

# Visions

– Often the simplest way to tell a story is a picture  
by Ralf Martin ([r.martin@imperial.ac.uk](mailto:r.martin@imperial.ac.uk))



# Plan for this lecture

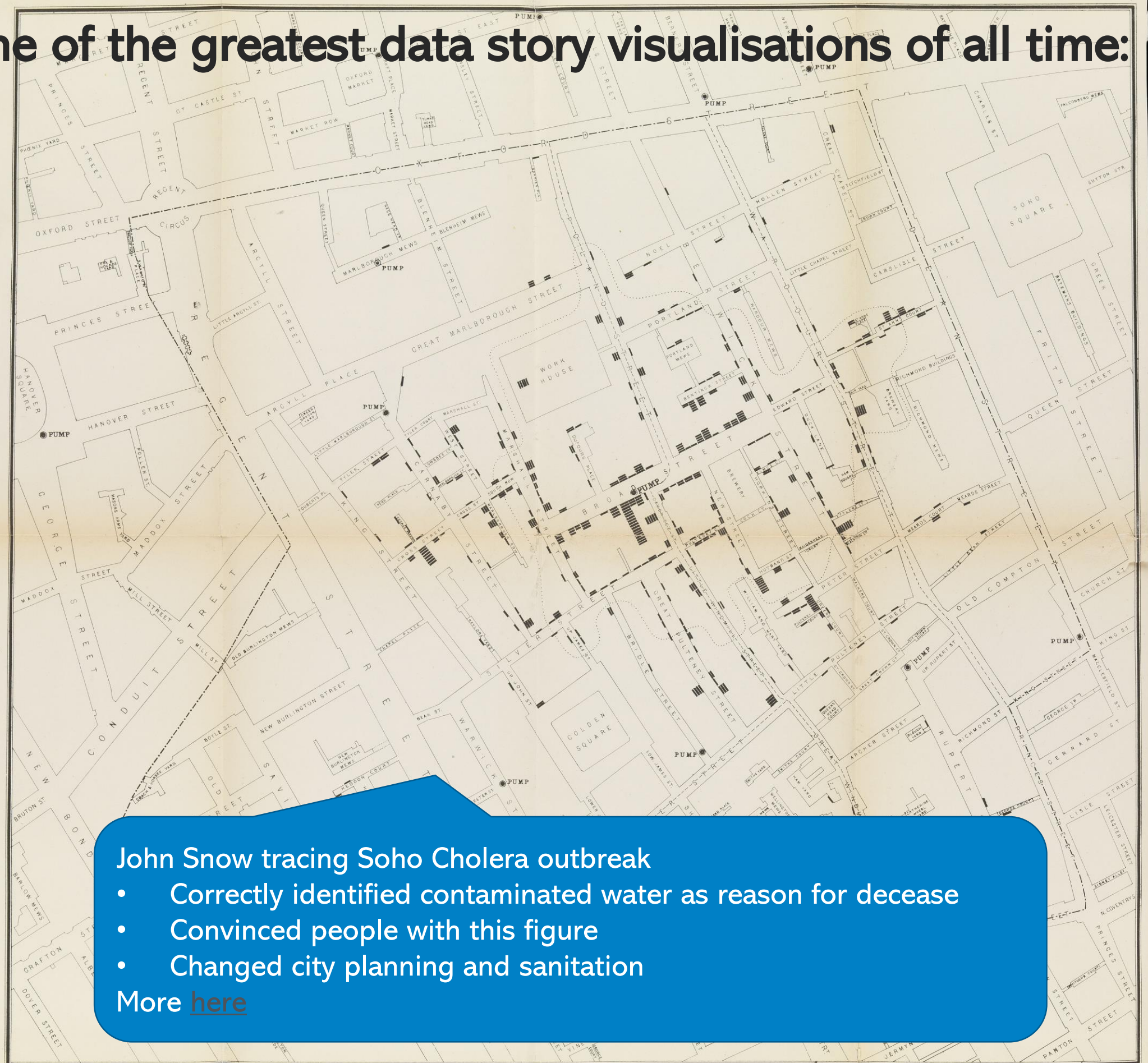
*The good, the bad, the ugly and how to make things better*

- Good data visualisations are a great way of telling a story
- Let's look at some examples
- Let's learn some R commands for visualisations
- Let's try to make some new visualisations

