Econometrics with R

Instructor: R. Gevorgyan

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Homework 1

Due day: November 5,

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Software: R

Format: R script, R markdown

Max Pts. = 100

Install R package “Wooldridge”:

install.packages("wooldridge")

library(wooldridge)

The data set in CEOSAL2 contains information on chief executive officers for U.S. corporations. The variable *salary* is annual compensation, in thousands of dollars, and *ceoten* is prior number of years as company CEO.

**(1, Pts. 5)** Find the average salary and the average tenure in the sample.

**(2, Pts. 10)** How many CEOs are in their first year as CEO (that is, *ceoten =* 0)? What is the longest tenure as a CEO?

**(3, Pts. 25)** Estimate the simple regression model:



and report your results in the usual form (comments on R2, t-statistics, F- statistics). What is the (approximate) predicted percentage increase in salary given one more year as a CEO?

(4, **Pts. 10**) Plot the line of linear regression and scatter plot

(5, **Pts. 10**) Based on this regression calculate (x=ceoten, y=log(salary))



and show that it consistent with results of **lm** function in R.

(6, **Pts. 10**) Based on this regression calculate (x=ceoten, y=log(salary))



and show that it consistent with results of **lm** function in R.

(7, **Pts. 10**) Based on this regression calculate standard error of intercept (x=ceoten, y=log(salary))



Where



and show that it consistent with results of **lm** function in R.

(8, **Pts. 10**) Based on this regression calculate standard error of slope (x=ceoten, y=log(salary))



Where



and show that it consistent with results of **lm** function in R.

(9, **Pts. 10**) Based on this regression calculate standard R square (x=ceoten, y=log(salary))



SStot - is the sum of squared deviations of each y value from the mean of y

SSres – is the sum of squared residuals of regression

and show that it consistent with results of **lm** function in R.