Contrastes para una muestra de una población

Condiciones	H_0	H_1	Región Crítica	Estadístico
	μ=μ0	μ<μ ₀	$Z < -z_{\alpha}$	
Normalidad o n grande Varianza conocida	μ≥μ ₀	μ<μ ₀	$Z < -z_{\alpha}$	$Z = \frac{\overline{X} - \mu_0}{\sigma} \sqrt{n}$
	$\mu=\mu_0$	$\mu > \mu_0$	$Z>z_{\alpha}$	σ
	μ≤μ ₀	μ>μ ₀	$Z>z_{\alpha}$	
	$\mu=\mu_0$	µ≠μ ₀	$Z < -z_{\alpha/2} \cup Z > z_{\alpha/2}$	
	$\mu=\mu_0$	μ<μ ₀	$Z < -z_{\alpha}$	
n grande	μ≥μ ₀	μ<μ ₀	$Z < -z_{\alpha}$	$Z = \frac{\overline{X} - \mu_0}{S_1} \sqrt{n}$
Varianza desconocida	$\mu=\mu_0$	μ>μ ₀	$Z>z_{\alpha}$	S_1
	μ≤μ ₀	μ>μ ₀	$Z>z_{\alpha}$	
	$\mu=\mu_0$	µ≠μ ₀	$Z < -z_{\alpha/2} \cup Z > z_{\alpha/2}$	
NT 1' 1 1	μ=μ0	μ<μ ₀	$T < -t_{n-1,\alpha}$	
Normalidad Varianza desconocida	μ≥μ ₀	μ<μ ₀	$T < -t_{n-1, \alpha}$	$T = \frac{\overline{X} - \mu_0}{S} \sqrt{n}$
varianza desconocida	μ=μ0	$\mu > \mu_0$	$T>t_{n-1, \alpha}$	$S_{_1}$
	μ≤μ ₀	$\mu > \mu_0$	$T>t_{n-1, \alpha}$	
	$\mu=\mu_0$	µ≠μ ₀	$T \!\!<\!\! \text{-} t_{n-1,\alpha/2}$	
			$\cup T \!\!>\!\! t_{n-1,\alpha/2}$	
	$\sigma = \sigma_0$	$\sigma < \sigma_0$	$\chi < \chi_{n-1,1-\alpha}$	
Normalidad	$\sigma \ge \sigma_0$	$\sigma < \sigma_0$	$\chi < \chi_{n-1,1-\alpha}$	$\chi = \frac{(n-1)S_1^2}{\sigma^2}$
	$\sigma = \sigma_0$	$\sigma > \sigma_0$	$\chi > \chi_{n-1,\alpha}$	σ_0^2
	$\sigma \leq \sigma_0$	$\sigma > \sigma_0$	$\chi > \chi_{n-1,\alpha}$	
	$\sigma = \sigma_0$	$\sigma \neq \sigma_0$	$\chi < \chi_{n-1,1-\alpha/2} \cup$	
			$\chi > \chi_{n-1,\alpha/2}$	
Distrib. Bernoulli n grande	p=p ₀	p <p0< td=""><td>$Z<-z_{\alpha}$</td><td>·</td></p0<>	$Z<-z_{\alpha}$	·
	p≥p ₀	p <p0< td=""><td>$Z < -z_{\alpha}$</td><td>$Z = \frac{\hat{p} - p_0}{\sqrt{p_0(1 - p_0)}} \sqrt{n}$</td></p0<>	$Z < -z_{\alpha}$	$Z = \frac{\hat{p} - p_0}{\sqrt{p_0(1 - p_0)}} \sqrt{n}$
	p=p ₀	p>p ₀	$Z>z_{\alpha}$	$\sqrt{p_0(1-p_0)}$
	p≤p ₀	p>p ₀	$Z>z_{\alpha}$	$\hat{n} = n$
	p=p ₀	p≠p ₀	$Z < -z_{\alpha/2} \cup Z > z_{\alpha/2}$	$Z = \frac{\hat{p} - p_0}{\sqrt{\hat{p}(1-\hat{p})}} \sqrt{n}$

