GROUP 3

Thành viên

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Ex1: n = 22 ; p = 4

1/ SC_{reg} = 981.326 + 190.232 + 129.431 = 1300.989

2/ $R^2 = \dfrac{SC_{reg}}{SC_{tot}} = \dfrac{1300,989}{1743,281} = 0.7462876$

3/

$MC_{reg} = \dfrac{SC_{reg}}{p-1} = \dfrac{1300,989}{4-1} = 433.663$

$MC_{res} = \dfrac{SCres}{n-p} = \dfrac{442,292}{22-4} = 24.57178$

$Fobs = \dfrac{MC_{reg}}{MC_{res}} = \dfrac{433,663}{24,57178} = 17.64882$

La valeur critique $F_{(0,05\;;3\;;8)}$ = 3,16 (utiliser le tableau Fisher)

F_{obs} = 17.64882 > 3.16 => on rejete H0 au seuil de signification α = 0,05

4/ n = 22, p = 2

SC_{tot} ne change pas. Donc :

$SC_{res} = SC_{tot} - SC_{reg}$ = 1743.281 - 981.326 =

Source de variation	Somme des carrés	ddl
Regression due à X1	981.326	p − 1 = 1
Résiduelle	761.955	n − p = 20
Totale	1743.281	n − 1 = 21

5/

a. H0: $\beta_1 = 0$

Appliquer test F global

p = 2, n = 22

$MC_{reg} = \dfrac{SC_{reg}}{p-1} = \dfrac{981,326}{2-1} = 981,326$

$MC_{res} = \dfrac{SC_{res}}{n-p} = \dfrac{761,955}{22-2} = 38,09775$

$F_{obs} = \dfrac{MC_{reg}}{MC_{res}} = \dfrac{981,326}{38,09775} = 25.75811$

La valeur critique F(0,05,1,20) = 4,35 (utiliser le tableau Fisher)

F_{obs} = 25.75811 > 4.35 => on rejete H0 au seuil de signification α = 0,05

b. $\beta_2 = 0$

$SC_{res} = 761,955 = SC_{tot}$

Appliquer test F global

$MC_{reg} = \dfrac{SC_{reg}}{p-1} = \dfrac{190,232}{1} = 190,232$

$MC_{res} = \dfrac{SC_{res}}{n-p} = \dfrac{761,955-190,232}{22-3} = \dfrac{571,723}{22-3} = 30,09068421$

$F_{obs} = \dfrac{MC_{reg}}{MC_{res}} = \dfrac{190,232}{30,09068421} = 6,321957$

La valeur critique F(0,05,1,19) = 4,38 (utiliser le tableau Fisher)

F_{obs} = 6,321957 > 4.38 => on rejete H0 au seuil de signification α = 0,05

c. $\beta_3 = 0$

$SC_{res} = 571,723 = SC_{tot}$

Appliquer test F global

$MC_{reg} = \dfrac{SC_{reg}}{p-1} = \dfrac{129,431}{1} = 129,431$

$MC_{res} = \dfrac{SC_{res}}{n-p} = \dfrac{571,723-129,431}{22-4} = \dfrac{442,292}{18} = 24,57177778$

$F_{obs} = \dfrac{MC_{reg}}{MC_{res}} = \dfrac{129,431}{24,57177778} = 5,267$

La valeur critique F(0,05,1,18) = 4,41 (utiliser le tableau Fisher)

F_{obs} = 5,267 > 4,41 => on rejete H0 au seuil de signification α = 0,05

6/

a. $R^2 = \dfrac{SC_{reg}}{SC_{tot}} = \dfrac{981,326}{1743,281} = 0.562919$

b. $R^2 = \dfrac{SC_{reg}}{SC_{tot}} = \dfrac{981,326+190,232}{1743,281} = 0.672042$

c. $R^2 = \dfrac{SC_{reg}}{SC_{tot}} = \dfrac{981,326+190,232+129,431}{1743,281} = 0.7462876$

7/ Le modèle le plus approprie est 5c : $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$, parce que $R^2 = 0.7462876$