Random Latex Notes

Jimmy Hickey

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Studying for ST703 Exam 1

$$\overline{X - \bar{x}} = \sum (x_i - \bar{x}) = 0$$

$$Cov(X, Y) = E\Big((X - E(X)) \cdot (Y - E(Y))\Big)$$

for $\theta = \beta_1 - \beta_2$

$$Var(\hat{\beta}_1 - \hat{\beta}_2) = Var(\hat{\beta}_1) + Var(\hat{\beta}_2) - 2Cov(Var(\hat{\beta}_1), Var(\hat{\beta}_2))$$

$$stderr = \frac{\sigma}{\sqrt{n}}$$

$$stderr(\hat{\beta_0}) = \sqrt{s^2\Big(\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{\sum (x_i - \bar{x})^2}\Big)}$$

$$stderr(\hat{\beta}_1) = \sqrt{\frac{s^2}{\sum (x_i - \bar{x})^2}}$$

$$s^2 = MSE$$

$$\text{Covariance Matrix} = \sigma^2 \cdot (X^T X)^{-1}$$

$$\sigma = \sqrt{MSE} \quad \forall x = x_i$$

$$T = \frac{\hat{\theta} - \theta_0}{SE(\hat{\theta})}$$

$$SSRegn = \sum (\hat{y}_i - \bar{y})^2$$

$$SSE = \sum (y_i - \hat{y}_i)^2$$

$$SST = \sum (y_i - \bar{y})^2$$

$$R(\beta_1, \beta_2 | \beta_0) = \text{full model SSE of ANOVA}$$

$$R(\beta_2 | \beta_0) = \text{full model SSE - Type II SS } \beta_1$$

We are 90

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Studying for ST520 midterm

$$E[\hat{\theta}] = \theta$$

$$P[D|E] \approx 0 \ \wedge \ P[D|\bar{E}] \approx 0 \Rightarrow \theta \approx \psi$$

In a prospective study, n_{1+} and n_{2+} are fixed.

$$[(X_1 > r_1) \wedge (X_1 + X_2 > r)] \vee (X_1 > r)$$

We will estimate Δ using $\hat{\Delta} = \bar{Y_1} - \bar{Y_2}$, where $\bar{Y_1}$ is the sample average response of the n_1 patients receiving treatment A, and $\bar{Y_2}$ is the sample average response of the n_2 patients receiving treatment B. Notice $\hat{\Delta}$ is most efficient when $\pi = 0.5$.

Start with m balls labeled A and m balls labeled B. Randomly pick a ball for the first patient and assign the treatment indicated by the ball. If the patient recieves A, then replace that A ball with a B.