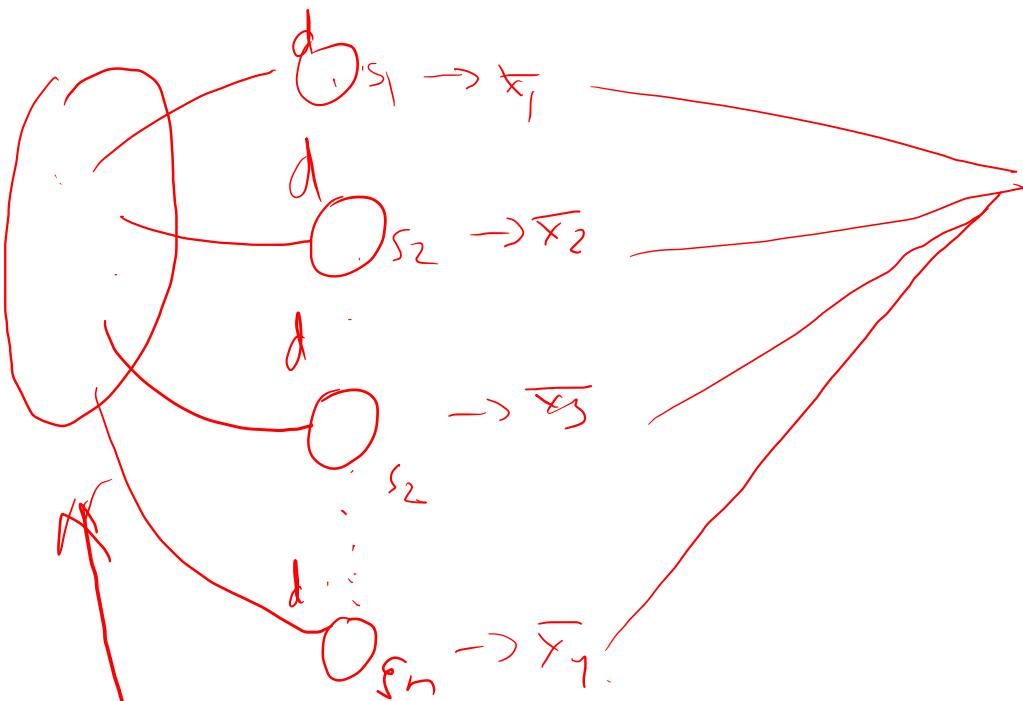


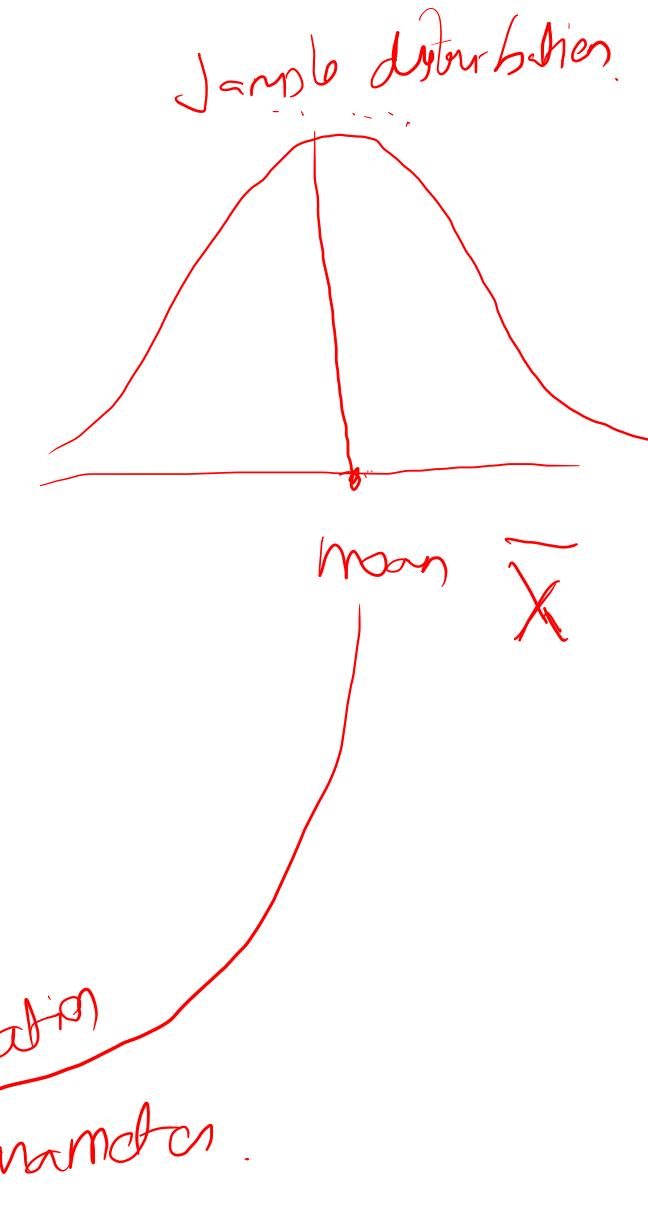
Inferential
Statistics

estimation -
hypothesis testing

CLT



$$[\bar{x}_1, \bar{x}_2, \sqrt{s}, \bar{x}_n] \rightarrow$$



point estimator ($\hat{\theta}$)

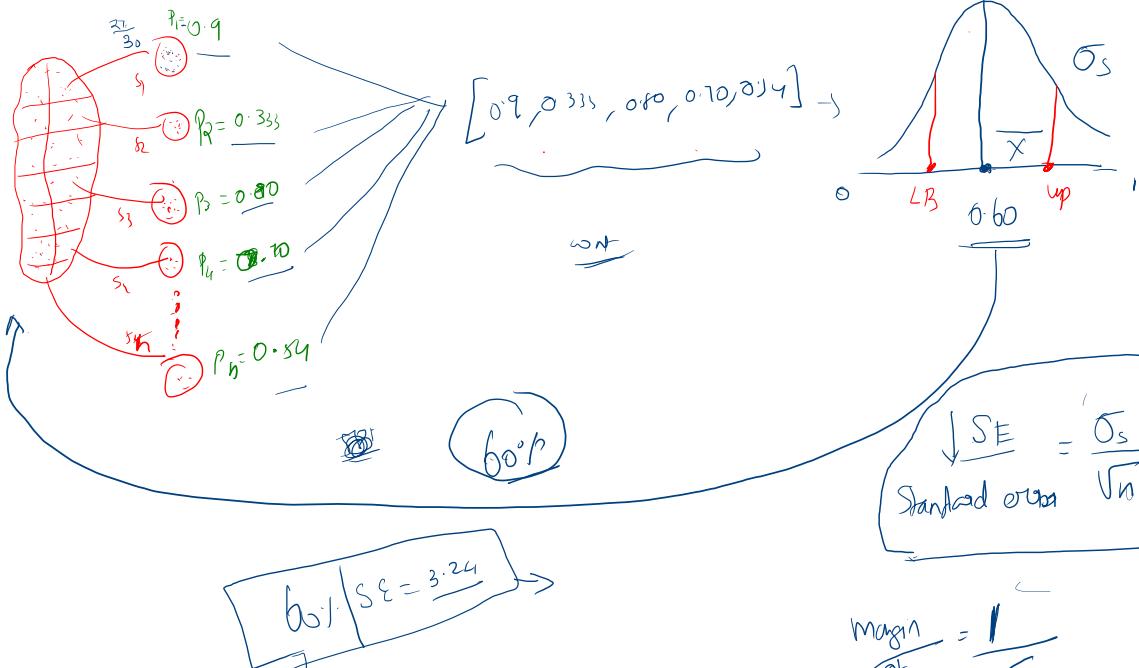
C U]

11

Estimation

party - 1

Bisexual 
am Anhören

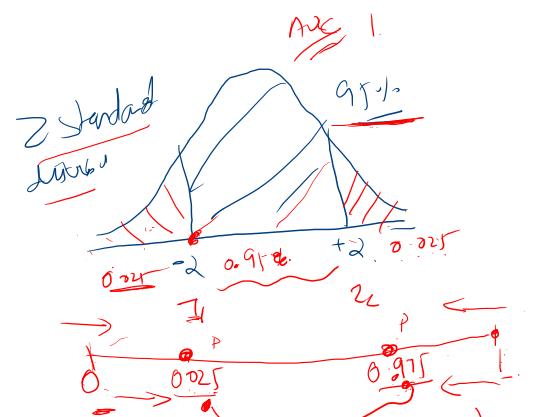


Confidencial
Interno

$$P(z_1 < \bar{z} < z_2) = 0,95$$

$$Z = \frac{(X - M)}{O/\sqrt{n}}$$

A free body diagram of a beam. At the left end, there is a reaction force of $-0.9b$ pointing down and to the right. A horizontal force of 0.025 acts at a distance of 0.25 from the left end. A vertical force of 0.975 acts at a distance of 0.25 from the left end. A horizontal force of 0.025 acts at a distance of 0.75 from the left end. A vertical force of 0.975 acts at a distance of 0.75 from the left end. A reaction force of P acts at the right end. A reaction force of P acts at a point $\frac{1}{2}$ from the left end. A reaction force of P acts at a point $\frac{1}{2}$ from the right end.