In part based on lecture notes by  
Richard Davies



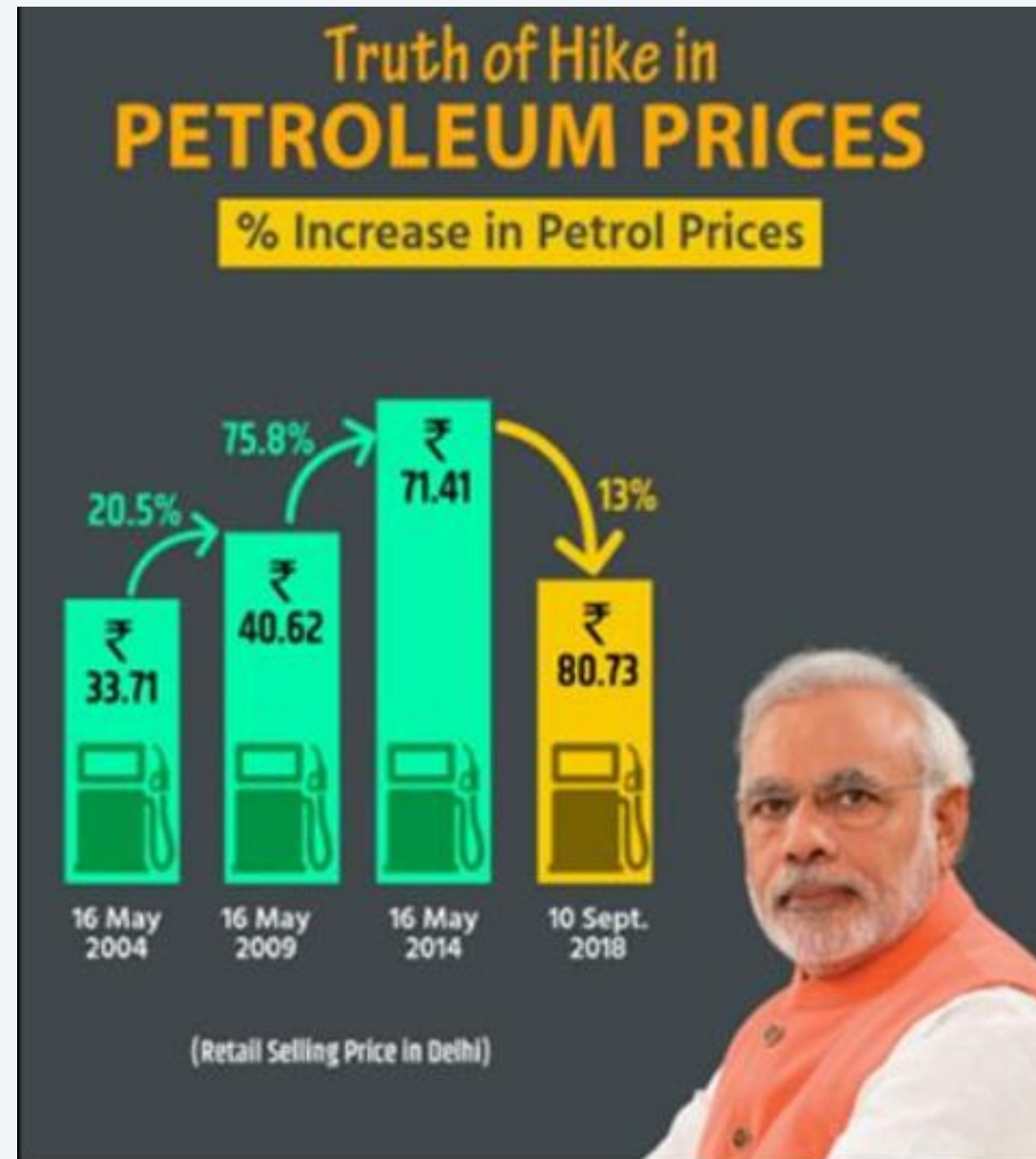
# One of the greatest data story visualisations of all time:



# The bad - What can go wrong?

- Deliberate misleading

Pretending prices have come down when they haven't



More [here](#)



