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 - ▶ We don't know p (we want to find it)
- ▶ Asking a random person if they approve of Congress is a Bernoulli trial
 - ▶ "Do you approve of Congress?" is a yes/no question

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(fraction successes vs. number of successes)
 - ▶ \hat{p} will follow a normal distribution with:
 - ▶ $\mu = p$
 - ▶ $\sigma = \sqrt{\frac{p(1-p)}{n}}$

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 - ▶ How often will \hat{p} lie between .07 and .13?

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- ▶ In polling, standard deviation is also known as *sampling error*

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 - ▶ More likely the case that the survey wasn't random

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 - ▶ unbiased (each individual has the same chance of being polled)
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- ▶ We are trying to make sure that asking the question is a Bernoulli trial

Opportunity Bias

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- ▶ **Sampling bias** is a bias where some people are less likely to be polled than others

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- ▶ Both companies had skewed results

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- ▶ Can use extra data to weight answers:
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 - ▶ Can weight men's answers by .25 to get a better representation