Hypothesis Tests

All test statistics are of the form

Point Estimate - Parameter Standard Error

Parameter	Point Estimate	Test Statistic	Assumptions
μ	$\frac{-}{x}$	$\overline{x} - \mu$	σ known
		$z = \frac{x - \mu}{\sigma_{\overline{x}}}$	\bar{x} 's normal
μ	$\frac{-}{x}$	$\frac{\overline{x}-\mu}{x}$	σ unknown
		$t = \frac{x - \mu}{s / \sqrt{n}}$	\bar{x} 's normal
		10 1	
p	$\hat{p} = \frac{r}{n}$	$z = \frac{\hat{p} - p}{z}$	np > 5
	n	$\sqrt{\frac{pq}{q}}$	nq > 5
$\mu_1 - \mu_2$	$\frac{-}{x_1-x_2}$	$(x_1 - x_2) - (y_1 - y_2)$	σ_1, σ_2 known
		$z = \frac{\left(\frac{1}{2} + \frac{1}{2}\right)^2}{\left(\frac{1}{2} + \frac{1}{2}\right)^2}$	$\begin{bmatrix} -1 & -1 \\ x_1 - x_2 \end{bmatrix}$'s normal
		$df = n - 1$ $z = \frac{\hat{p} - p}{\sqrt{\frac{pq}{n}}}$ $z = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$ $t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$	IRS
$\mu_1 - \mu_2$	$\frac{\overline{x}_1 - \overline{x}_2}{\overline{x}_1 - \overline{x}_2}$	$t = \frac{\left(\overline{x}_1 - \overline{x}_2\right) - \left(\mu_1 - \mu_2\right)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$	σ_1, σ_2 unknown
		$t = \frac{\sqrt{(1 + 2)^2}}{\sqrt{g^2 - g^2}}$	
		$\sqrt{\frac{s_1}{s_2} + \frac{s_2}{s_2}}$	unequal
		,	$x_1 - x_2$'s normal
		$df = MIN(n_1 - 1, n_2 - 1)$	IRS
$\mu_1 - \mu_2$	$x_1 - x_2$	$t = \frac{\left(\overline{x}_1 - \overline{x}_2\right) - \left(\mu_1 - \mu_2\right)}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$	σ_1, σ_2 unknown
		$t = \frac{1}{1}$	and assumed equal
		$\sqrt{\frac{n_1}{n_1} + \frac{n_2}{n_2}}$	$\begin{array}{c} - \\ x_1 - x_2 \end{array}$'s normal IRS
		· ·	IKS
		$S = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$	
		$df = n_1 + n_2 - 2$	
μ_d	\overline{d}	$\overline{d} - \mu_d$	d's normal
		$t = \frac{d - \mu_d}{s_d / \sqrt{n}}$	DRS
		df = n - 1	
$p_1 - p_2$	$\hat{p}_1 - \hat{p}_2$	$z = \frac{(\hat{p}_1 - \hat{p}_2) - (p_1 - p_2)}{(\hat{p}_1 - \hat{p}_2)}$	$n_1 \overline{p} > 5$
		$z = \frac{(\widehat{p}_1 - \widehat{p}_2) - (p_1 - p_2)}{\sqrt{\frac{\overline{p}\overline{q}}{n_1} + \frac{\overline{p}\overline{q}}{n_2}}}$	$n_1 \overline{q} > 5$ $n_2 \overline{p} > 5$
			$n_2 \overline{p} > 5$
		$\frac{-}{p} = \frac{r_1 + r_2}{n_1 + n_2}$	$n_2 \overline{q} > 5$
	1	1 4	1