Problem Set #2
Sonoma State University       Dr. Cuellar
Economics 317- Introduction to Econometrics

C1.1 Use the data set Wage1.dta to answer the following questions.
For the regression equation wage = \( \beta_0 + \beta_1 \text{Education} + U \)
(i) Describe the expected effects of education on wages (i.e., what is the expected sign of \( \beta_1 \)).
(ii) Run the above regression. Are your results consistent with your expected effects in (i)?
(iii) Show graphically the regression equation. Describe you results.
(iv) Use the R\(^2\) and F-test to test for overall significance of the estimate regression. Explain each.
(v) Use the three methods covered in class to test the coefficient on education for statistical significance. Be sure to formally state you hypothesis, use a 5% level of significance. Provide an explanation for each.
(vi) Construct a 95% confidence interval around the estimated coefficient \( \beta_1 \). Explain.

C1.2 Use the data set Bwght.dta to answer the following questions.
For the regression equation Birth weight = \( \beta_0 + \beta_1 \text{Cigarettes} + U \)
(i) Describe the expected effects of cigarettes on birth weight (i.e., what is the expected sign of \( \beta_1 \)).
(ii) Run the above regression. Are your results consistent with your expected effects in (i)?
(iii) Show graphically the regression equation. Describe you results.
(iv) Use the R\(^2\) and F-test to test for overall significance of the estimate regression. Explain each.
(v) Use the three methods covered in class to test the coefficient on cigarettes for statistical significance. Be sure to formally state you hypothesis, use a 5% level of significance. Provide an explanation for each.
(vi) Construct a 95% confidence interval around the estimated coefficient \( \beta_1 \). Explain.

C1.3 Use the data set Meap01.dta to answer the following questions.
For the regression equation Math Pass (Math4) = \( \beta_0 + \beta_1 \text{Expenditures Per Pupil} + U \)
(i) Describe the expected effects of per pupil expenditures on the percentage of people who score satisfactorily on the mathematics test (i.e., what is the expected sign of \( \beta_1 \)).
(ii) Run the above regression. Are your results consistent with your expected effects in (i)?
(iii) Show graphically the regression equation. Describe you results.
(iv) Use the R\(^2\) and F-test to test for overall significance of the estimate regression. Explain each.
(v) Use the three methods covered in class to test the coefficient on per pupil expenditures for statistical significance. Be sure to formally state you hypothesis, use a 5% level of significance. Provide an explanation for each.
(vi) Construct a 95% confidence interval around the estimated coefficient \( \beta_1 \). Explain.