# The bad - What can go wrong?

- Deliberate misleading
- Incompetence

From the US State of Georgia

July 2

July 17

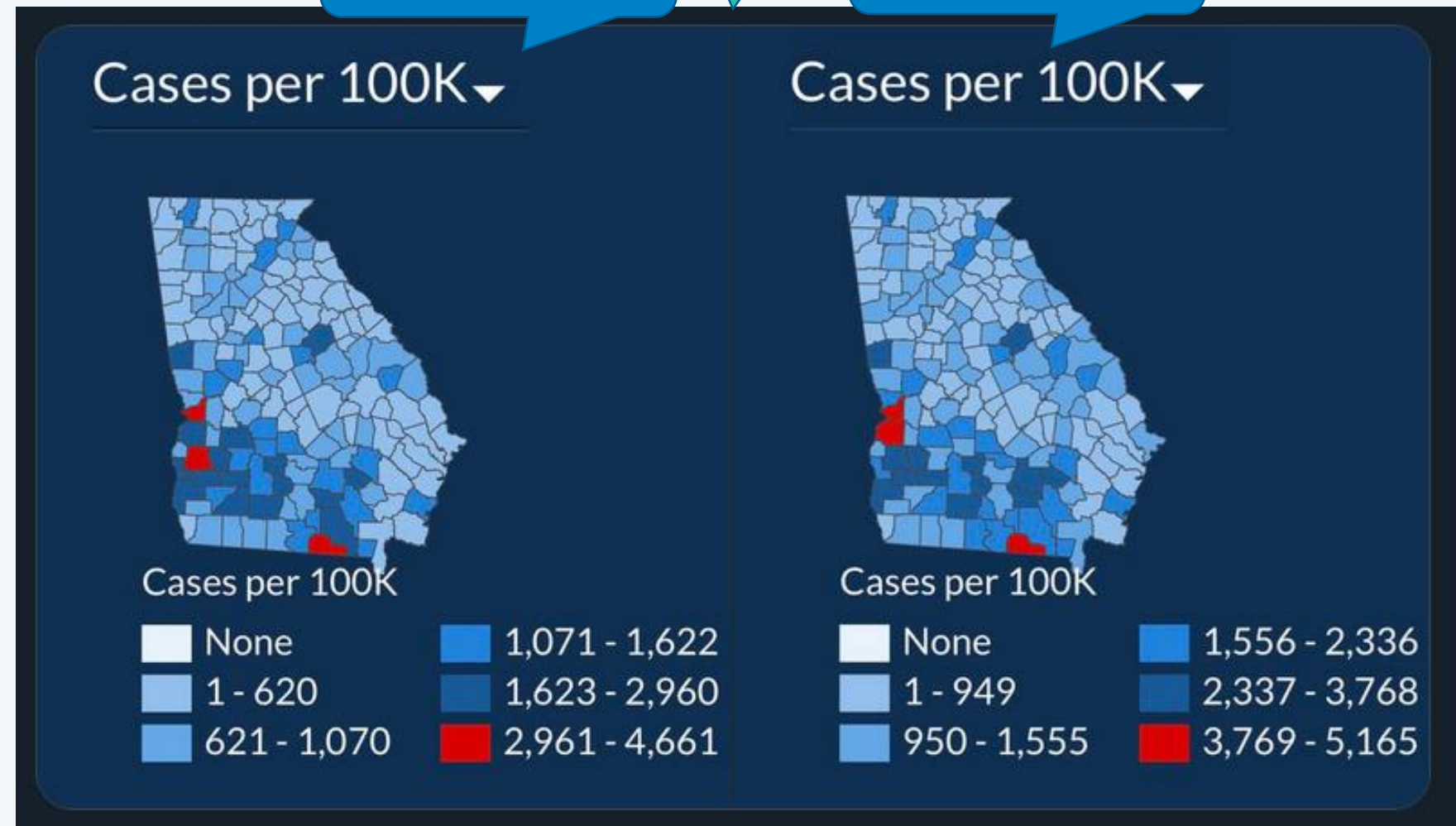
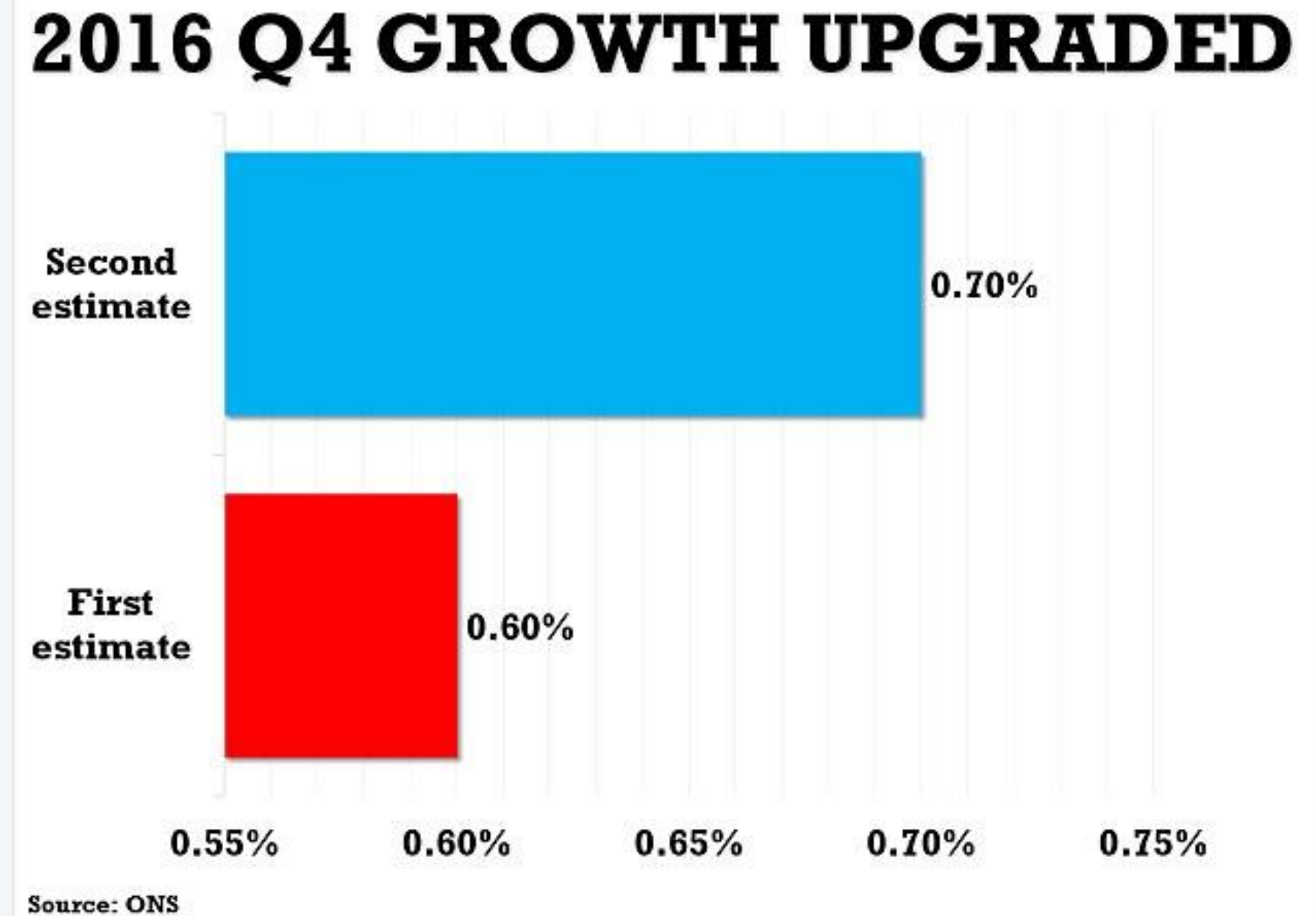


