

z : fathereduc

y :

$$\log(\text{wage}) = \beta_0 + \beta_1 \text{educ} + u$$

$\downarrow$
(x)

$$\hat{\beta}_{OLS} = 0.08$$

$$\begin{aligned} \hat{\beta}_{IV} &= 0.059 = \frac{\text{cov}(z, y)}{\text{cov}(z, x)} \\ &= \frac{0.1979}{3.344} \end{aligned}$$

2 stage least squares

regress x on $z \rightarrow$ first stage

regress y on $\hat{x} \rightarrow$ slope = $\hat{\beta}_{IV}$
 $\rightarrow$ second stage