Inferència

Estimadors: $\quad \bar{y} = \sum_{i=1}^{n} Y_i / n \qquad s^2 = \dfrac{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}{n-1} = \dfrac{\sum_{i=1}^{n} Y_i^2 - n(\bar{Y})^2}{n-1} = \dfrac{\sum_{i=1}^{n} Y_i^2 - \dfrac{\left(\sum_{i=1}^{n} Y_i\right)^2}{n}}{n-1}$

Estadístics: "senyal /soroll" o "diferència / s.e." segueixen una N o t_v $\qquad$ "quocient variàncies" segueixen una χ_v^2 o F_v

Paràmetre	Estadístic (i se*)	Premisses	Distribució	Interval de Confiança (1-α)% (risc α%)
μ	$Z = \dfrac{(\bar{y}-\mu)}{\sigma/\sqrt{n}} = \dfrac{(\bar{y}-\mu)}{se}$	[Y ~ N o n "gran"] i σ coneguda	$Z \sim N(0,1)$	$[\bar{y} \pm z_{1-\frac{\alpha}{2}}\, se]$
μ	$T = \dfrac{(\bar{y}-\mu)}{s/\sqrt{n}} = \dfrac{(\bar{y}-\mu)}{se}$	Y ~ N	$T \sim t_{n-1}$	$[\bar{y} \pm t_{n-1,1-\frac{\alpha}{2}}\, se]$
π	$Z = \dfrac{(p-\pi)}{\sqrt{\hat{\pi}(1-\hat{\pi})/n}} = \dfrac{(p-\pi)}{se}$ $\hat{\pi} = P \ \ o \ \ \hat{\pi} = 0.5)$	(1-π) $n \geq \approx 5$ π $n \geq \approx 5$	$Z \sim N(0,1)$	$[p \pm z_{1-\frac{\alpha}{2}}\, se]$
σ^2	$X^2 = \dfrac{s^2(n-1)}{\sigma^2}$	Y ~ N	$X^2 \sim \chi^2_{n-1}$	$\left[\dfrac{s^2(n-1)}{\chi^2_{n-1,\,1-\alpha/2}} \,,\, \dfrac{s^2(n-1)}{\chi^2_{n-1,\alpha/2}}\right]$
$\mu_1 - \mu_2$ (o μ_D)	$T = \dfrac{(\bar{d}-\mu_D)}{s_D/\sqrt{n}} = \dfrac{(\bar{d}-\mu_D)}{se}$	D ~ N (2 grups aparellats)	$T \sim t_{n-1}$	$[\bar{d} \pm t_{n-1,1-\frac{\alpha}{2}}\, se]$
$\mu_1 - \mu_2$	$T = \dfrac{(\bar{y}_1 - \bar{y}_2)-(\mu_1-\mu_2)}{s\sqrt{1/n_1+1/n_2}} = \dfrac{(\bar{y}_1 - \bar{y}_2)-(\mu_1-\mu_2)}{se}$ $s^2 = \dfrac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2}$	Y_1, Y_2 ~ N $\sigma_1 = \sigma_2$ desconegudes (2 grups independents)	$T \sim t_{n1+n2-2}$	$[\,(\bar{y}_1 - \bar{y}_2) \pm t_{(n1+n2-2),1-\frac{\alpha}{2}}\, se\,]$
$\pi_1 - \pi_2$	$Z = \dfrac{(P_1 - P_2) - (\pi_1 - \pi_2)}{se}$ $se = \sqrt{P_1(1-P_1)/n_1 + P_2(1-P_2)/n_2}$	(1-π) $n \geq \approx 5$ π $n \geq \approx 5$ (2 grups independents)	$Z \sim N(0,1)$	$[\,(P_1 - P_2) \pm z_{1-\frac{\alpha}{2}}\, se\,]$
$\dfrac{\sigma_1^2}{\sigma_2^2}$	$F = \dfrac{s_1^2/\sigma_1^2}{s_2^2/\sigma_2^2}$	Y_1, Y_2 ~ N (2 grups independents)	$F \sim F_{n1-1,n2-1}$	$\left[\dfrac{s_1^2/s_2^2}{F_{(n1-1,n2-1),1-\frac{\alpha}{2}}} \,,\, \dfrac{s_1^2/s_2^2}{F_{(n1-1,n2-1)\frac{\alpha}{2}}}\right]$

* se (standard error o error tipus)