

$$\bar{y}_i = \bar{x}_i \beta + \mu_i + \bar{v}_i$$

$$\bar{z}_i = \frac{1}{T} \sum_{t=1}^T z_{i,t}$$

$$\begin{aligned} \text{Var}(\mu_i + \bar{v}_i) &= \text{Var}(\mu_i) + \frac{1}{T} \text{Var}\left(\sum_{t=1}^T z_{i,t}\right) \\ &= \sigma_\mu^2 + \frac{1}{T} \sigma_v^2 \end{aligned}$$

$$FE = \underline{\underline{\sigma_v^2}}$$

$$\begin{aligned} &\sigma_\mu^2 \\ \text{pooled} &= \frac{FE}{\text{bet} - FE/T} \end{aligned}$$