3

-1	0	+1
8	2	10

$n = 20$

N = nº personas = 3

$\Sigma X = (-1)\cdot 8 + 0\cdot 2 + 1\cdot 10 = -8 + 10 = 2$

$$lik = \frac{(N-1)\Sigma X + N\Sigma X - \Sigma X}{2(N-1)n} = \frac{(3-1)\cdot 2 + 3\cdot 2 - 2}{2(3-1)\cdot 20} = \frac{2\cdot 2 + 6 - 2}{2\cdot 2\cdot 20} =$$

$$= \frac{4+4}{80} = \frac{8}{80} = 0'1$$

7.

	1	2	3	4	
A	1	0	1	1	3
B	0	0	1	1	2
C	1	1	1	1	4
D	0	0	1	0	1
	2	1	4	3	

Orden filas:

	1	2	3	4	
C	1	1	1	1	4
A	1	0	1	1	3
B	0	0	1	1	2
D	0	0	1	0	1
	2	1	4	3	

Orden columnas:

	3	4	1	2	
C	1	1	1	1	4
A	1	1	1	0	3
B	1	1	0	0	2
D	1	0	0	0	1

$$CR = 1 - \frac{\text{errores}}{\text{respuestas}} = 1 \quad \text{(cero errores)}$$

> 0.9 (se ajustan los datos al modelo)

11

	1	2	3	4	5	X	X-i	$(X-i)^2$
1	B 0	C 1	A 1	A 1	B 1	4	4	16
2	C 1	C 1	B 0	B 0	B 1	3	(2)	4
3	C 1	B 0	B 0	B 0	B 1	2	(1)	1
4	C 1	C 1	C 0	B 0	B 1	3	(2)	4
5	B 0	B 0	B 0	B 0	B 1	1	1	1
6	C 1	C 1	B 0	B 0	B 1	3	(2)	4
							12	30

$$rbp = \frac{(\bar{X}_c - \bar{X})}{S_x}\sqrt{\frac{p}{q}}$$

$$rbp = \frac{(1.75-2)}{1}\sqrt{\frac{0.67}{0.33}} \cdot (-0.25)\cdot 1.42 = -0.35$$

$$\bar{X}_c = \frac{2+1+2+2}{4} = \frac{7}{4} = 1.75$$

$$\bar{X} = \frac{\Sigma X}{N} = \frac{12}{6} = 2$$

$$S_x = \sqrt{\frac{\Sigma X^2}{N} - \bar{X}^2} = \sqrt{\frac{30}{6} - 2^2} = \sqrt{1} = 1$$

$$p = \frac{4}{6} = 0.67$$

12

$$p = \frac{a}{N} = \frac{1}{6} = 0.17$$

13 $S_j = p \cdot q = 0,17 \cdot 0.83 = 0.14$

$q = 1 - 0.17 = 0.83$

14.

X	X-i
4	3 A
3	3 B
2	2 B
3	3 C
1	1 B
3	3 B
	15

Rbp B negativo:

$$\bar{X}_c = \frac{3+2+1+3}{4} = 2.25$$

Rbp C positivo

$$\bar{X}_c = \frac{3}{1} = 3$$

$$\bar{X} = \frac{\Sigma X}{N} = \frac{15}{6} = 2.5$$

15

	A*	B	C
Nº RS	1	4	1

$$\chi^2 = \Sigma \frac{(FT - FO)^2}{FT} = \frac{(2.5-4)^2 + (2.5-1)^2}{2.5} = \frac{2,25+2,25}{2.5} = \frac{4.5}{2,5} = 1,8$$

$$FT = \frac{4+1}{2} = 2.5$$

$\chi^2(\alpha, (k)\ 1) = \chi^2(0.05, 1) = 3,84$

2 no alternativas correctas

χ^2_{emp} χ^2_t

$1.8 < 3.84$ — (Ho)

Son equiprobables

(17)

PARTICIPANTES	X	P	I	d	d^2	X^2	p^2	i^2
1	24	12	12	0	0	576	144	144
2	20	9	11	-2	4	400	81	121
3	23	10	13	-3	9	529	100	169
4	16	5	11	-6	36	256	25	121
5	14	7	7	0	0	196	49	49
	97	43	54	-11	49	1957	399	604

$$r_{xx'} = 1 - \frac{S^2_d}{S^2_x} = 1 - \frac{4.96}{15.04} = 1 - 0'33 = 0'67$$

$$S^2_d = \frac{\Sigma d^2}{N} - \bar{d}^2 = \frac{49}{5} - (-2.2)^2 = 9'8 - 4'84 = 4.96$$

$$\bar{d} = \frac{\Sigma d}{N} = \frac{-11}{5} = -2.2$$

$$S^2_x = \frac{\Sigma X^2}{N} - \bar{X}^2 = \frac{1957}{5} - 19'4^2 = 391'4 - 376'36 = 15'04$$

$$\bar{X} = \frac{\Sigma X}{N} = \frac{97}{5} = 19'4$$

(18)

$$r_{xx'} = 2\left(1 - \frac{S^2_p + S^2_i}{S^2_x}\right) = 2\left(1 - \frac{5'84 + 4'16}{15'04}\right) = 2\left(1 - \frac{10}{15'04}\right) = 2(1 - 0'66) = 2 \cdot 0'34 = 0'68$$

$$S^2_p = \frac{\Sigma p^2}{N} - \bar{p}^2 = \frac{399}{5} - 8'6^2 = 79'8 - 73'96 = 5'84$$

$$\bar{p} = \frac{\Sigma p}{N} = \frac{43}{5} = 8'6$$

$$S^2_i = \frac{\Sigma i^2}{N} - \bar{i}^2 = \frac{604}{5} - 10'8^2 = 120'8 - 116'64 = 4'16$$

$$\bar{i} = \frac{\Sigma i}{N} = \frac{54}{5} = 10'8$$

(21)

$S_1 = 6$

$r_{11} = 0'75$

$S_2^2 = 64$

$r_{22} = 1 - \frac{S_1^2}{S_2^2}(1 - r_{11}) = 1 - \frac{36}{64}(1 - 0'75) = 1 - 0'56 \cdot 0'25 = 1 - 0'14 = 0'86$

(22) $S_{ux} = S_e\sqrt{r_{xx'}} = 0'9\sqrt{0'8} = 0'9 \cdot 0'89 = 0'8$

$r_{xx'} = 0'8$

$\bar{x} = 7$

$S_x = 2$

$S_e = S_x\sqrt{1 - r_{xx'}} = 2\sqrt{1 - 0'8} = 2\sqrt{0,2} = 2 \cdot 0'45 = 0'9$

(23) $Lim = V' \pm E_{max} = 7'8 \pm 1'57$ (9'37 / 6'23)

$V' = r_{xx'}(x - \bar{x}) + \bar{x} = 0'8(8 - 7) + 7 = 0'8 \cdot 1 + 7 = 0'8 + 7 = 7'8$

$x = 8$

$NC = 95\%$

$z_c = 1'96$

$E_{max} = z_c \cdot S_{ux} = 1'96 \cdot 0'8 = 1'57$

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(27) $CD = r^2_{xx'} = 0'75$ $\quad r_{xx'}$

(28) $CA = \sqrt{1 - 0'75} = \sqrt{0'25} = 0'5$

(29) $CVP = 1 - CA = 1 - 0'5 = 0'5$