$$X_t = f(\Phi, \Theta, \{W_t\}, X_t)$$

$$Y_t = X_t - X_{t-1} = (1-B)X_t \quad \} \; X.diff()$$

$$Z_t = Y_t - Y_{t-1} = (1-B)Y_t = (1-B)^2 X_t$$

$$\downarrow$$

$$\underline{\underline{(1-2B+B^2)X_t}}$$

Modelo :

$$\left.\begin{aligned} q &= 1 \\ d &= 2 \\ p &= 3 \end{aligned}\right\} \rightsquigarrow \underset{\uparrow\ \text{ARIMA}}{\text{ARMA}}(3, \underset{\downarrow\ \text{\# diferencias}}{\underline{2}}, 1)$$

$$X \to \overset{\text{ARIMA}}{\text{ARMA}}(3, 2, 1)$$

$$Y = (1-B)^2 X_t \to \text{ARMA}(3, 1)$$

$$Y = \text{ARIMA}(p, d, q)$$

$$\hookrightarrow Z = (1-B)^d Y \longrightarrow \text{ARMA}(p, q)$$

AIC → Criterio de información de Akaike

$$AIC = -2\ln(\underset{\substack{\downarrow \\ \text{verosimilitud}}}{L}) + \underset{\hookrightarrow \text{\# de parámetros}}{2K} \to -2(-609) + 2 \times 5$$

$$\underbrace{\hphantom{-2\ln(L)}}_{\text{log-verosimilitud}}$$

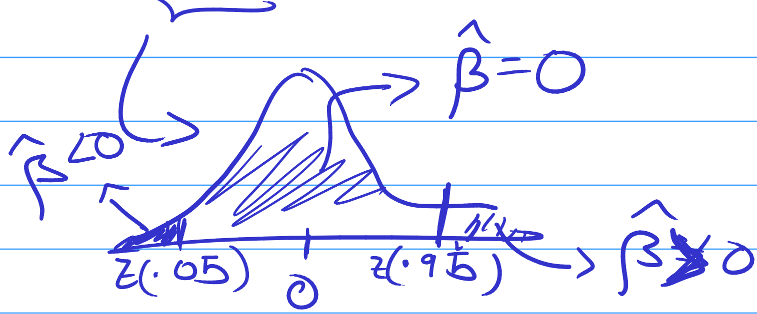
$$BIC = \underline{\ln(n)}K - 2\ln(L)$$

$\hookrightarrow n = \#$ puntos en la muestra

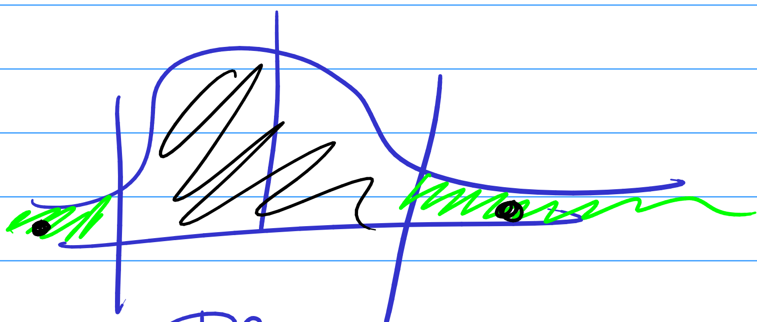
$$\hat{y} = \hat{\beta} x + \hat{\alpha}$$

Prueba de T-de student

$$\left.\begin{array}{l} H_0 : \hat{\beta} = 0 \\ H_a : \hat{\beta} \neq 0 \end{array}\right\} \rightarrow \frac{\hat{\beta}}{SE(\hat{\beta})} \sim t_{(1)}$$

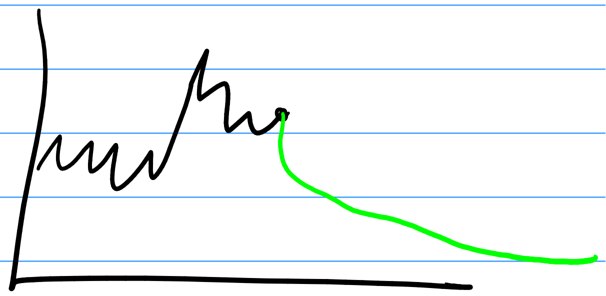


$$Z\left(\frac{\hat{\beta}}{SE(\hat{\beta})}\right) = P.\ value$$



$\mathbb{P}[\text{Verde}]$

$$X_t = \phi X_{t-1} + \boxed{\cancel{\phi \varepsilon_t}}$$



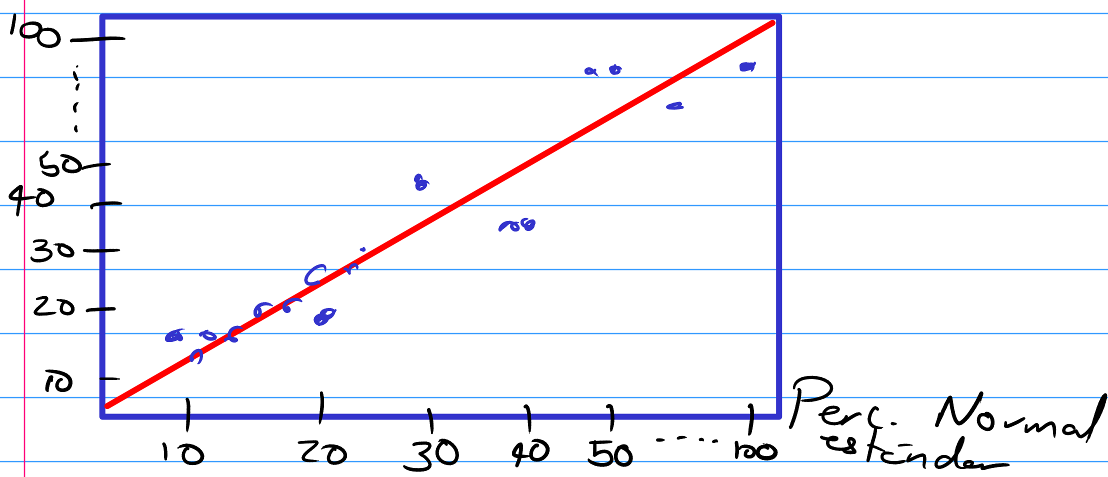
$$\hat{X}_{t+1} = \mathbb{E}[X_t] = \phi X_{t-1}$$

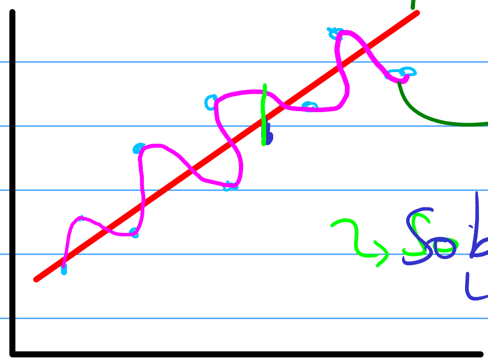
$$\hat{X}_{t+2} = \mathbb{E}[X_t \mid \hat{X}_{t+1}]$$

$$\sum \frac{|\hat{X}_t - X_t|}{X_t}$$

$$\sqrt{\frac{1}{n}\sum_{i=1}^{n} (\hat{X}_{t_i} - X_{t_i})^2}$$

Perc. distr. empírica





$\to a'x + b'$

$\to ax^{10} + bx^{9} + cx^{8} + \dots + wx + y$

↳ Sobre-parametrización

↳ Overfitting