

HYPOTHESIS TESTING

One Tail Test

Lower-Tail Test

$$H_0: \beta \geq 0$$

$$H_A: \beta < 0$$

Reject if: $t < -t_\alpha$

Or using the p-value

$$\text{Reject if: } \frac{p\text{-value}}{2} < \alpha \text{ for } t < 0$$

$$\text{Reject if: } 1 - \frac{p\text{-value}}{2} < \alpha \text{ for } t > 0$$

Upper-Tail Test

$$H_0: \beta \leq 0$$

$$H_A: \beta > 0$$

Reject if: $t > t_\alpha$

Or using the p-value

$$\text{Reject if: } \frac{p\text{-value}}{2} < \alpha \text{ for } t > 0$$

$$\text{Reject if: } 1 - \frac{p\text{-value}}{2} < \alpha \text{ for } t < 0$$

Two-Tail Test

$$H_0: \beta = 0$$

$$H_A: \beta \neq 0$$

Reject if: $|t| > t_\alpha$

Or using the p-value

Reject if: $p\text{-value} < \alpha$