

The autocovariance matrix is given by

$$D(\hat{\theta}) = \begin{bmatrix} \text{var}(\theta_0) & \text{cov}(\theta_0, \theta_1) \\ \text{cov}(\theta_0, \theta_1) & \text{var}(\theta_1) \end{bmatrix} = \frac{\sigma^2}{n \sum x_i^2 - (\sum x_i)^2} \sum_{i=1}^n \begin{bmatrix} x_i^2 & -x_i \\ -x_i & 1 \end{bmatrix} \quad \text{Eq. 2.1}$$

When the design is symmetric, then the  $\sum x_i = 0$  and we get

$$D(\hat{\theta}) = \begin{bmatrix} \text{var}(\theta_0) & \text{cov}(\theta_0, \theta_1) \\ \text{cov}(\theta_0, \theta_1) & \text{var}(\theta_1) \end{bmatrix} = \frac{\sigma^2}{n \sum x_i^2} \sum_{i=1}^n \begin{bmatrix} x_i^2 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} \sigma^2/n & 0 \\ 0 & \sigma^2/(\sum x_i^2) \end{bmatrix} \quad \text{Eq. 2.2}$$

In that case we find for the standard deviations of the parameters

$$\begin{aligned} \sigma_{\theta_0} &= \sqrt{\text{var}(\theta_0)} = \sigma/(\sqrt{n}) \\ \sigma_{\theta_1} &= \sqrt{\text{var}(\theta_1)} = \sigma/(\sqrt{\sum x_i^2}) \end{aligned} \quad \text{Eq. 2.3}$$