Intro to R - the Stats

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Basic statistics in R

Reading in some data

- Let's read in some data from the internets:

```
# Data is available on this course's github page:
# github.com/jabranham/math-camp
# Data from Herrera et al (forthcoming, AJPS)
my_data <- read.dta("data/herrera-data.dta")
my_data$fptp <- as.logical(my_data$fptp)
```

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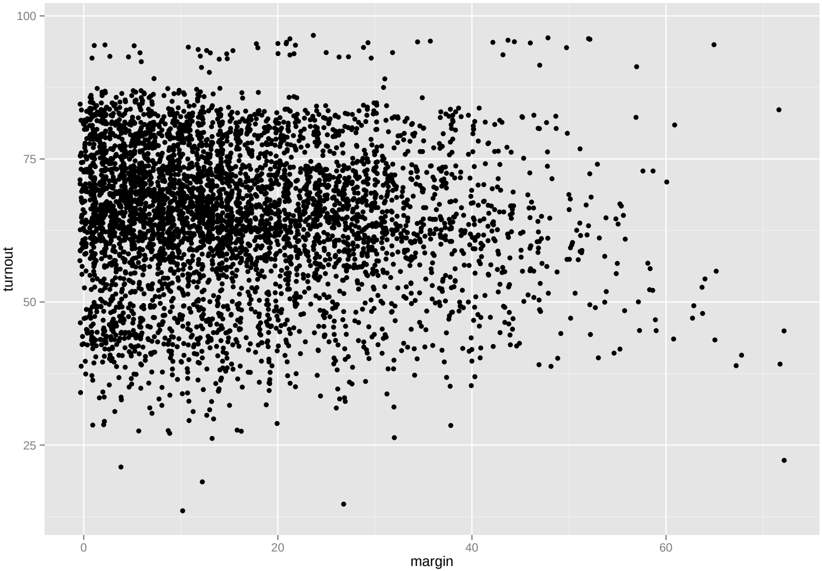
- ppi: parliamentary power index

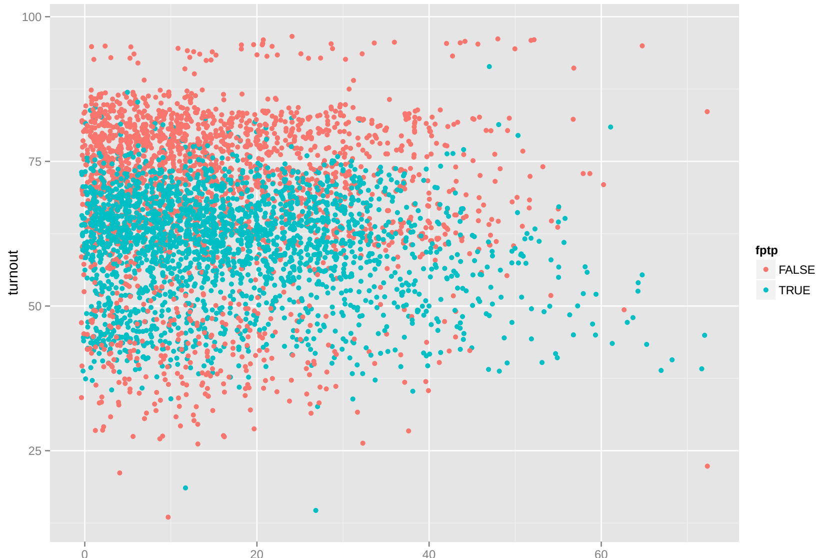
First step: Plot your data!

```
ggplot(my_data, aes(margin, turnout)) + geom_jitter()
```



Maybe it looks different in FPTP systems?

```r
ggplot(my_data, aes(margin, turnout, color=fptp)) +
  geom_jitter()
```



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    - Personally, I prefer `dplyr`

The code

```r
mean_fptp <- with(my_data, mean(turnout[fptp==TRUE]))
mean_notfptp <- with(my_data, mean(turnout[fptp==FALSE]))
c(mean_fptp, mean_notfptp)
```

```
## [1] 60.25896 69.64283
```

Maybe we want uncertainty too. . .

```r
sd_fptp <- with(my_data, sd(turnout[fptp==TRUE]))
sd_notfptp <- sd(my_data$turnout[my_data$fptp==FALSE])
c(sd_fptp, sd_notfptp)
```

```
## [1]  9.293468 13.688340
```

There's a formal test

- Tests whether the mean is statistically different from each other

```r
t.test(my_data$turnout[my_data$fptp==TRUE],
  my_data$turnout[my_data$fptp==FALSE])
```

```
##
##  Welch Two Sample t-test
##
## data:  my_data$turnout[my_data$fptp == TRUE] and my_data$turn
## t = -27.097, df = 3933.7, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal
## 95 percent confidence interval:
##  -10.062820  -8.704922
## sample estimates:
## mean of x mean of y
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- Tests whether the mean is statistically different from each other
- LOTS more of this in Stats I

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