

Question: Suppose you have data from an experiment where a firm has introduced a bonus for randomly selected units. You have a data set that includes employees' job satisfaction, a dummy that equals 1 for units treated with the bonus and 0 otherwise, and a dummy that equals 1 for female employees and 0 otherwise. You regress job satisfaction on the bonus dummy, the female dummy and an interaction term between the bonus dummy and the female dummy. Suppose that you find the following estimated coefficients.

Bonus dummy: 0.8

Female dummy: 0.4

Interaction term: 0.3

What is the estimated effect of the bonus on the job satisfaction of female employees?

- A) 0.8
- B) 0.3
- C) 1.1
- D) 1.5

Question: In an OLS regression analysis, which of the following best describes the coefficient of determination (R^2)?

- A) It measures the total variation in the dependent variable.
- B) It indicates the strength and direction of a linear relationship between two variables.
- C) It represents the proportion of the variance in the dependent variable that is predictable from the independent variable.
- D) It is the same as the slope of the regression line.

Question: What is the purpose of including an interaction term in a regression model?

- A) To test whether one independent variable mediates the effect of another independent variable on the dependent variable.
- B) To test whether the effect of one independent variable on the outcome depends on the level of another independent variable.
- C) To transform the dependent variable.
- D) To reduce multicollinearity.

Question: You have a company-level data set (stored in the DataFrame `employee_data`) in which each row is one employee. The column `dummy_exit` equals 1 for employees who have left the company and 0 otherwise. The dummy does not have any missing values. Which of the following does **not** return the proportion of employees who have left the company?

- A) `employee_data['dummy_exit'].sum() / len(employee_data)`
- B) `employee_data['dummy_exit'].mean()`
- C) `employee_data['dummy_exit'].value_counts(normalize=False)`
- D) `employee_data['dummy_exit'].value_counts(normalize=True)`