Figure seems to tell the story that COVID situation hasn't changed much (when it has)

More [here](#)

# The bad - What can go wrong?

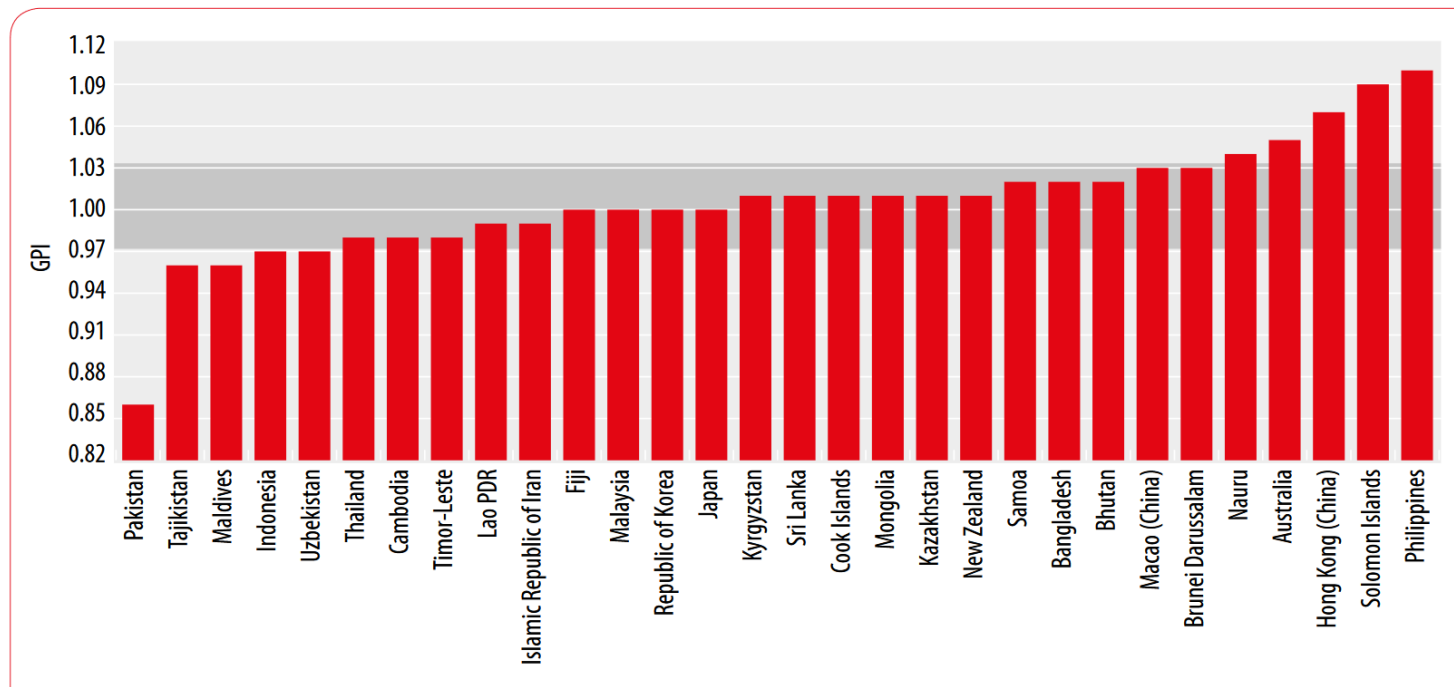
- Deliberately misleading



Pretending that something is a bigger deal (when it isn't)

