

$$Q^T = (L^T)^{-1} = \begin{matrix} & \begin{matrix} AN & LI & SI \end{matrix} \\ \begin{bmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \\ -1 & 0 & 1 \end{bmatrix} & \begin{matrix} \rightarrow \text{Intercept} \\ \rightarrow q_{Li}^T = [0 \ -1 \ 1 \ 0] \\ \rightarrow q_{Si}^T = [0 \ -1 \ 0 \ 1] \end{matrix} \end{matrix} \quad (5)$$

$$b^0 = \begin{bmatrix} \mu \\ \alpha_1 \\ \alpha_2 \\ \alpha_3 \end{bmatrix} = \begin{bmatrix} 368.33 \\ 98.667 \\ 150.667 \\ 120.0 \end{bmatrix}$$

$$LI: q_{Li}^T \cdot b^0 = 0 \cdot \mu + (-1) \cdot \alpha_1 + 1 \cdot \alpha_2 + 0 \cdot \alpha_3 \\ = \alpha_2 - \alpha_1 = 52$$

$$SI: q_{Si}^T \cdot b^0 = (-1) \alpha_1 + \alpha_3 = \alpha_3 - \alpha_1 = 21.33$$