

TRENT UNIVERSITY  
DEPARTMENT OF ECONOMICS  
ECON-3200: ECONOMETRICS  
ASSIGNMENT 2  
DUE: NOVEMBER 25, 2021

**Answer all questions. Each is equally weighted. Full coding for the assignment will be discussed during our November 18th class.**

**QUESTION 1:**

The dataset *A2\_wage\_data.dta* (Stata format) contains data on 526 individuals.

- (a) Graph *wage* (average hourly earnings) against *educ* (years of education), and superimpose the linear regression line on the graph. What do you observe?
- (b) Run a regression of *wage* against *educ*. Interpret the coefficient on *educ*. Test the hypothesis that *educ* has no effect on *wage*. What do you conclude?
- (c) Now run a regression of *wage* against controls for *educ*, *exper* (years of potential experience), *expersq* (years of potential experience squared), gender, and marital status. Interpret each coefficient. Interpret the *t*-statistic for each variable.
- (d) The impact of *educ* on *wage* has been estimated in part (b) and in part (c). Which estimate do you think is more accurate? Why?
- (e) Test the joint significance of the *exper* and *expersq* variables? Interpret the result. Explain why the significance of these two variables should be tested jointly.
- (f) Now expand the model in part (c) to allow for the possibility that the effects of education and experience may differ by gender. Estimate the model and interpret the magnitudes and statistical significance of all coefficients.
- (g) For the model estimated in part (f), test the **overall** statistical significance of gender.
- (h) For the model estimated in part (f), test the significance of the entire model. Interpret the result.