

R for Advanced Users

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12th December 2014

Dataset manipulation (1)

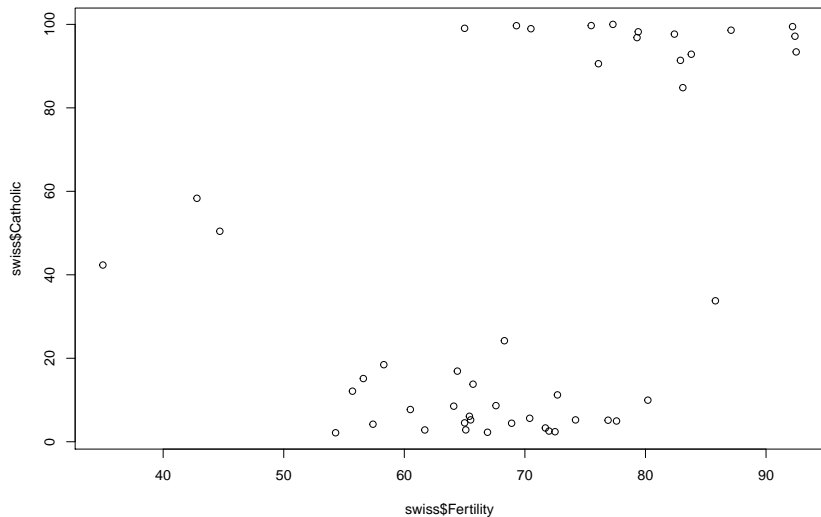
- ▶ Swiss Fertility and Socioeconomic Indicators back in 1888
-> Look at the dataset “swiss”

```
str(swiss)
```

```
## 'data.frame':    47 obs. of  6 variables:
## $ Fertility      : num  80.2 83.1 92.5 85.8 76.9 76.1
## $ Agriculture    : num  17 45.1 39.7 36.5 43.5 35.3 70
## $ Examination    : int  15 6 5 12 17 9 16 14 12 16 ...
## $ Education      : int  12 9 5 7 15 7 7 8 7 13 ...
## $ Catholic       : num  9.96 84.84 93.4 33.77 5.16 ...
## $ Infant.Mortality: num  22.2 22.2 20.2 20.3 20.6 26.6
```

Dataset manipulation (2)

► Fertility vs. Catholic?



Dataset manipulation (3)

-Correlation?

```
##
```

```
## Pearson's product-moment correlation
```

```
##
```

```
## data:  swiss$Fertility and swiss$Catholic
```

```
## t = 3.5107, df = 45, p-value = 0.001029
```

```
## alternative hypothesis: true correlation is not equal to 0
```

```
## 95 percent confidence interval:
```

```
##  0.2036326 0.6626204
```

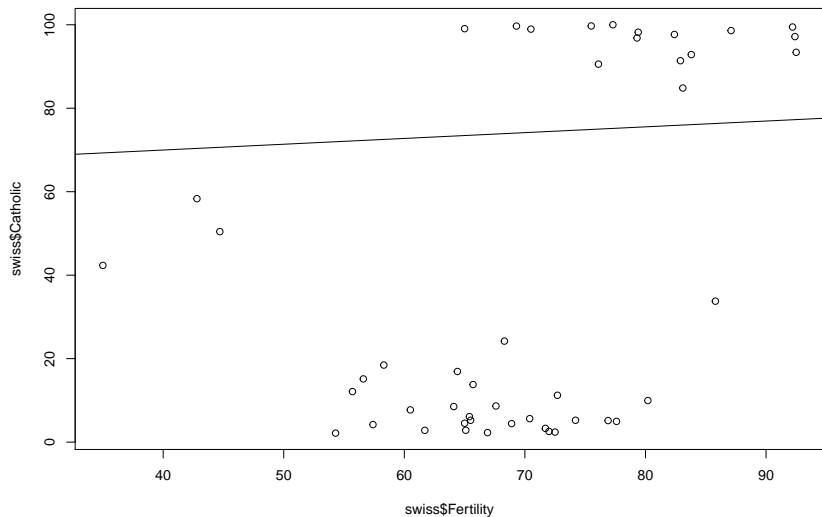
```
## sample estimates:
```

```
##          cor
```

```
## 0.4636847
```

-Yes! (Really?)

Dataset manipulation (4)



-No!

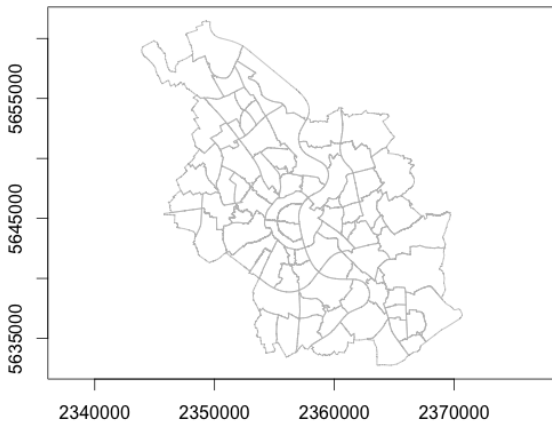
Spatial Analysis

- ▶ Producing maps in R is easy
- ▶ We need: Geographical data for a map and content data
- ▶ Open the R.script “advanced.R”

Doing the analysis

- ▶ The city of Cologne publishes data covering a lot of topics such as:
 - Where can dog owners receive dog waste bags?
 - Where can you leave your christmas tree after christmas?
 - but also: unemployment rates, election results in its administrative districts

We first need geographic data

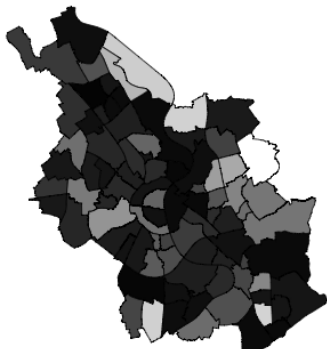


... and

content

Then we draw the map

Population density 2012



Now I proudly present. . .

Some more lessons from wizard Adel