May 8, 2017

This time: prob. models for means

Next time: ~~sa~~ statistical inference

Draper extra office hour $\boxed{\text{wed.}}$ 1:15 - 2:15pm Jack's Lounge

P(coming out ahead) = $P(S > \$0)$

$= 39\%$

$\boxed{B}$ n = 1000

$\boxed{\text{split}}$

L - 125

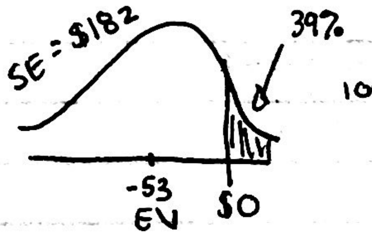
n = 35 single #

$E(S) = 35(-0.05)$ $

$= \$1.84$

$\mu = (\$+17) + (\$+17) + 36(\$-1) = \$-\frac{2}{38}$

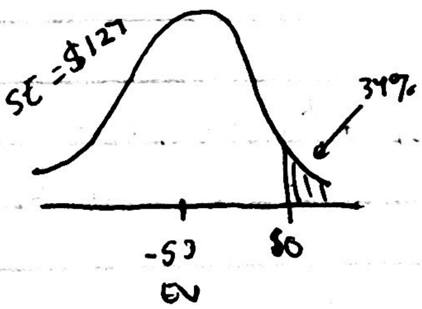
$SE(S) = \sigma\sqrt{n} = \$4.02\sqrt{1000} = \$127$



long run histogram

single #

n = 1,000



ditto, split

Q: which strategy is better?

A: Depending on your degree of risk adversion (B) or risk seeking (A) sample

IID $\rightarrow \begin{bmatrix} \\ \\ \end{bmatrix}$ $\updownarrow n$

sum S $\quad n\bar{y}$

mean $\bar{y} = \dfrac{S}{n}$

p. R-53
CLT
examples

R-55 hypokalemia
case study

L-127

$\left(\text{prob model for mean}\right) + \left(\text{measurement error}\right)$

2 sigfigs	3 sigfig	4 sigfigs
16	16.0	15.97 $\rightarrow$ obs. 1
16	16.0	16.01
⋮	⋮	⋮

stochastic

deterministic: no measurement error

you always get the same answer

~~probolistic~~
probibilistic:
meas. error

basic measurement
error model: ~~obsen~~

$\left(\text{observation } 1\right) = \left(\text{true value}\right) + \left(\text{bias}\right) + \left(\text{"random error 1"}\right)$

$\left(\text{obs. } 2\right) = \left(\text{true value}\right) + \left(\text{bias}\right) + \left(\text{random error } 2\right)$

$\vdots \qquad \vdots$

$\left(\text{obs. } n\right) = \left(\text{true value}\right) + \left(\text{bias}\right) + \left(\text{random error } n\right)$

$\begin{bmatrix} y_1 \\ \\ \\ \end{bmatrix} \quad \begin{bmatrix} \theta \\ \\ \\ \end{bmatrix} + \begin{bmatrix} b \\ \\ \\ \end{bmatrix} \quad \begin{bmatrix} e_1 \\ \\ \\ \end{bmatrix}$

Theta