Pouzdani intervali

Pretpostavke	Pouzdani interval za	Pivotna veličina	Pouzdani interval	Oznake
$X_1, \ldots, X_n$ j.s.u. iz $\mathcal{N}(\mu, \sigma^2)$	μ (σ poznato)	$\frac{\overline{X}_n - \mu}{\sigma}\sqrt{n} \sim \mathcal{N}(0,1)$	$\left[\overline{X}_n - z_\gamma \frac{\sigma}{\sqrt{n}},\ \overline{X}_n + z_\gamma \frac{\sigma}{\sqrt{n}}\right]$	$z_\gamma = Q_{\mathcal{N}(0,1)}\left(\frac{1+\gamma}{2}\right)$
	μ (σ nepoznato)	$\frac{\overline{X}_n - \mu}{S_n}\sqrt{n} \sim \mathcal{T}_{n-1}$	$\left[\overline{X}_n - t_{n-1,\gamma} \frac{S_n}{\sqrt{n}},\ \overline{X}_n + t_{n-1,\gamma} \frac{S_n}{\sqrt{n}}\right]$	$t_{n-1,\gamma} = Q_{\mathcal{T}_{n-1}}\left(\frac{1+\gamma}{2}\right)$
	σ^2	$\frac{(n-1)S_n^2}{\sigma^2} \sim \chi^2_{n-1}$	$\left[0,\ \frac{(n-1)S_n^2}{\overline{h}_{n-1,\gamma}}\right]$	$\overline{h}_{n-1,\gamma} = Q_{\chi^2_{n-1}}(1-\gamma)$
			$\left[\frac{(n-1)S_n^2}{h'_{n-1,\gamma}},\ \frac{(n-1)S_n^2}{h_{n-1,\gamma}}\right]$	$h_{n-1,\gamma} = Q_{\chi^2_{n-1}}\left(\frac{1-\gamma}{2}\right)$ $h'_{n-1,\gamma} = Q_{\chi^2_{n-1}}\left(\frac{1+\gamma}{2}\right)$
$X_1, \ldots, X_n$ j.s.u., n velik, $\mu = EX_1$, $\sigma^2 = \mathrm{Var}(X_1) < \infty$	μ (σ nepoznato)	$\frac{\overline{X}_n - \mu}{S_n}\sqrt{n}$	$\left[\overline{X}_n - t_{n-1,\gamma} \frac{S_n}{\sqrt{n}},\ \overline{X}_n + t_{n-1,\gamma} \frac{S_n}{\sqrt{n}}\right]$	$t_{n-1,\gamma} = Q_{\mathcal{T}_{n-1}}\left(\frac{1+\gamma}{2}\right)$
$X_1, \ldots, X_n$ j.s.u. iz Bernoullijeve(θ), n velik	θ	$\frac{\overline{X}_n - \theta}{\sqrt{\theta(1-\theta)}}\sqrt{n} \overset{A}{\sim} \mathcal{N}(0,1)$	$\left[\overline{X}_n - z_\gamma \sqrt{\frac{\overline{X}_n\left(1-\overline{X}_n\right)}{n}},\ \overline{X}_n + z_\gamma \sqrt{\frac{\overline{X}_n\left(1-\overline{X}_n\right)}{n}}\right]$	$z_\gamma = Q_{\mathcal{N}(0,1)}\left(\frac{1+\gamma}{2}\right)$

Napomena: $Q_F(q)$ označava funkciju kvantila distribucije F, a $\overset{A}{\sim}$ asimptotsku distribuciju.
$\mathcal{N}$, $\mathcal{T}$, χ^2 su redom normalna, Studentova i χ^2 distribucija s odgovarajućim parametrima.

Testiranje hipoteza

Pretpostavke	H_0	H_1	Test statistika i distribucija u uvjetima H_0	Kritično područje
$X_1, \ldots, X_n$ j.s.u. iz $\mathcal{N}(\mu, \sigma^2)$, σ^2 poznato	$\mu = \mu_0$	$\mu \neq \mu_0$	$T(\mathbf{X}) = \frac{\overline{X}_n - \mu_0}{\sigma}\sqrt{n} \sim \mathcal{N}(0,1)$	$C = (-\infty, -z_{\alpha/2}] \cup [z_{\alpha/2}, \infty),\ \ z_{\alpha/2} = Q_{\mathcal{N}(0,1)}(1-\alpha/2)$
		$\mu > \mu_0$		$C = [z_\alpha, \infty),\ \ z_\alpha = Q_{\mathcal{N}(0,1)}(1-\alpha)$
		$\mu < \mu_0$		$C = (-\infty, -z_\alpha],\ \ z_\alpha = Q_{\mathcal{N}(0,1)}(1-\alpha)$
$X_1, \ldots, X_n$ j.s.u. iz $\mathcal{N}(\mu, \sigma^2)$, σ^2 nepoznato ili $X_1, \ldots, X_n$ j.s.u., n velik, $\mu = EX_1$, $\sigma^2 = \mathrm{Var}(X_1) < \infty$	$\mu = \mu_0$	$\mu \neq \mu_0$	$T(\mathbf{X}) = \frac{\overline{X}_n - \mu_0}{S_n}\sqrt{n}\Big[\sim \mathcal{T}_{n-1}\Big]$	$C = (-\infty, -t_{n-1,\alpha/2}] \cup [t_{n-1,\alpha/2}, \infty),\ \ t_{n-1,\alpha/2} = Q_{\mathcal{T}_{n-1}}(1-\alpha/2)$
		$\mu > \mu_0$		$C = [t_{n-1,\alpha}, \infty),\ \ t_{n-1,\alpha} = Q_{\mathcal{T}_{n-1}}(1-\alpha)$
		$\mu < \mu_0$		$C = (-\infty, -t_{n-1,\alpha}],\ \ t_{n-1,\alpha} = Q_{\mathcal{T}_{n-1}}(1-\alpha)$
$X_1, \ldots, X_n$ j.s.u. iz $\mathcal{N}(\mu, \sigma^2)$	$\sigma^2 = \sigma_0^2$	$\sigma^2 \neq \sigma_0^2$	$T(\mathbf{X}) = \frac{(n-1)S_n^2}{\sigma_0^2} \sim \chi^2_{n-1}$	$C = [0, h_{n-1,\alpha/2}] \cup [h'_{n-1,\alpha/2}, \infty)$ $h_{n-1,\alpha/2} = Q_{\chi^2_{n-1}}(\alpha/2),\ h'_{n-1,\alpha/2} = Q_{\chi^2_{n-1}}(1-\alpha/2)$
		$\sigma^2 > \sigma_0^2$		$C = [h'_{n-1,\alpha}, \infty),\ \ h'_{n-1,\alpha} = Q_{\chi^2_{n-1}}(1-\alpha)$
		$\sigma^2 < \sigma_0^2$		$C = [0, h_{n-1,\alpha}],\ \ h_{n-1,\alpha} = Q_{\chi^2_{n-1}}(\alpha)$