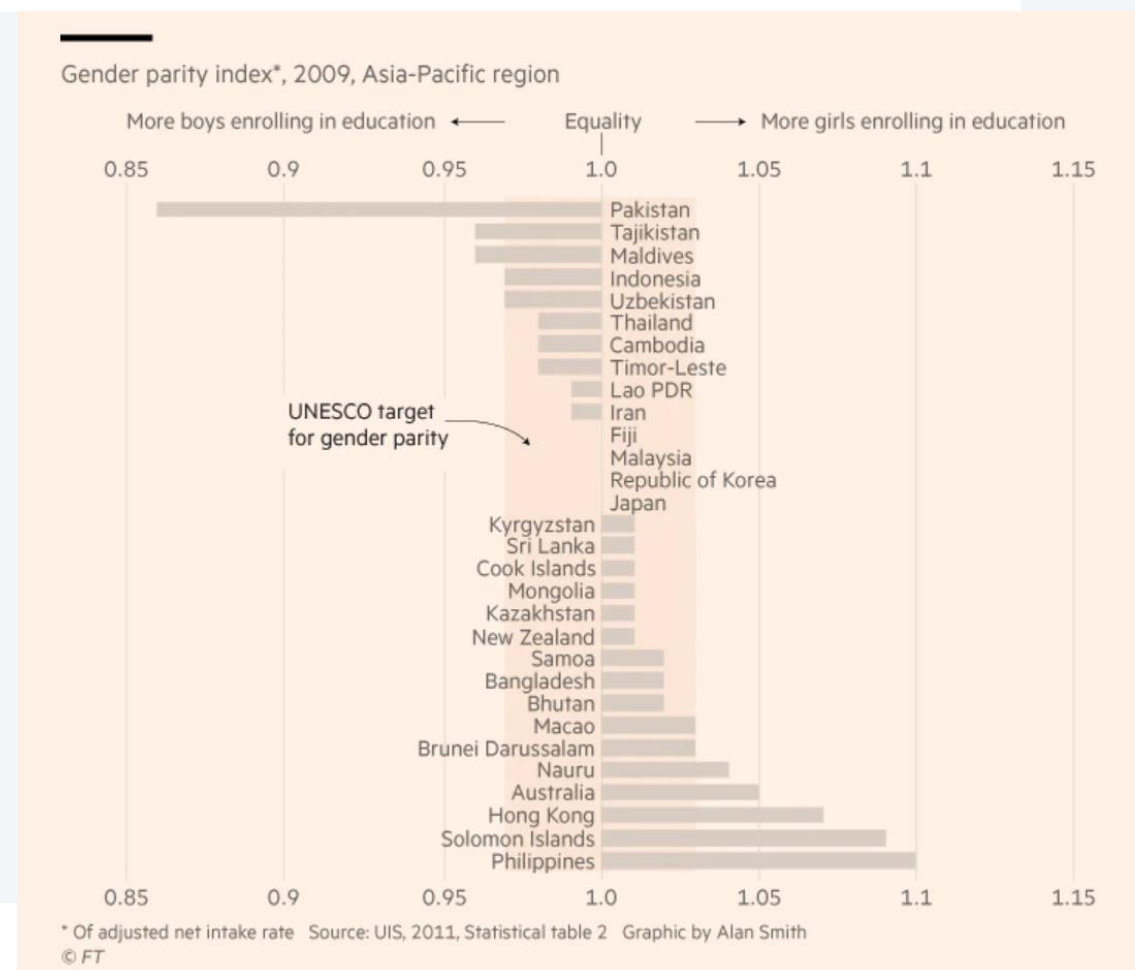
# The bad – What can go wrong?

**Figure 7:** Gender Parity Index of the adjusted net intake rate in primary education, 2009



Source: UIS, 2011, Statistical Table 2.

