ECO 341K **Introduction to Econometrics**
University of Texas

Homework Assignment #5 (due March 6, 2:00 p.m.)

Written problems:

1. Wooldridge: Chapter 4, Problem 2

2. Wooldridge: Chapter 4, Problem 4

   In addition to the questions in the book, answer the following:

   (v) Provide a (two-sided) 90% confidence interval for β_1.
   (vi) Provide a (two-sided) 95% confidence interval for β_2.
   (vii) How confident are you that β_1 (the true slope on *log(pop)*) is greater than 0.066 (the estimated slope on *log(pop)*)? Explain.
   (viii) Compute the p-value for the (two-sided) test of $H_0 : \beta_1 = 0$. (You need to use Stata to figure this out. Follow the example from the "t test" lecture handout.)

3. Explain why it is reasonable to compare t-statistics for different variables in a multiple regression even though those variables may be measured in different units.

Computer problems (show any relevant Stata output):

1. Wooldridge: Chapter 4, Computer Exercise C8, parts (i), (ii), and (v). Also do part (iv), but do the two-sided version of this test instead of the one-sided version (i.e., test the alternative that β_2 is not equal to one).

2. We'll look at the same regressions using **stocks.dta** from the last homework. Recall that you ran the simple linear regression of *ge* on *ibm* and then the multiple linear regression of *ge* on *ibm* and *dowjones*.

   a. For both of these regressions, provide a 90% confidence interval for the *ibm* slope parameter. How do the intervals compare? Do this by hand first (using the Stata estimates) and then check your results in Stata by using the **level()** option. Specifically, in Stata, you can change from 95% intervals to 90% intervals by doing **regress ge ibm dowjones, level(90)**.

   b. For the multiple regression, consider testing the null hypothesis $H_0 : \beta_{dowjones} = 1$. What is the meaning of this null hypothesis (in words)? What is the p-value associated with the (two-sided) test of this null hypothesis? What is the conclusion of the test at a 5% level? at a 10% level?