$$P\left(\frac{Z_1}{Z_2} < \frac{\bar{X}-M}{S_{\bar{X}}} \leq z_c\right) = 0.9$$

(from +1.96)

$$P \left(Z_1 \times \frac{\sigma}{\sqrt{n}} \leq -y \right) < \bar{x} - y \left(Z_2 \times \frac{\sigma}{\sqrt{n}} \right)^{-0.95}$$

$$P\left(\frac{z_1 \times \sigma}{\sqrt{n}} < \bar{x} - \mu < \frac{z_2 \times \sigma}{\sqrt{n}}\right) = 0.95$$

$\circlearrowleft + \mu$

$$\rightarrow P\left(\bar{x} - \frac{z_2 \times \sigma}{\sqrt{n}} < \mu < \bar{x} - \frac{-z_1 \times \sigma}{\sqrt{n}}\right)$$

CI = 0.95

LB UB

$$P\left(\bar{x} - 1.96 \frac{\sigma}{\sqrt{n}} < \mu < \bar{x} + 1.96 \frac{\sigma}{\sqrt{n}}\right) = 0.95$$

LB UB

$\circlearrowleft + 1 = 2.$

$1 = 2 - 2x$

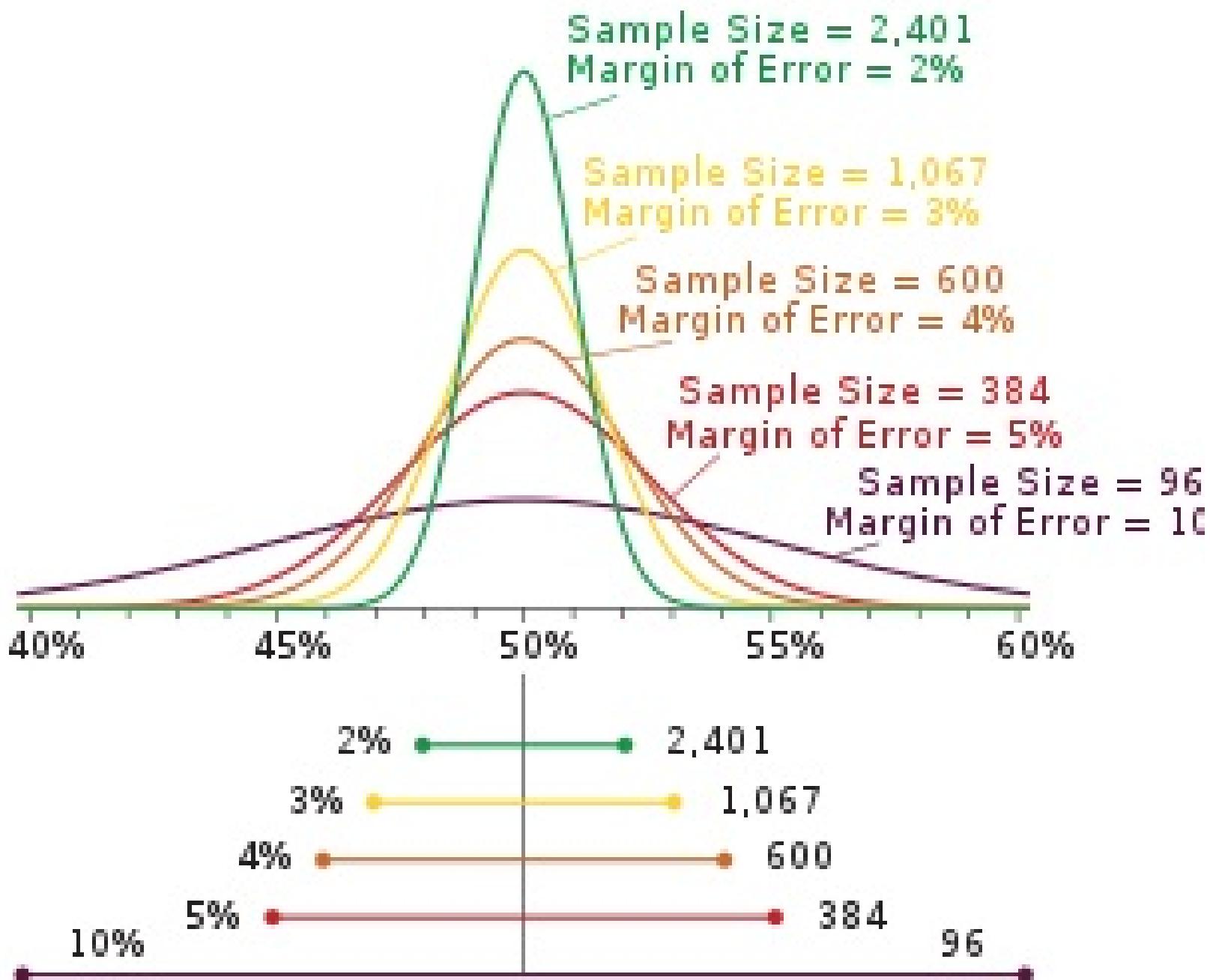
CI = 0.95

$\bar{x} \pm \frac{1.96 \sigma}{\sqrt{n}}$