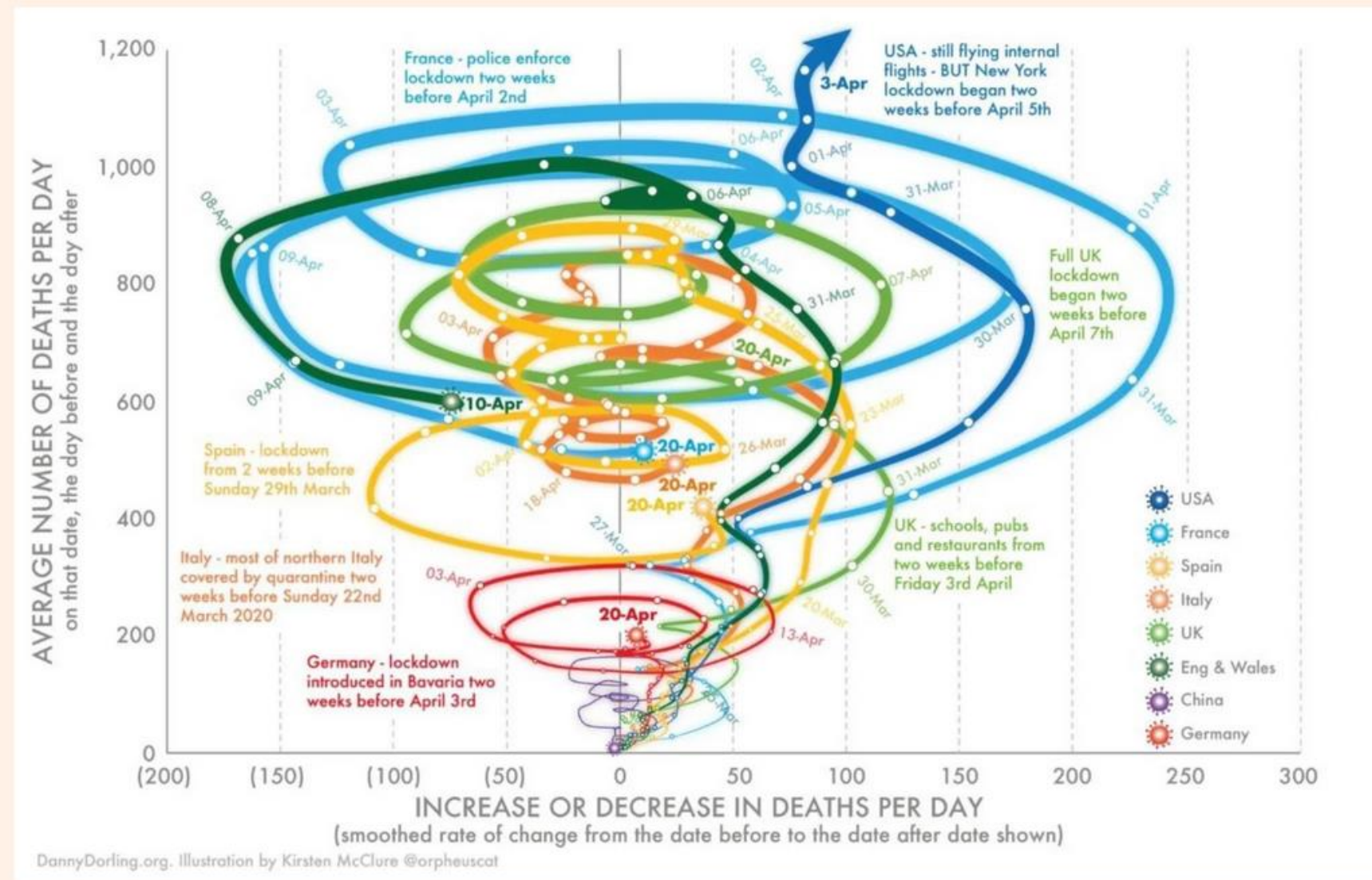
Looks like the Philippines are doing best?



This might be a better way (more discussion [here](#))

# The bad – What can go wrong?

There are axes of evil and then there's...



Looks kind of cool but what does it tell us?  
For many more examples consult the [FT's chart doctor](#)



