Economics 590   **Dr. Reed Olsen**
Spring 2012   **Assignment 3**

This assignment builds upon Assignment 2 and its purpose is twofold: (1) to practice estimating regression equations and (2) to familiarize yourself with presenting the results of such empirical work. This assignment will result in a brief (2 or 3 page) written report. You must use SAS to do the empirical analysis. Do the following:

1. Use the data set that I gave you in Assignment 2 to run OLS Log Income regressions. The dependent variable in the regression should be the variable that you created for Assignment 2, LOGINC (the natural logarithm of total job related monthly income). As independent variables, you must use the 7 variables you created. You should also include at least 6 additional independent variables, including EDUCNEW, SEX, and HRSWORK. Thus, your regression will include <u>at least</u> 13 variables as explanatory variables (you may need to create a few additional variables to get up to a total of 13.)

2. Your written report must include three tables derived from the data discussed in part (1) above. **<u>You may not simply hand in the output from your SAS listing file</u>**. These tables must be put into an easily readable format, each table to take up only one page (hence, you'll have three pages of tables with your written report.):

    A. Table 1 – Definition of Variables – gives definitions for each of the variables.

    B. Table 2 – Summary Statistics - a table giving summary statistics for all of the 14 variables in your regression analysis (LOGINC and the 13 independent variables).

    The summary statistics table should have the mean, standard deviation, minimum, and maximum for each variable, as well as the number of observations for your sample.

    C. Table 3 – Log Income Regression Results – a table containing the results of your regression analysis.

    The regression results Table should present the coefficient estimates and t-statistics for each independent variable (including an intercept) as well as the regression R^2, adjusted R^2, regression F-statistic, and number of observations.

3. You must write two or three pages briefly describing the results of your regression. Organize your written report into sections, <u>with section headings</u>, as appropriate. You must discuss all of the following:

    -   Identify and discuss (use the summary statistics table) each of the variables, both the independent variables and the dependent variable, refer to Tables 1 and 2 as appropriate.

    -   Briefly discuss the expected sign of the coefficient for each of the independent variables? Base your answer upon simple economic analysis.

    -   Interpret the regression results, referring to Table 3 as appropriate

        -   Were your expectations about the sign of independent variables met? Why or why not? Interpret the meaning of the coefficients in words. Are the coefficients statistically significant? (What does that mean?) Is the total regression statistically significant? (How do you tell?) What percent of the variation in the dependent variable is explained by the regression?

4. Attach to your written report the SAS program file and SAS listing file used to generate Tables 2 and 3.

The Assignment is due in class, February 9.