INTERPRETING PROGRAM IMPACT

WHICH BET WOULD YOU PREFER?

BET #1

The bet costs $1,000 to place
There is a 75% chance you win $1,500
There is a 25% chance you win $1,100

BET #2

The bet costs $1,000 to place
There is a 75% chance you win $4,000
There is a 25% chance you lose $2,000

WHICH BET WOULD YOU PREFER?

BET #1

The bet costs $1,000 to place
There is a 75% chance you win $1,500
There is a 25% chance you win $1,100

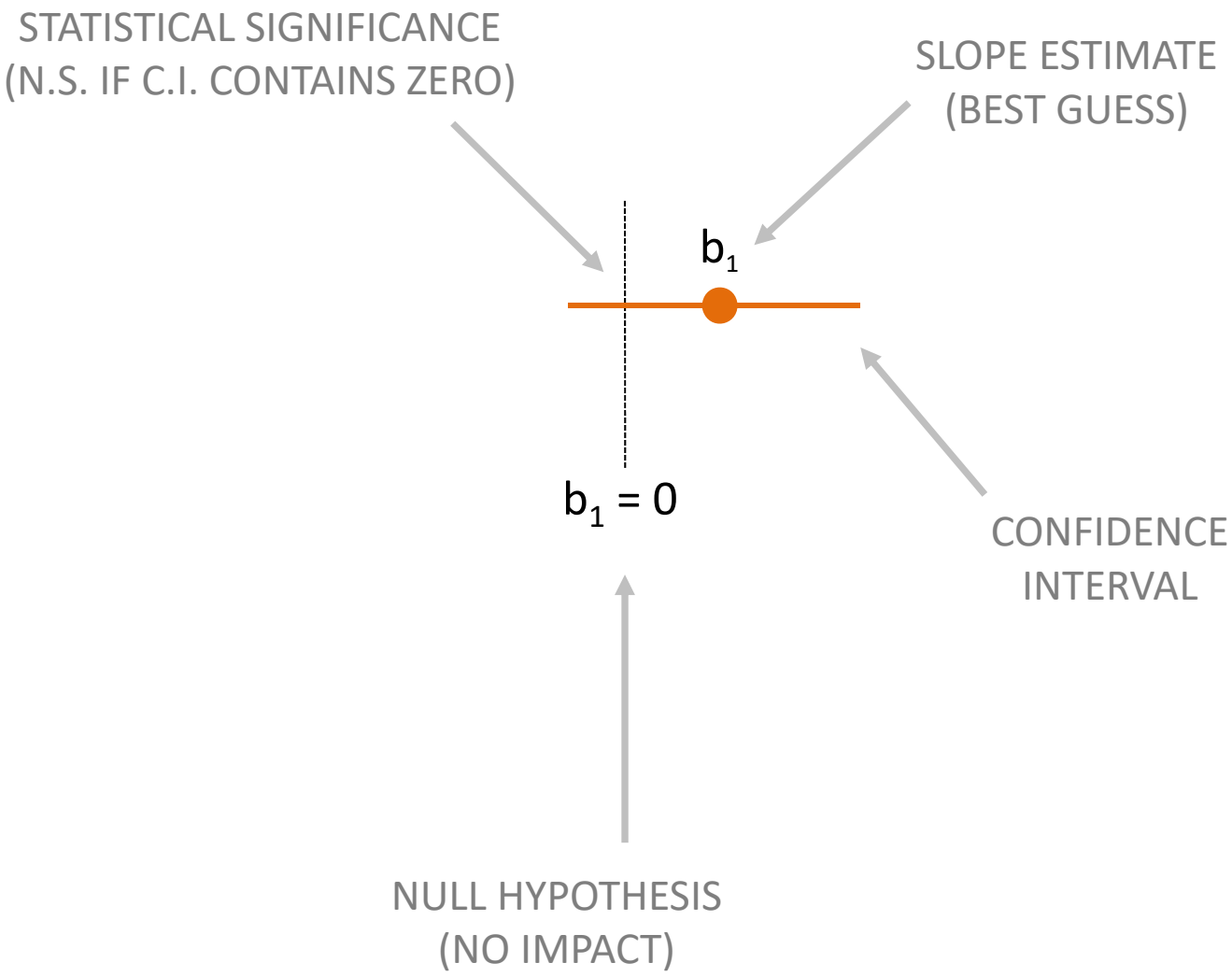
Expected value =
(0.75)(1500) + (0.25)(1100) =
$1,400

BET #2

The bet costs $1,000 to place
There is a 75% chance you win $4,000
There is a 25% chance you **lose $2,000**

Expected value =
(0.75)(4000) – (0.25)(2000) =
$2,500

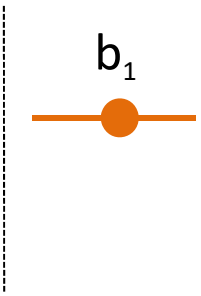
COEFFICIENT PLOTS



WHICH PROGRAM IS BETTER?

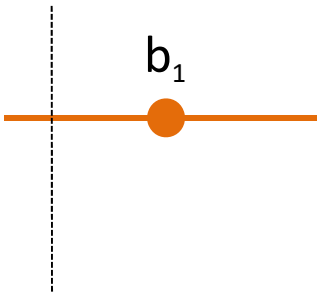
$$\text{Reading Speed} = b_0 + b_1 \text{Hours of Tutoring} + e$$

Program 1



$b_1 = 0$

Program 2



$b_1 = 0$

(assume these are all 95% confidence intervals)

The cost of the program is the bet we are making.

The expected value of the program is represented by the point estimate of the slope (b1).

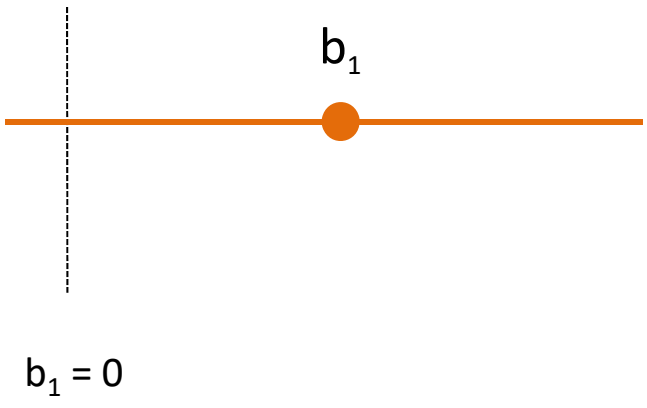
The risk (certainty) of the bet is symbolized by the confidence interval.

Preferences for bets is always a balance between expected pay-off and risk (uncertainty).

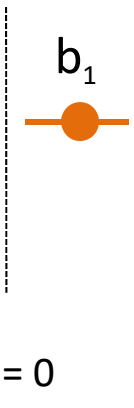
WHAT ABOUT NOW?

$$\text{Reading Speed} = b_0 + b_1 \text{Hours of Tutoring} + e$$

Program 1



Program 2



Which model is statistically significant?
Which program has more positive impact?