Universidad de Castilla La Mancha. Escuela Superior de Informática
Estadística 2007/08

Contrastes de hipótesis e intervalos de confianza más utilizados

Parámetro	H_0	Estadístico	Distrib.	Intervalo de confianza
Media (Conocida σ^2)	$\mu = \mu_0$	$Z = \frac{\bar{X} - \mu_0}{\sigma / \sqrt{n}}$	N(0, 1)	$\left(\bar{X} + \frac{\sigma}{\sqrt{n}} z_{\alpha/2} ,\ \bar{X} + \frac{\sigma}{\sqrt{n}} z_{1-\alpha/2} \right)$
Media (Desconocida σ^2)	$\mu = \mu_0$	$T = \frac{\bar{X} - \mu_0}{S_{n-1} / \sqrt{n}}$	T_{n-1}	$\left(\bar{X} + \frac{S_{n-1}}{\sqrt{n}} t_{\alpha/2} ,\ \bar{X} + \frac{S_{n-1}}{\sqrt{n}} t_{1-\alpha/2} \right)$
Proporción (muestras pequeñas)	$\pi = \pi_0$	X= nºde éxitos	Bin(n, π_0)	
Proporción (muestras grandes)	$\pi = \pi_0$	$Z = \frac{p - \pi_0}{\sqrt{\pi_0(1-\pi_0)/n}}$	N(0, 1)	$\left(p + z_{\alpha/2} \sqrt{pq/n} ,\ p + z_{1-\alpha/2} \sqrt{pq/n} \right)$
Varianza	$\sigma = \sigma^2$	$\chi^2 = \frac{(n-1)S_{n-1}^2}{\sigma_0^2}$	χ_{n-1}^2	$\left((n-1)S_{n-1}^2 / \chi_{1-\alpha/2}^2 ,\ (n-1)S_{n-1}^2 / \chi_{\alpha/2}^2 \right)$
Diferencia de medias (conocidas σ_1^2, σ_2^2)	μ_1-μ_2= d_0	$Z = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$	N(0, 1)	$\left[(\bar{X}_1 - \bar{X}_2) + z_{\alpha/2} \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}} , (\bar{X}_1 - \bar{X}_2) + z_{1-\alpha/2} \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}} \right]$
Diferencia de medias (desconocidas y σ_1^2= σ_2^2)	μ_1-μ_2= d_0	$T = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$ $S_p = \sqrt{\frac{S_1^2(n_1-1) + S_2^2(n_2-1)}{n_1 + n_2 - 2}}$	$T_{n_1+n_2-2}$	$\left[(\bar{X}_1 - \bar{X}_2) + t_{\alpha/2} S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} , (\bar{X}_1 - \bar{X}_2) + t_{1-\alpha/2} S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \right]$
Diferencia de medias (desconocidas y $\sigma_1^2 \neq \sigma_2^2$)	μ_1-μ_2= d_0	$T' = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$ $\upsilon = \frac{\left(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2} \right)^2}{\left[\frac{(S_1^2/n_1)^2}{n_1 - 1} \right] + \left[\frac{(S_2^2/n_2)^2}{n_2 - 1} \right]}$	T_υ	$\left[(\bar{X}_1 - \bar{X}_2) + t_{\alpha/2} \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}} , (\bar{X}_1 - \bar{X}_2) + t_{1-\alpha/2} \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}} \right]$
Media de diferencias (Observaciones pareadas)	μ_D = d_0	$T = \frac{\bar{d} - d_0}{S_d / \sqrt{n}}$	T_{n-1}	$\left(\bar{d} + \frac{S_d}{\sqrt{n}} t_{\alpha/2} ,\ \bar{d} + \frac{S_d}{\sqrt{n}} t_{1-\alpha/2} \right)$
Dos proporciones	π_1-π_2= 0	$Z = \frac{p_1 - p_2}{\sqrt{P(1-P)\left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$ $P = (n_1 p_1 + n_2 p_2)/(n_1 + n_2)$	N(0, 1)	$\left[(p_1 - p_2) + z_{\alpha/2} S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} , (p_1 - p_2) + z_{1-\alpha/2} S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \right]$ $S_p = P(1-P)$
Cociente de varianzas	$\sigma_1^2 = \sigma_2^2$ o bien $\sigma_1^2 / \sigma_2^2 = 1$	$F = \frac{S_1^2}{S_2^2}$	$F_{(n_1-1)(n_2-1)}$	$\left(\frac{S_1^2}{S_2^2} \frac{1}{f_{1-\alpha/2}} , \frac{S_1^2}{S_2^2} \frac{1}{f_{\alpha/2}} \right)$

S_1^2 y S_2^2 indican las cuasi-varianzas de las muestras 1 y 2 respectivamente