

Lecture 6: Hypothesis Testing

P.1

legal example: prosecutor must prove guilt beyond a reasonable doubt

statistics: need to show that probability that null hypothesis is true is less than 5% (or other critical value)

	<u>Legal</u>	set free	convict
		Accept H_0	Accept H_A
H_0 : not guilty	}	no error	Type I
H_A : guilty		Type II	no error

null hypothesis: true value of coefficient is zero

~~pct. w/o health insurance = 1,585 + 0,0037~~
~~(0,262) (0,0006)~~

↗

$$\begin{aligned} \text{pct w/o} &= 144,873 - 12,9714 \cdot \ln(\text{hh mdn income}) \\ \text{health} &= (30,094) - (2,5843) \\ \text{insurance} & \end{aligned}$$

$$+ 9,4479 \cdot \text{hh Cini coeff in 1999} + 0,3898 \cdot \text{pct Hispanic in 1990} + (0,0529)$$

std. error in parent heist

$$\begin{aligned} R^2 &= 0,638 & F(3,47) &= 27,57 \\ \text{s.e.} &= 2,635 & \text{p-value} &< 0,0001 \\ & & \text{Number} & \\ & & \text{of observations} &= 51 \end{aligned}$$

There are some issues with this regression

Namely, we should use a probability model because each person makes a decision: obtain coverage or not. So we should model that probability. BUT...

Compute t -statistics

two-tail test critical values

$$t = \frac{\hat{\beta} - \beta_{H_0}}{\sigma_{\hat{\beta}}}$$

$$\alpha = 0,10 \quad t_{\text{crit}} = 1,677927$$

$$\alpha = 0,05 \quad t_{\text{crit}} = 2,011741$$

$$\alpha = 0,01 \quad t_{\text{crit}} = 2,684556$$