

$$\mathbf{Z} = (\mathbf{B}\mathbf{Y})^\top + \mathbf{E}$$

$$Z = \left[\begin{array}{cccccc} 0 & b_2 & 0 & b_4 & 0 & 0 & b_7 \\ 0 & b_2 & 0 & b_4 & 0 & 0 & b_7 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 & b_2 & 0 & b_4 & 0 & 0 & b_7 \\ - & - & - & - & - & - & - \\ & & & 0 & & & \end{array} \right] + E$$

$$Y = [\overbrace{1, 1, \dots, 1}^k, \overbrace{0, 0, \dots, 0}^{n-k}]$$

$$B^T = [0, \mathbf{b}_2, 0, \mathbf{b}_4, 0, 0, \mathbf{b}_7]$$

$$\mathbf{b}_2, \mathbf{b}_4, \mathbf{b}_7 \sim \mathcal{N}(0, b^{\text{main}})$$

$$\varepsilon_{ij} \sim \mathcal{N}(0, 1)$$

$$X = ZU^{\top}$$