

V23 - Estimation – Part 6

- ❑ Binary data
 - ❑ Mode
- ❑ Proportion
 - ❑ Parameter
 - ❑ Point estimate
- ❑ Bernoulli trial
- ❑ Binomial random variable
 - ❑ Approximation to Binomial Distribution

Course: Statistical Testing & Regression

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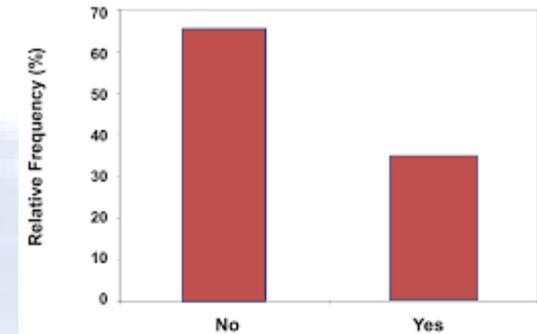
Binary Data

- ❖ Qualitative or categorical data
- ❖ Binary variable has only 1 of _____ possible categories or value
 - Part defective or not defective
 - COVID test positive or negative
 - Offer extended or not extended to candidate

❖ aka Dichotomous

❖ Polytomous

❖ More than two categories



Proportion and Bernoulli Trial

- Population proportion (parameter) is labeled as _____
 - Proportion of all cars in Pittsburgh that are blue
 - Proportion of all items made at a factory are defective
- Estimate of p comes from Bernoulli trials (n of them)
- **Bernoulli trial:** experiment that can be classified 1 of 2 ways (e.g., yes or no; success or failure; defective or not defective); it's a _____ variable

- Estimate (point estimator) of p :
$$\hat{p} = \frac{Y}{n}$$



Point Estimate for Proportion

$$\hat{p} = \frac{Y}{n}$$

Y ← **Count** of “successes” in n trials (“success” is characteristic you’re counting)

n ← # trials (sample size)

Y is a **binomial random variable**. It is **sum of (0/1) outcomes** from n _____ trials

_____ approximates binomial distribution
if
 $np \geq 5$ and $n(1-p) \geq 5$





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THE END