# R visuals – Let's get some data for examples

```
library(dplyr)
stats=read.csv("https://www.dropbox.com/s/8w4zbg40y84pnqk/statslong.csv?dl=1")

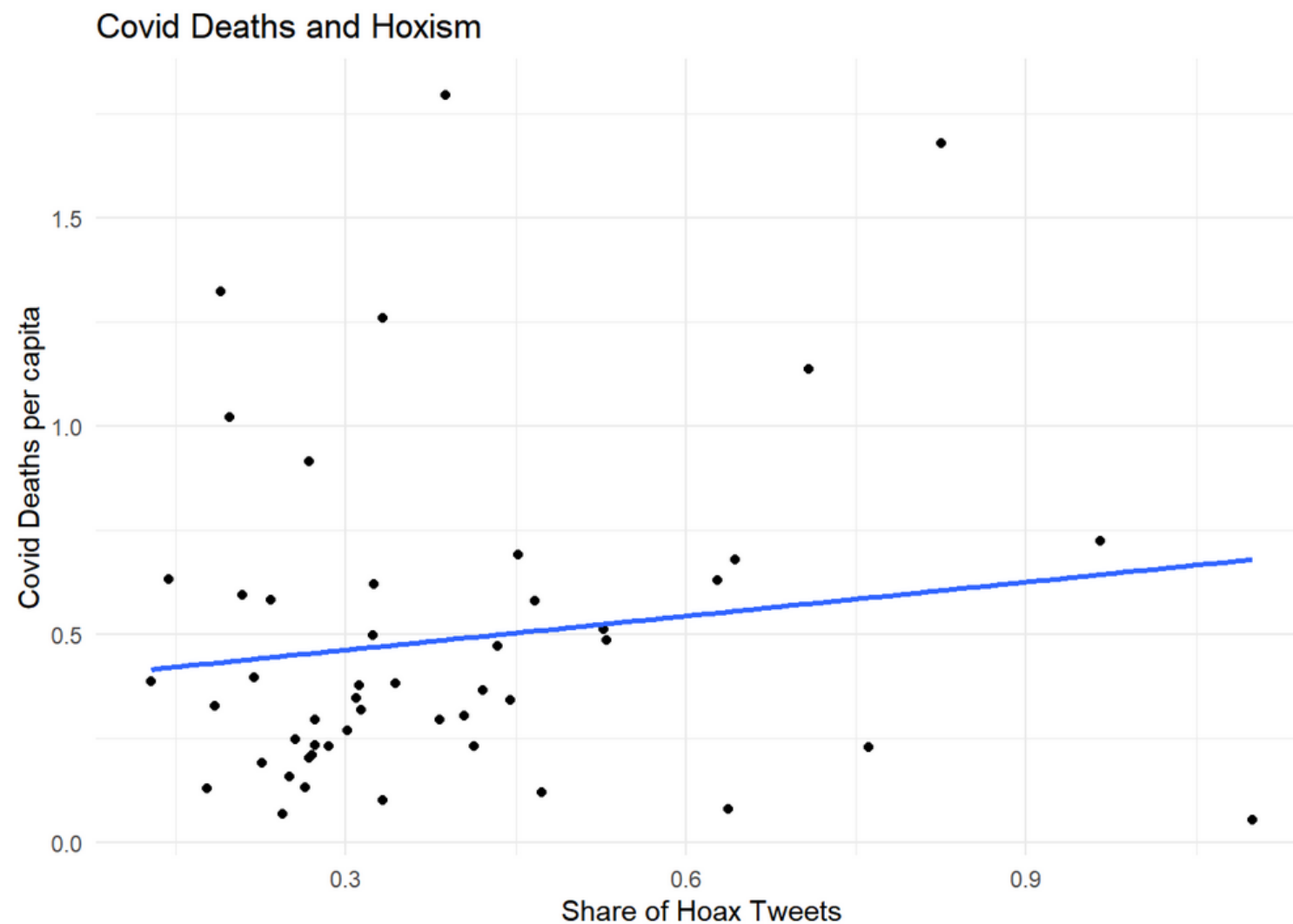
# Creating some extra variables
stats=stats%>%mutate(  pop=pop/1000,
                        hoaxshXdensity=(hoaxsh)*(density-mean(density)),
                        tweetsPCXdensity=(tweetsPC)*(density-mean(density))
                      )
```

- Data on COVID hoaxism
- Rmd file with code for this lecture
- html file



# Scatter ggplot– The relationship between COVID hoaxism and deaths

```
library(ggplot2)
ggplot(stats,aes(x=hoaxsh, y=deathsPC))+
  geom_point() +
  theme_minimal()+
  xlab("Share of Hoax Tweets") +
  ylab("Covid Deaths per capita") +
  geom_smooth(method = "lm", se = FALSE)+
  ggtitle("Covid Deaths and Hoxism")
```





# Adding twists to your scatter plot story

- If hoaxism causes deaths we might expect this to be worse in more densely populated regions

```
stats=stats %>%mutate(dens_quart=cut(density,  
                                breaks=quantile(density, probs=seq(0,1, by=0.25), na.rm=TRUE),  
                                include.lowest=TRUE))
```

Creating quartile bins of the population density variables

```
stats %>% group_by(dens_quart) %>% summarise(mean(deathsPC))
```

