Economics 571  
Problem Set #8  

(1) Get the data “labsupply.txt” found on the course web site. This question will require you to perform some simple analysis of this data using STATA. Note: This data set is a text file and is not in STATA format. So, you will have to use the “infile” command to load this data into STATA.

The labor supply data set contains 7 variables, and in particular, the data set contains information on female labor supply decisions for a sample of married women. (As an aside, female labor supply questions are of great interest to labor economists, and a huge literature has developed to investigate questions in this area). Load the seven variables into STATA by typing

\[
\text{infile weeks D D2 afqt spouseinc kids ed using a:labsupply.txt}
\]

(This assumes, of course, that you have saved the data file to your disk in the a: drive).

The seven variables are defined as follows:

- **Weeks:** The number of weeks worked by an adult, married female during the calendar year.
- **D and D2:** Variables that will not be used for our analyses, and you can ignore them.
- **Afqt:** This is a test score (think about it like an IQ score) taken by all females in the sample. The test score data is measured as the percentile rank - for example, if Afqt = 1, then the female had a score in the lowest percentile of the test score distribution, and if Afqt = 99, then she had a score in the highest percentile. (Higher percentiles indicate higher IQ scores).
- **Spouseinc:** Income earned (in thousands of dollars) by the spouse. Note that if spouseinc=20, then the husband earned $20,000 per year.
- **Kids:** An indicator which equals one if there is at least one child of age less than 5 in the household.
- **Ed:** Years of schooling completed by the female.
(1a) Run the following regression:

\[ \text{Weeks}_i = \beta_0 + \beta_1 \text{SpouseInc}_i + \beta_2 (\text{SpouseInc}_i \ast \text{Kids}) + \beta_3 \text{Kids}_i + \beta_4 \text{Ed}_i + \beta_5 \text{AFQT}_i + u_i. \]

**Note:** To run this regression, you will need to generate a new variable to include the interaction term. Let’s call this new variable “inckids.” Create this variable in STATA by typing:

```
generate inckids = spouseinc*kids
```

This will create a new variable, inckids, which is the interaction. Interpret the regression results. Are the coefficients consistent with what you would expect?

(1b) What is the expected number of weeks worked by a married female who does not have small children in the home, and for whom all of the other covariates are equal to their average values? (Note: You will first need to determine these average values by using the “summarize” command).

(1c) Calculate the same effect as in (1b), but this time, assume that there is at least one small child (under age 5) present in the household.

(1d) Suppose that the husband (spouse) gets a $20,000 raise, and that there are no children under 5 in the household. How will this salary increase impact the number of weeks that the wife will work?

(1e) Calculate the same effect as in (1d), but this time, assume that there is at least one small child in the household, i.e., \( \text{Kids} = 1 \).

(1f) Is the coefficient on spousal income statistically significant? What about the coefficient on the interaction, \( \text{SpouseInc} \ast \text{Kids} \)? What do the results of these tests tell us in terms of our application?

(2) **Wooldridge C6.10** parts (i) - (iv) (Note: To generate, for example, a quadratic in \( \text{npvis} \) (which we will call \( \text{npvis2} \)) in STATA, simply type:

```
generate npvis2 = npvis^2
```