Limits of R^2 $\overline{R}^2$

5. Can't be used to compare different models if dep variables are different
6. Meaningless if no constant (?) → if Bias $\ll 0$ ($SSR > SST$) $R^2 = 1 - \frac{SSR}{SST}$
7. R^2 increases with k (Not $\overline{R}^2$)

ssc install outreg2

reg y X_1 X_2

outreg2 using myfirstreg, excel replace

reg y x_1 x_2

outreg2 using myfirstreg, excel append

3.2.2

$E[X] \longrightarrow \mu = \sum x_i p_i = \frac{1}{n}\sum x_i$

$E[X^2] \longrightarrow \sigma^2 + \mu^2$

4.14

$$1 - \frac{SSR}{SST} = 0 \Rightarrow SST = SSR$$

$$R^2 = 0 \iff \beta_1 = 0$$

$$R^2 = \frac{\sum (y-\bar{y})(\hat{y}-\bar{y})}{\sum (y_i-\bar{y})^2}$$

(3) Homoskedasticity does not have to do with Bias.

Multi: $\widehat{Var}(\hat{\beta}_1) = \frac{SSR_u}{(n-k-1)SST_x}$

$$\tilde{\beta}_1 = \frac{\sum x_i [\beta_0 + \beta_1 X + u]}{\sum x_i^2}$$

$$E(\tilde{\beta}_1) = \beta_1 + \beta_0 \left(\frac{n\bar{x}}{\sum x^2} \right)$$

Ask about this formula

$\bar{x} < 0$, $\beta_0 < 0$

$\Rightarrow$ Bias > 0