

企管 = 甲 A109290039 3次共1倍

7. (1) $\hat{p} = \frac{45}{80} = 0.56$

(2) $z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = z_{0.025} \sqrt{\frac{0.56 \times 0.44}{80}} = 1.96 \times 0.06 = 0.12$

(3) $\hat{p} \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = 0.56 \pm 2 \times 0.05 \sqrt{\frac{0.56 \times 0.44}{80}} = 0.56 \pm 0.1 \rightarrow (0.46, 0.66)$

8. $\hat{p} = \frac{55}{100} = 0.55$, $\hat{p}_2 = \frac{60}{100} = 0.6$ $(\hat{p}_1 - \hat{p}_2) \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$
 $= (0.55 - 0.6) \pm z_{0.025} \sqrt{\frac{0.55 \times 0.45}{100} + \frac{0.6 \times 0.4}{100}}$
 $= -0.05 \pm 0.14 \rightarrow (-0.19, 0.09)$

21. (1) $\hat{p} = \frac{105}{250} = 0.42$, $1-\alpha = 0.9$ $z_{\frac{\alpha}{2}} = z_{0.05} = 1.645$

$0.42 \pm z_{0.05} \sqrt{\frac{0.42 \times 0.58}{250}} = 0.42 \pm 0.05 \rightarrow (0.37, 0.47)$

(2) $e = 0.03$, $1-\alpha = 0.95$ $z_{\frac{\alpha}{2}} = z_{0.025} = 1.96$

a. $p = 0.3$, $n = \left(\frac{1.96}{0.03}\right)^2 (0.3)(0.7) = 896.37 \therefore n = 899$

b. $\hat{p} = \frac{105}{250} = 0.42$ $\hat{n} = \left(\frac{1.96}{0.03}\right)^2 (0.42)(0.58) = 1039.99 \therefore n = 1040$

c. $p = 0.5$ $n = \left(\frac{1.96}{0.03}\right)^2 (0.5)(0.5) = 1067.11 \therefore n = 1068$

企管 = 甲 A10.1270037 3次共備

(1) $1-\alpha = 0.95, \frac{\alpha}{2} = 0.025$

(例) $Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$

(1) $\bar{x} \pm Z_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}} = 16.33 \pm 1.96 \frac{4.29}{\sqrt{36}} = 16.33 \pm 1.4$

$\rightarrow (14.93, 17.73)$

(2) $1-\alpha = 0.9, \frac{\alpha}{2} = 0.05$

$Z_{\frac{\alpha}{2}} = Z_{0.05} = 1.645$

$\bar{x} \pm Z_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}} = 16.33 \pm 1.645 \frac{4.29}{\sqrt{36}} = 16.33 \pm 1.18 \rightarrow (15.15, 17.51)$

例 6.9

(1) M點估計為 $\bar{x} = 15291.67$

(2) $1-\alpha = 0.9, \frac{\alpha}{2} = 0.05$

自由度 $= n-1 = 12-1 = 11$ 查 $t_{0.05}(11) = 1.996$

$\bar{x} \pm t_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}} = 15291.67 \pm 1.996 \frac{197.52}{\sqrt{12}} = 15291.67 \pm 102.41 = 15189.26, 15394.08$

(3) $15394.08 - 15189.26 = 204.82$

例 6.19

$1-\alpha = 0.95, Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$

$h = \left(Z_{\frac{\alpha}{2}} \right)^2 \left(\frac{1.96 \times 0.05}{0.01} \right)^2 = 96.04$

$n = 97, 97.75 = 98$