Practice Questions for Quiz 1: Multiple Linear Regression

GLBL 5021: Applied Methods of Analysis II

Foreign Direct Investment, Education, and Wages in Indonesian Manufacturing

Inspired by a journal article with the same title, you are writing an op-ed piece about wage trends among domestic, foreign, and government firms in Indonesia. You decided to focus on gaining insights from Table 4 (reproduced below).

Variable	Regression 1 Blue collar	Regression 2 White collar	Regression 3 Blue collar	Regression 4 White collar	Regression 5 Blue collar	Regression 6 White collar
Constant	7.13 (1323.87)***	7.71 (1066.13)***	6.93 (638.91)***	7.03 (284.42)***	7.31 (447.54)***	7.39 (247.02)***
Below primary	–	–	−0.48 (14.37)***	−0.48 (6.68)***	−0.24 (8.47)***	−0.38 (5.94)***
Junior high	–	–	0.41 (19.07)***	0.47 (13.88)***	0.25 (12.88)***	0.41 (13.15)***
Senior high	–	–	0.68 (36.19)***	0.80 (29.70)***	0.44 (23.73)***	0.63 (25.11)***
Tertiary	–	–	1.85 (12.65)***	1.55 (38.72)***	1.59 (11.40)***	1.29 (32.37)***
Government owner	0.27 (7.00)***	0.01 (0.28)	0.18 (4.94)***	0.15 (3.89)**	0.19 (5.74)***	0.16 (4.11)***
Foreign owner	0.67 (27.69)***	0.90 (27.62)***	0.36 (15.83)***	0.69 (22.61)***	0.27 (12.50)***	0.56 (18.63)***
Industry dummies	–	–	–	–	estimated	estimated
Province dummies	–	–	–	–	estimated	estimated
Adjusted R^2	0.04	0.06	0.18	0.22	0.40	0.31
Number of observations	19,579	15,208	19,579	15,208	19,579	15,208

t-statistics within brackets are based on White's (1980) adjustment for heteroscedasticity.

The dependent variable of interest is the log wage offered at the manufacturing plant. Observations are at the plant-level, and the wage variable is an average wage of workers at the plant. `Government owner` and `foreign owner` are dummy variables. `Domestic owner` is the reference category for ownership in the table. `Primary` is the referenced category for education.

1) Interpret the coefficient 0.67 on `foreign owner` in Regression 1.

2) In regression 3, education variables are added and the coefficient on `foreign owner` now becomes 0.36. What does this information tell us about the correlation between `foreign owner` and `education`?

3) Let's look at regression 6 for white collar. Suppose you run the same regression but instead of having primary as the reference category, you choose below primary instead. Would the coefficient on tertiary change? If yes, can you specify what it changes into?

4) What information can we get from the `constant` in regression 3?

5) Suppose you run another regression which adds the variable identifying whether the foreign owner is a US firm or not. We add this as an interaction term with foreign owner to regression 6. The equation for the regression is below.

$$\ln wage^y = \beta_0 + \beta_1 foreign\_owner + \beta_2 foreign\_owner * US\_firm + \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$$

Which one would provide you with the difference in wages between US foreign plants and domestic plants?