

EXERCISE 1

a. KOLMOGOROV-SMIRNOV: $\text{sig} < \alpha$
 $0.263 > 0.05$ - There is normal distribution

b. LEVENE STATISTIC: $\text{sig} < \alpha$
 $0.173 > 0.05$ - There is homoscedasticity

c. DURBIN WATSON = 0.186
 It's not between 1.5 and 2.5 - There is not independence of errors

d. We don't have enough information to know it. An assumption of independence of errors was violated, we should do a non-parametric test to answer this question.

| | Metodo A | Metodo B |
|----|----------|----------|
| 1 | 0.0 | 0.0 |
| 2 | 0.0 | 0.0 |
| 3 | 0.0 | 0.0 |
| 4 | 0.0 | 0.0 |
| 5 | 0.0 | 0.0 |
| 6 | 0.0 | 0.0 |
| 7 | 0.0 | 0.0 |
| 8 | 0.0 | 0.0 |
| 9 | 0.0 | 0.0 |
| 10 | 0.0 | 0.0 |
| 11 | 0.0 | 0.0 |
| 12 | 0.0 | 0.0 |
| 13 | 0.0 | 0.0 |
| 14 | 0.0 | 0.0 |
| 15 | 0.0 | 0.0 |
| 16 | 0.0 | 0.0 |
| 17 | 0.0 | 0.0 |
| 18 | 0.0 | 0.0 |
| 19 | 0.0 | 0.0 |
| 20 | 0.0 | 0.0 |

EXERCISE 2

a)

b)

c)

d)

e)

f)

g)

h)

i)

j)

k)

l)

m)

n)

o)

p)

q)

r)

s)

t)

- Calcular el coeficiente kappa
- Interpretar los resultados
- Calcular los coeficientes de alienación y valor predictivo e interpretarlos
- Calcular el coeficiente de determinación y en complementarlo e interpretar los resultados
- Participar en el curso de prueba predictiva para el test de alienación de la S&H de la varianza de las puntuaciones de los candidatos para predecir el rendimiento en matemáticas
- De datos saber si un test de razonamiento espacial tiene

| Criterio | Test | |
|----------|------|----|
| | SI | NO |
| SI | 1 | 10 |
| NO | 0 | 50 |

Calcular el coeficiente kappa

Interpretar los resultados

Calcular los coeficientes de alienación y valor predictivo e interpretarlos

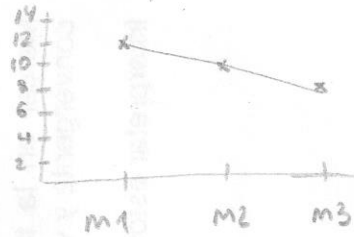
Calcular el coeficiente de determinación y en complementarlo e interpretar los resultados

Participar en el curso de prueba predictiva para el test de alienación de la S&H de la varianza de las puntuaciones de los candidatos para predecir el rendimiento en matemáticas

De datos saber si un test de razonamiento espacial tiene

EXERCISE 2

| P | MEASURE 1 | MEASURE 2 | MEASURE 3 | \bar{y}_i |
|----------------|--------------|-------------|------------|-------------------------|
| A | 15 | 10 | 8 | $33/3=11$ |
| B | 14 | 12 | 10 | $36/3=12$ |
| C | 9 | 9 | 7 | $25/3=8.333$ |
| D | 13 | 11 | 9 | $33/3=11$ |
| \bar{y}_{ij} | $51/4=12.75$ | $42/4=10.5$ | $34/4=8.5$ | $\bar{y}_{..} = 10.583$ |



| | SS | df | MS | F |
|-------------------|--------|---------------------------------|--------|--------|
| BETWEEN | 36.167 | | | |
| WITHIN | | | | |
| A | 36.167 | $k-1=2$ | 18.083 | 12.761 |
| STRATEGIA (error) | 8.5 | $(n-1)(k-1)$ $3 \cdot 2 = 6$ | 1.417 | |
| TOTAL | | $n-1=12$ | | |

$$SSA = n \sum (\bar{y}_{.j} - \bar{y}_{..})^2 = 4 [(12.75 - 10.583)^2 + (10.5 - 10.583)^2 + (8.5 - 10.583)^2] = 36.167$$