Contrastes para dos muestras de dos poblaciones independientes

condiciones	H_0	\mathbf{H}_1	Región Crítica	Estadístico
	μ_{X} - μ_{Y} = Δ_{0}	μ_X - μ_Y < Δ_0	$Z < -z_{\alpha}$	
Normalidad ó n y m	$\mu_X - \mu_Y \ge \Delta_0$	$\mu_X - \mu_Y < \Delta_0$	$Z < -z_{\alpha}$	$Z = \frac{\overline{X} - \overline{Y} - \Delta_0}{\overline{\Box}}$
grandes	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	$Z = \frac{X - Y - \Delta_0}{\sqrt{\frac{\sigma_X^2}{\sigma_X^2} + \frac{\sigma_Y^2}{\sigma_X^2}}}$
Varianzas conocidas	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	V n m
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$Z\!\!<\!\!\!-z_{\alpha/2}\cup Z\!\!>\!\!z_{\alpha/2}$	
	μ_{X} - μ_{Y} = Δ_{0}	μ_X - μ_Y < Δ_0	$Z < -z_{\alpha}$	
n y m grandes	$\mu_{X} - \mu_{Y} \ge \Delta_{0}$	$\mu_X - \mu_Y < \Delta_0$	$Z < -z_{\alpha}$	$Z = \frac{\overline{X} - \overline{Y} - \Delta_0}{}$
Varianzas desconocidas	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	$Z = \frac{X - Y - \Delta_0}{\sqrt{\frac{S_{1X}^2}{S_{1Y}^2} + \frac{S_{1Y}^2}{S_{1Y}^2}}}$
	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	V II III
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$Z\!\!<\!\!\!-z_{\alpha/2}\cup Z\!\!>\!\!z_{\alpha/2}$	
	$\mu_X - \mu_Y = \Delta_0$	μ_X - μ_Y < Δ_0	$T < -t_{\alpha,n+m-2}$	
Normalidad	$\mu_{X} - \mu_{Y} \ge \Delta_{0}$	$\mu_X - \mu_Y < \Delta_0$	$T < -t_{\alpha,n+m-2}$	$T = \frac{\overline{X} - \overline{Y} - \Delta_0}{}$
Varianzas desconocidas	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$T>t_{\alpha,n+m-2}$	$T = \frac{X - Y - \Delta_0}{S_p \sqrt{\frac{1}{n} + \frac{1}{m}}}$
pero iguales	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$T>t_{\alpha,n+m-2}$	$S_{p}^{2} = \frac{(n-1)S_{1X}^{2} + (m-1)S_{1Y}^{2}}{n+m-2}$
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$T \!\!<\!\! -t_{\alpha/2,n+m-2} \cup T \!\!>\!\! t_{\alpha/2,n+m-2}$	$S_{p} = \frac{1}{n+m-2}$

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	$\mu_X - \mu_Y = \Delta_0$	$\mu_X - \mu_Y < \Delta_0$	$T < -t_{\alpha,[\nu]}$	$T = \frac{\overline{X} - \overline{Y} - \Delta_0}{\sqrt{S_{1X}^2 + S_{1Y}^2}}$
Normalidad	$\mu_X - \mu_Y \ge \Delta_0$	$\mu_{X}-\mu_{Y}<\Delta_{0}$	$T < -t_{\alpha,[\nu]}$	$\sqrt{\frac{S_{1X}^2}{n} + \frac{S_{1Y}^2}{m}}$
Varianzas desconocidas y	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_{X}-\mu_{Y}>\Delta_{0}$	$T{>}t_{\alpha,[\nu]}$	$\left\{S_{1x}^{2} / {}_{n} + S_{1y}^{2} / {}_{m}\right\}^{2}$
distintas	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_{X}-\mu_{Y}>\Delta_{0}$	$T>t_{\alpha,[\nu]}$	$v = \frac{\left(\frac{N_{1X}}{n} + \frac{N_{m}}{m}\right)^{2}}{\left(\frac{S_{1X}^{2}}{n}\right)^{2} + \left(\frac{S_{1Y}^{2}}{m}\right)^{2}}$
	$\mu_{X}-\mu_{Y}=\Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$T \!\!<\!\! -t_{\alpha/2,[\nu]} \cup T \!\!>\!\! t_{\alpha/2,[\nu]}$	$\frac{\binom{n}{n}}{n-1} + \frac{\binom{n}{m}}{m-1}$
	p_X - p_Y = 0	p_X - p_Y <0	Z<-z _α	
Distr. Bernoulli	$p_X-p_Y\geq 0$	$p_X-p_Y<0$	$Z < -z_{\alpha}$	$Z = \frac{\hat{p}_X - \hat{p}_Y}{\sqrt{1 - \hat{p}_Y}}$
n y m grandes	p_X - p_Y =0	$p_X-p_Y>0$	$Z>z_{\alpha}$	$\sqrt{\hat{p}(1-\hat{p})}\left(\frac{1}{n}+\frac{1}{m}\right)$
Proporciones desconocidas	p_X - $p_Y \le 0$	$p_{X}-p_{Y}>0$	$Z>z_{\alpha}$	$Z = \frac{\hat{p}_{x} - \hat{p}_{y}}{\sqrt{\hat{p}(1-\hat{p})(\frac{1}{n} + \frac{1}{m})}}$ $\hat{p} = \frac{n\hat{p}_{x} + m\hat{p}_{y}}{n}$
	p_X - p_Y =0	p _X -p _Y ≠0	$Z\!\!<\!\!\!-z_{\alpha/2}\cup Z\!\!>\!\!z_{\alpha/2}$	n + m
	$\sigma_X = \sigma_Y$	$\sigma_X < \sigma_Y$	$F \!\!<\!\! F_{1-\alpha,n-1,m-1}$	
Normalidad	$\sigma_X \ge \sigma_Y$	$\sigma_X < \sigma_Y$	$F \!\!<\!\! F_{1-\alpha,n-1,m-1}$	$F = \frac{S_{1X}^2}{S_{1Y}^2}$
	$\sigma_X = \sigma_Y$	$\sigma_X > \sigma_Y$	$F{>}F_{\alpha,n{-}1,m{-}1}$	$\mathbf{S}_{1\mathrm{Y}}^{2}$
	$\sigma_X \leq \sigma_Y$	$\sigma_X > \sigma_Y$	$F{>}F_{\alpha,n{-}1,m{-}1}$	
	$\sigma_X = \sigma_Y$	$\sigma_X \neq \sigma_Y$	$F\!\!<\!\!F_{1-\alpha/2,n-1,m-1}\cup$	
			$F{>}F_{\alpha/2,n-1,m\text{-}1}$	

