

Quiz #6

Chapter 8 and Maximum Likelihood Estimators

Group 3

Respuestas Sugeridas

Econometría 06216

1. Una de las siguientes afirmaciones es **incorrecta** (escoja la mejor opción):
 - a. Si se supone que $\varepsilon \sim (0, \sigma^2 I_n)$ los estimadores de máxima verosimilitud (MV) para los betas son iguales a los estimador MCO.
 - b. El estimador de la varianza MV es insesgado.
 - c. El estimador de la varianza MV difiere del estimador de la varianza por MCO.
 - d. Para encontrar un estimador de MV es necesario conocer (o suponer) la función de distribución de la que proviene la muestra.

Answer b

2. A dummy variable:
 - a. Is also known as a binary variable, and it can take several values from 0 to 1.
 - b. Is not called binary variable, and can take any value between -1 or 1.
 - c. Is not called as a binary variable, and it can not take just two values.
 - d. None of the above

Answer d

3. The purpose of a recent research project is to determine whether there exists a racial discrimination in salaries or not, in a given city. A sample of 20000 workers is used, where 5000 of the workers are black, 10000 are white and 5000 are Latin American workers. The following variables were used:

S_i : is the salary of the worker i

Ex_i : is the experience of the worker i

Edu_i : is the education level of the worker i

$W_i \begin{cases} = 1 & \text{if the } i\text{th worker is white} \\ = 0 & \text{o.w} \end{cases}$

$B_i \begin{cases} = 1 & \text{if the } i\text{th worker is black} \\ = 0 & \text{o.w} \end{cases}$

$LA_i \begin{cases} = 1 & \text{if the } i\text{th worker is Latin American} \\ = 0 & \text{o.w} \end{cases}$

The following model was estimated:

$$S_i = \beta_0 + \beta_1 Ex_i + \beta_2 B_i + \beta_3 LA_i + \beta_4 Edu_i + \varepsilon_i$$

One of the following sentences is **not true**, choose the appropriate

- a. The model is appropriate to reach the objective of the research.
- b. If there is racial discrimination, the coefficients associated with W_i , B_i and LA_i will not be significant.

- c. The expected sign of the coefficient associated to LA_i , if there's discrimination in the salary against people that are not white, is negative and significant.
- d. None of the above

Answer b

4. One of the following statements it's **not** true:
- a. We can incorporate any qualitative characteristic into a regression with a dummy variable.
 - b. The dummy variables are used to indicate the absence or presence of a particular quantitative characteristic.
 - c. The dummy variables are used to indicate the absence or presence of a particular qualitative characteristic.
 - d. None of the above.

Answer b

5. One of the following models it's the best to determine whether there exist any type of discrimination of gender in salaries or not. Suppose that Ex_i : is the experience of the worker i, Edu_i : is the education level of the worker i, and:

$$W_i \begin{cases} = 1 & \text{if the } i\text{th worker is woman} \\ = 0 & \text{o.w} \end{cases}$$

$$N_i \begin{cases} = 1 & \text{if the } i\text{th worker is man} \\ = 0 & \text{o.w} \end{cases}$$

- a. $S_i = \beta_0 + \beta_1 Ex_i + \beta_2 W_i + \beta_3 N_i + \beta_5 Edu + \varepsilon_i$
- b. $S_i = \beta_0 + \beta_1 Ex_i + \beta_2 W_i + \beta_3 W_i Ex_i + \beta_5 Edu_i + \beta_6 Edu_i W_i + \varepsilon_i$
- c. $S_i = \beta_0 + \beta_1 Ex_i + \beta_2 W_i + \beta_5 Edu_i + \beta_6 Edu_i W_i + \varepsilon_i$
- d. $S_i = \beta_0 + \beta_1 Ex_i + \beta_2 N_i + \beta_5 Edu_i + \varepsilon_i$

Answer b