$$SS_{SxA} = \sum (y_{ij} + \bar{y}_{..} - \bar{y}_{i.} - \bar{y}_{.j})^2 = (15 + 10.583 - 12.75 - 11)^2 + (14 + 10.583 - 12 - 12.75)^2 + (9 + 10.583 - 8.333 - 12.75)^2 + (13 + 10.583 - 11 - 12.75)^2 + (10 + 10.583 - 11 - 10.5)^2 + (12 + 10.583 - 12 - 10.5)^2 + (9 + 10.583 - 8.333 - 10.5)^2 + (11 + 10.583 - 11 - 10.5)^2 + (8 + 10.583 - 11 - 8.5)^2 + (10 + 10.583 - 12 - 8.5)^2 + (7 + 10.583 - 8.333 - 8.5)^2 + (9 + 10.583 - 11 - 8.5)^2 = 8.5$$

STAGE 1 ($\alpha=1$)

$$F(\alpha, k-1, (n-1)(k-1)) = F(0.05, 2, 6) = 5.14$$

| | | |
|------|-----------|------------------|
| | Observed | |
| Test | F_{emp} | F_{cal} |
| | 12.761 | 5.14 |
| | | — 1/0 |
| | 10 | 1 |
| | 0 | 30 |
| | F_{emp} | F_{cal} |
| | 12.761 | 10.13 |
| | | — 1/0 |

STAGE 2 ($\alpha = 1/(k-1) = 0.5$)

$$F(0.05, 1, 3) = 10.13$$

- there are statistically significant differences

EXERCISE 3

| X | Y |
|---|---|
| 0 | 8 |
| 0 | 7 |
| 0 | 7 |
| 0 | 6 |
| 1 | 4 |
| 1 | 3 |
| 1 | 1 |

$$\bar{Y}_0 = \frac{28}{4} = 7$$

$$\bar{Y}_1 = \frac{8}{3} = 2.667$$

$$a. \hat{Y} = a + bX \rightarrow \hat{Y} = 7 + 4.333X$$

$$a = \bar{Y}_0 = 7$$

$$b = \bar{Y}_1 - \bar{Y}_0 = 2.67 - 7 = -4.333$$

b. 7 is the mean in satisfaction for French citizens

For Greek citizen, the mean in satisfaction is 4.333 lower

| Country | Mean |
|---------|-------|
| France | 7 |
| Greece | 2.667 |

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EXERCISE 4

a

| MODEL | | SS | df | MS | F | sig. |
|-------|-------|----------|--------|---------|--------|------|
| 1 | REG | 694.923 | 1 | 694.923 | 21.343 | <.05 |
| | RES | 520.964 | 16 | 32.56 | | |
| | TOTAL | 1215.887 | N-1 17 | | | |
| 2 | REG | 894.893 | 2 | 447.447 | 20.909 | <.05 |
| | RES | 320.994 | 15 | 21.4 | | |
| | TOTAL | 1215.887 | 17 | | | |

$F_{\alpha=0.05, 1, 16} = 4,49$

$F_{\alpha=0.05, 2, 15} = 3,68$

$$X_1, X_2: R^2 = \frac{SS_{exp}}{SS_T} \rightarrow 0.736 = \frac{894.893}{SS_T} \rightarrow 0.736 SS_T = 894.893$$

$$SS_T = \frac{894.893}{0.736} = 1215.887$$

$$X_1: R^2 = \frac{SS_{exp}}{SS_T} \rightarrow 0.756 = \frac{SS_{exp}}{1215.887} \rightarrow 0.756 \cdot 1215.887 = SS_{exp}$$

$$694.923 = SS_{exp}$$

b

$$R^2_{y(2.1)} = R^2_{y.12} - R^2_{y.1} = 0.736 - 0.756 = 0.165$$

$$R_{y(2.1)} = \sqrt{0.165} = 0.406$$

because X_2 (stress) presents an inverse relationship with attention (see Pearson)

EXERCISE 5

a. Yes because in "Moment Measurement", in Greenhouse-Geisser, $\text{sig} < \alpha$
 $0.000 < 0.05$

b. No because in the "test of between subjects effects" $\text{sig} > \alpha$
 $0.569 > 0.05$

c. Yes because in "Moment Measurement x Treatment", in Greenhouse-Geisser,
 $\text{sig} < \alpha$
 $0.027 < 0.05$

| | | | |
|-------|---|---|---|
| | 1 | 2 | 3 |
| Group | | | |
| Test | | | |

| | A | | B | | C | |
|---|------|------|------|------|------|------|
| | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

... (faint text) ...