

## BUAN 6356: Problem Set 1

Deliverable: an R source-code file named ps1.r

### Question 1

Data:

The data for this question comes from the file Wage1.csv. This data is for various workers at the employee-level. We have data on their average hourly wage along with information about their years of education, experience, tenure (years at the same firm), and some job/industry characteristics.

Analysis:

- Read the data Wage1.csv into a new variable using either the data.table package (use a data.frame if you still can't install data.table): context1
- Use summary statistics to familiarize yourself with the data.
- Generate a new variable that is the natural logarithm of wage. Name it: lwage
- Run the following linear model using the 'lm' function. Store the result in: model1

$$wage_i = \beta_0 + \beta_1 educ_i + e_i \quad (1)$$

- Run the following linear model using the 'lm' function. Store the result in: model2

$$wage_i = \beta_0 + \beta_1 educ_i + \beta_2 exper_i + \beta_3 tenure_i + e_i \quad (2)$$

- Run the following linear model using the 'lm' function. Store the result in: model3

$$lwage_i = \beta_0 + \beta_1 educ_i + \beta_2 exper_i + \beta_3 tenure_i + e_i \quad (3)$$

Interpretations:

- a. Interpret the estimated coefficient on educ from model1 (eq 1).
- b. Interpret the estimated coefficient on educ from model2 (eq 2).
- c. Interpret the estimated coefficient on exper from model2 (eq 2).
- d. Interpret the estimated coefficient on tenure from model2 (eq 2).
- e. Interpret the estimated intercept from model2 (eq 2).
- f. Interpret the estimated coefficient on educ from model3 (eq 3).
- g. Interpret the estimated coefficient on exper from model3 (eq 3).
- h. Interpret the estimated coefficient on tenure from model3 (eq 3).