

Recap:

□ Estimable Function

- Linear function of solutions from solutions of least squares normal equations

- Given solution vector $b^{(0)} = GX^T y$

where G is a generalized inverse of $X^T X$, i.e. $X^T X G X^T X = X^T X$

- Def $q^T \cdot b^{(0)} = t^T E(y)$

because:

$$\begin{aligned} q^T \cdot b^{(0)} &= q^T \cdot GX^T y \\ &= t^T E(y) \cdot GX^T y \\ &= t^T X b \end{aligned}$$

$$\begin{aligned} q^T \cdot b^{(0)} &= t^T E(y) = t^T X b^{(1)} \\ &= t^T X G X^T y ; \quad X G X^T \text{ is invariant to } G \end{aligned}$$