Quiz #6

Chapter 8 and Maximum Likelihood Estimators

Group 1

Respuestas Sugeridas

Econometría 06216

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

Answer d

2. 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

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

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

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

   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

3. A dummy variable:

a. Is also known as a binary variable, and it can take several values from 0 to 1.
b. Is also called binary variable, and can take any value between -1 or 1.
c. Is also known as a binary variable, and it can not take just two values.
d. Is also known as a binary variable, and can take the value 0 or 1.

Answer d

4. 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:

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

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

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

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

Answer c