

$$\begin{aligned}
 \textcircled{I} \quad \overline{\Delta y} &= \bar{X}_A \hat{\beta}_A - \bar{X}_B \hat{\beta}_B \\
 &= \bar{X}_A \hat{\beta}_A + \underbrace{[\bar{X}_A \hat{\beta}_B - \bar{X}_A \hat{\beta}_B]}_{\text{E. estrutural}} - \bar{X}_B \hat{\beta}_B \\
 &= \bar{X}_A (\hat{\beta}_A - \hat{\beta}_B) + (\bar{X}_A - \bar{X}_B) \hat{\beta}_B \\
 &\quad \text{E. estrutural} \qquad \text{E. composição}
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{II} \quad \overline{\Delta y} &= \bar{X}_A \hat{\beta}_A - \bar{X}_B \hat{\beta}_B \\
 &= \bar{X}_A \hat{\beta}_A + \underbrace{[\bar{X}_B \hat{\beta}_A - \bar{X}_B \hat{\beta}_A]}_{\text{E. composição}} - \bar{X}_B \hat{\beta}_B \\
 &= (\bar{X}_A - \bar{X}_B) \hat{\beta}_A + \bar{X}_B (\hat{\beta}_A - \hat{\beta}_B) \\
 &\quad \text{E. composição} \qquad \text{E. estrutural}
 \end{aligned}$$

A mesma decomposição, usando grupos de referência distintos. ~~No ①~~ No ① usamos  $\bar{X}_A$  e  $\hat{\beta}_B$ . Sm ②  $\bar{X}_B$  e  $\hat{\beta}_A$