

Panel

$$y_i = X_i \beta + \varepsilon_i, \quad X_i: T \times k.$$

$$X_i = \begin{bmatrix} x_{i1}' \\ \vdots \\ x_{iT}' \end{bmatrix}$$

$$\text{SUR: } X_i = \begin{bmatrix} x_{i1}' \\ x_{i2}' \\ \vdots \\ x_{iT}' \end{bmatrix}$$

$$E[\underbrace{X_i}_{\checkmark} \varepsilon_i] = 0, \quad E[x_i' x_i] \text{ full rank}$$

$$\hat{\beta} \rightarrow E[x_i' x_i]^{-1} E[x_i' y_i]$$

Pooled OLS