Sample proportions

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Setting up the populations

First, we set up some proportions in the population of who would be *for* solar panels and who would be *against*.

```
n.pop=3*10^8
opinions=c(rep("for", 0.88*n.pop),rep("against", 0.12*n.pop))
```

Drawing a sample

Then, we draw a sample of size 1000 without replacement.

```
sample.size=1000
srs=sample(opinions, size = sample.size)
```

Finding the point estimate

Now, we find the sample proportion of the number of supporters.

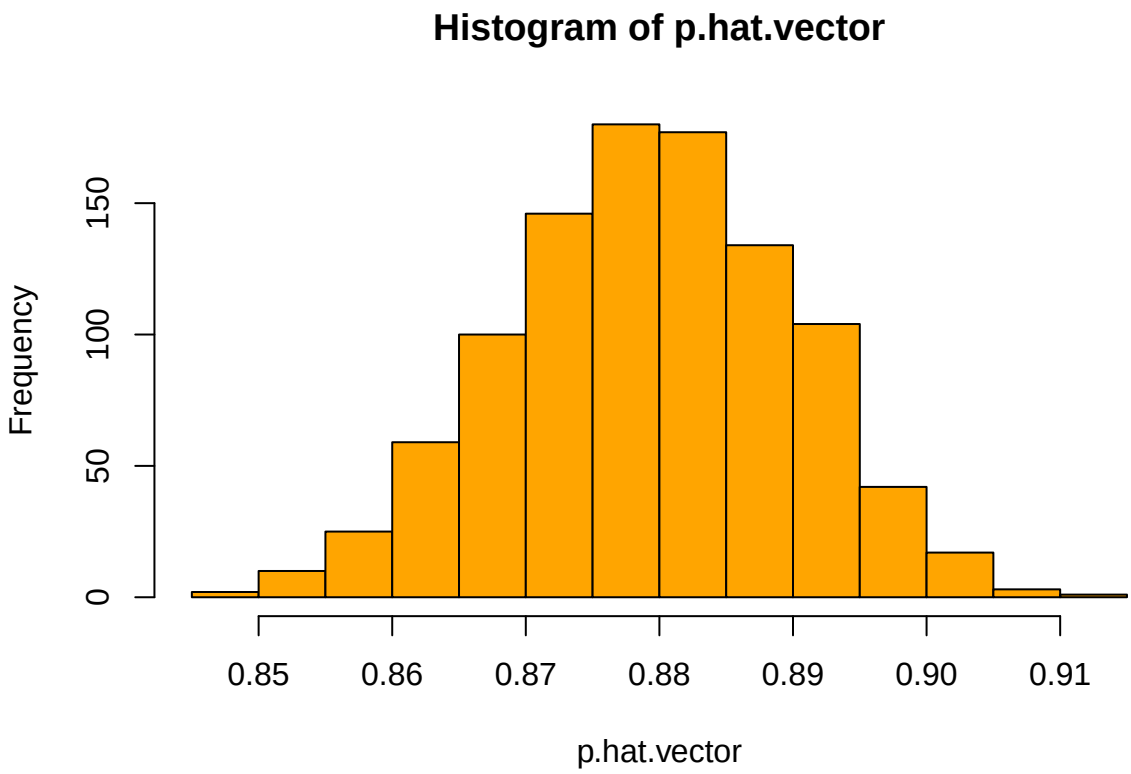
```
p.hat=mean(srs=="for")
p.hat
```

```
## [1] 0.86
```

What if we repeat this procedure, say, 1000 times?

Finally, let's see what the shape of the sampling distribution of the sample proportion is.

```
p.hat.vector=numeric()
for (i in 1:1000){
    srs=sample(opinions, size = sample.size)
    p.hat=mean(srs=="for")
    p.hat.vector=append(p.hat.vector,p.hat)
}
hist(p.hat.vector, col="orange")
```


Histogram of p.hat.vector
Frequency
0
50
100
150
0.85
0.86
0.87
0.88
0.89
0.90
0.91
p.hat.vector