marg of error

$q_{0.025}$
 $q_{0.975}$

$$P\left(z_1 \times \frac{\sigma}{\sqrt{n}} < \bar{x} - \mu < z_2 \times \frac{\sigma}{\sqrt{n}}\right) = 0.95$$



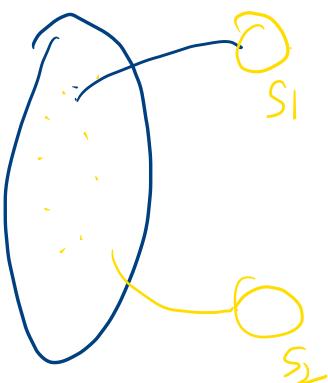
Hypothesis testing

Saitam $\mu = 45 \sigma = 2 CI = 0.95$

Ravi $\mu \neq 45$

✓ Null hypothesis: $\mu = 45$ at 95%

✓ alternate hypothesis: $\mu \neq 45$



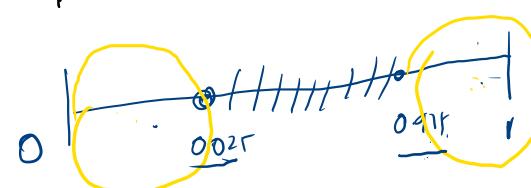
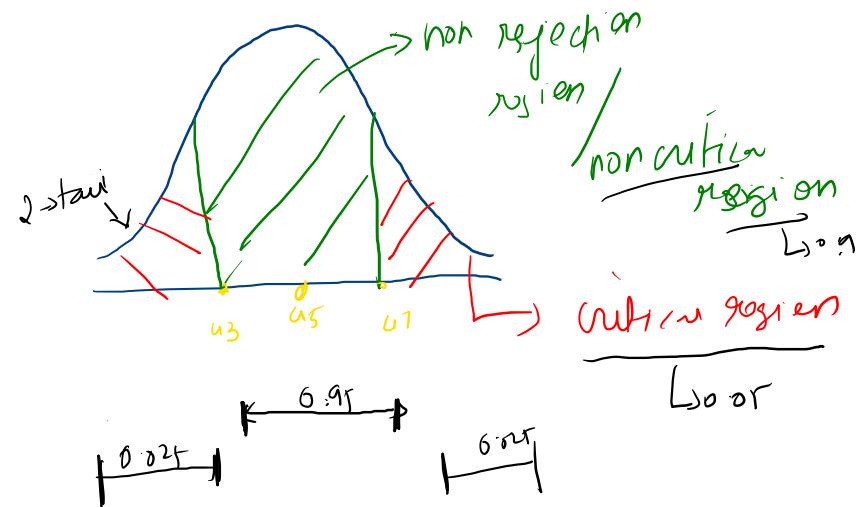
$$\alpha = 1 - CI$$

$$\alpha = 1 - 0.95$$

$$\alpha = 0.05$$

$$\alpha_1 = 0.025$$

$$\alpha_2 = 0.025$$



$\alpha_1 \rightarrow p\text{-value}$

$\alpha_2 \rightarrow p\text{-value}$

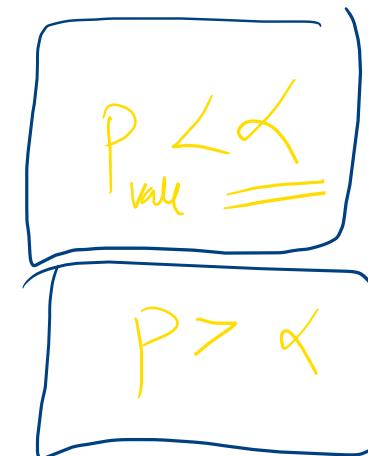
s_3

s_4

s_5

s_n

Pvalue $< 0.5 \rightarrow$ reject null



Pvalue $> 0.05 \rightarrow$ reject alternate

