

(6)

□ MME

$$\begin{bmatrix} X^T X \\ Z^T X \end{bmatrix}$$

$$\frac{1}{2} \sigma_e^2 \text{ mal-xtx}$$

$$\begin{bmatrix} X^T Z \\ Z^T Z + \lambda A^{-1} \end{bmatrix} \begin{bmatrix} \hat{\beta} \\ \hat{u} \end{bmatrix} = \begin{bmatrix} X^T y \\ Z^T y \end{bmatrix}$$

$$\lambda = \sigma_e^2 / \sigma_u^2$$

$$\begin{bmatrix} X^T R^{-1} X & X^T R^{-1} Z \\ Z^T R^{-1} X & Z^T R^{-1} Z + G^{-1} \end{bmatrix}$$

C^{zz}

$$R^{-1} = I \cdot \sigma_e^{-2}$$

$$G^{-1} = A^{-1} \cdot \sigma_u^{-2}$$

$$\lambda = \frac{\sigma_e^2}{\sigma_u^2} = 1$$

$$\sigma_p^2 = 0.65 = \sigma_e^2 + \sigma_u^2$$

$$\sigma_u^2 = \sigma_p^2 / 2 =$$

$$h^2 = \frac{\sigma_u^2}{\sigma_p^2} = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2} = 0.5$$

$$B_i = 1 - \frac{(C^{zz})_{ii}}{\text{Var}(u_i)}$$