

En forma escalar

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_5 X_{5i} + \varepsilon_i;$$

$$\varepsilon_i \stackrel{iid}{\sim} N(0, \sigma^2)$$

$$1 \leq i \leq 16$$

$$n = 16$$

$$K = 4$$

$$p = K + 1 = 5$$

gl del MSE

$$n - p = n - 5 = 11$$

para $i=1$

$$Y_1 = \beta_0 \cdot 1 + \beta_1 \cdot X_{11} + \beta_2 X_{21} + \beta_3 X_{31} + \beta_5 X_{51} + \epsilon_1$$

para $i=2$

$$Y_2 = \beta_0 \cdot 1 + \beta_1 \cdot X_{12} + \beta_2 X_{22} + \beta_3 X_{32} + \beta_5 X_{52} + \epsilon_2$$

para $i=n$

$$Y_n = \beta_0 \cdot 1 + \beta_1 \cdot X_{1n} + \beta_2 X_{2n} + \beta_3 X_{3n} + \beta_5 X_{5n} + \epsilon_n$$

$$\underline{Y} = \begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix}_{n \times 1} \quad \underline{X} = \begin{bmatrix} 1 & X_1 & X_2 & X_3 & X_5 \\ 1 & X_{11} & X_{21} & X_{31} & X_{51} \\ 1 & X_{12} & X_{22} & X_{32} & X_{52} \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ 1 & X_{1n} & X_{2n} & X_{3n} & X_{5n} \end{bmatrix}_{n \times k+1}$$

\downarrow
 $n \times p$

$$\underline{\beta} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_5 \end{bmatrix}_{p \times 1} \quad \text{FC} \times \text{FC}$$

$$\underline{X}_{n \times p} \cdot \underline{\beta}_{p \times 1}$$

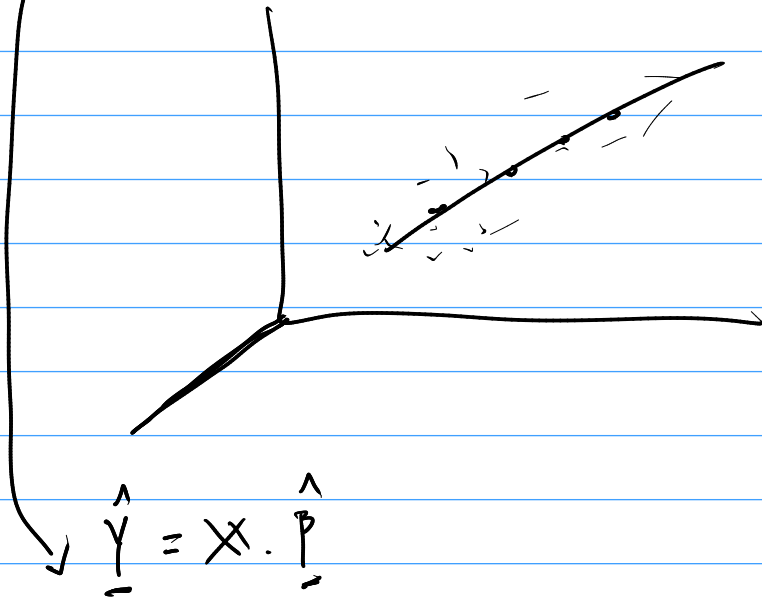
$n \times 1$

$$\underline{\epsilon} = \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \\ \vdots \\ \epsilon_n \end{bmatrix}_{n \times 1}$$

$$\underline{Y} = \underline{X} \cdot \underline{\beta} + \underline{\epsilon}; \quad \epsilon \stackrel{iid}{\sim} N_N(\underline{0}, \sigma^2 \cdot I_{n \times n})$$

$$\underline{\mu} = \begin{bmatrix} 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}_{n \times 1}$$

$$\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_5 x_{5i}$$



$$y - \hat{y} = e$$

formula

$$y \sim X \rightarrow y = \beta_0 + \beta_1 x + \varepsilon$$

$$y \sim 1 + x \rightarrow "$$

$$y \sim 0 + x \rightarrow y = \beta_1 x + \varepsilon$$

$$y \sim x_1 + x_2 + x_3 + x_5 \rightarrow y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_5 x_5 + \varepsilon$$

$$y \sim . \rightarrow "$$

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	52.07905	15.22756	3.420	0.005723	** ✓
x1	0.05556	0.02848	1.951	0.077041	.x ✓
x2	0.28214	0.05493	5.137	0.000325	*** ✓
x3	0.12500	0.38450	0.325	0.751207	x ✓
x5	-16.06498	1.38809	-11.573	1.69e-07	*** ✓

$\alpha = 0,01$ $\alpha = 0,05$
 $\text{val-P} > \alpha$ $\text{val-P} > \alpha$
 No rechazo