Contrastes para dos muestras apareadas

condiciones	H_0	H_1	Región Crítica	Estadístico
	$\mu_X - \mu_Y = \Delta_0$	μ_X - μ_Y < Δ_0	$T < -t_{\alpha,n-1}$	
Normalidad	$\mu_X - \mu_Y \ge \Delta_0$	$\mu_X - \mu_Y < \Delta_0$	$T < -t_{\alpha,n-1}$	
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$T\!\!>\!\!t_{\alpha,n\text{-}1}$	$\overline{D} - \Delta_0$
	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$T\!\!>\!\!t_{\alpha,n\text{-}1}$	$T = \frac{\overline{D} - \Delta_0}{S_{1D}} \sqrt{n}$
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$T \!\!<\!\! \text{-} t_{\alpha/2,n-1} \cup T \!\!>\!\! t_{\alpha/2,n-1}$	
	$\mu_X - \mu_Y = \Delta_0$	μ_X - μ_Y < Δ_0	$Z < -z_{\alpha}$	
n grande	$\mu_X - \mu_Y \ge \Delta_0$	$\mu_X - \mu_Y < \Delta_0$	$Z < -z_{\alpha}$	_
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	$Z = rac{\overline{D} - \Delta_0}{S_{1D}} \sqrt{n}$
	$\mu_{X} - \mu_{Y} \leq \Delta_{0}$	$\mu_X - \mu_Y > \Delta_0$	$Z>z_{\alpha}$	\mathfrak{S}_{1D}
	$\mu_{X} - \mu_{Y} = \Delta_{0}$	$\mu_X - \mu_Y \neq \Delta_0$	$Z\!\!<\!\!\!-z_{\alpha/2}\cup Z\!\!>\!\!z_{\alpha/2}$	
	p_X - p_Y = Δ_0	p_X - p_Y < Δ_0	$Z<-z_{\alpha}$	
Distr. Bernoulli	p_X - $p_Y \ge \Delta_0$	p_X - p_Y < Δ_0	$Z < -z_{\alpha}$	$\hat{p}_{x} - \hat{p}_{y} - \Delta_{0}$
n grande	p_X - p_Y = Δ_0	p_X - p_Y > Δ_0	$Z>z_{\alpha}$	$Z = \frac{\hat{p}_X - \hat{p}_Y - \Delta_0}{S_{1D}} \sqrt{n}$
	p_X - $p_Y \leq \Delta_0$	$p_{X}-p_{Y}>\Delta_{0}$	$Z>z_{\alpha}$	
	p_X - p_Y = Δ_0	p_X - p_Y $\neq \Delta_0$	$Z\!\!<\!\!\!-z_{\alpha/2}\cup Z\!\!>\!\!z_{\alpha/2}$	