects model? Explain the differences in results (if there are any).