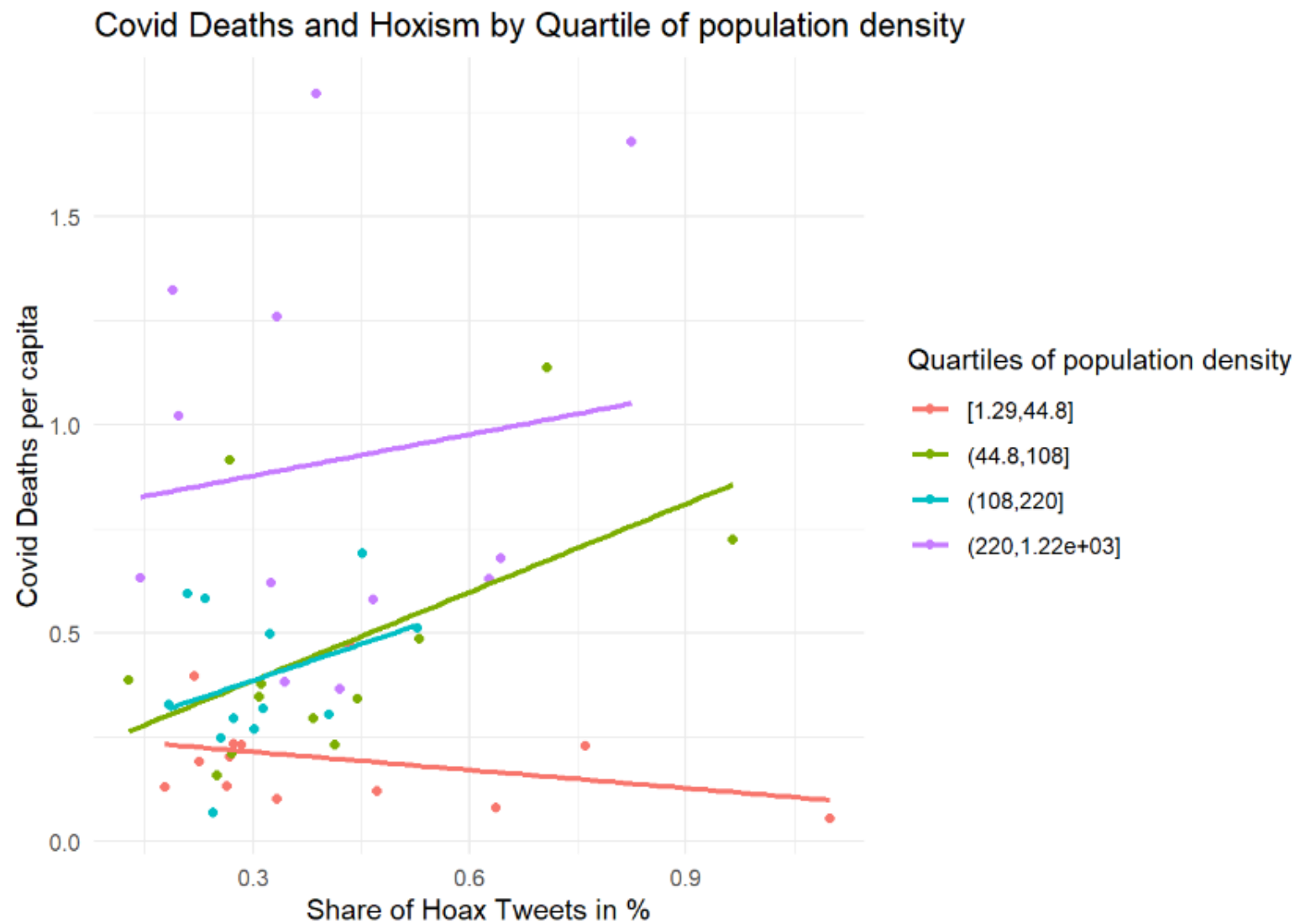
```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
## # A tibble: 4 x 2  
##   dens_quart    `mean(deathsPC)`  
##   <fct>          <dbl>  
## 1 [1.29,44.8]    0.198  
## 2 (44.8,108]    0.468  
## 3 (108,220]     0.393  
## 4 (220,1.22e+03] 0.914
```

# A lot more story with very little more code

```
ggplot(stats,aes(x=hoaxsh, y=deathsPC, color=dens_quart))+  
  geom_point() +  
  theme_minimal()+  
  xlab("Share of Hoax Tweets in %") +  
  ylab("Covid Deaths per capita") +  
  geom_smooth(method = "lm", se = FALSE)+  
  ggtitle("Covid Deaths and Hoxism by Quartile of population density") +  
  guides(color=guide_legend(title="Quartiles of population density"))
```

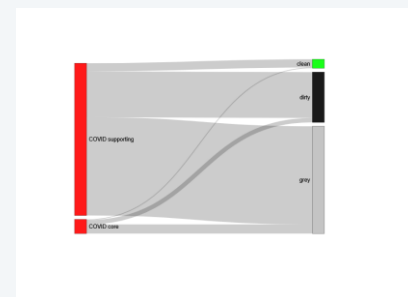
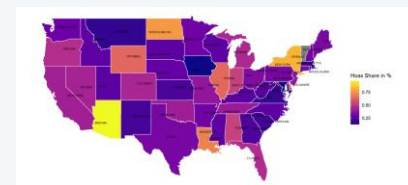
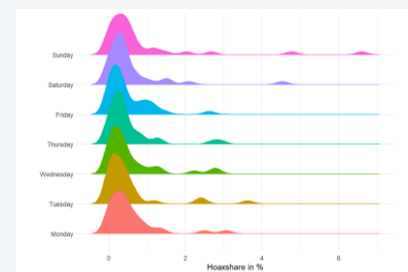
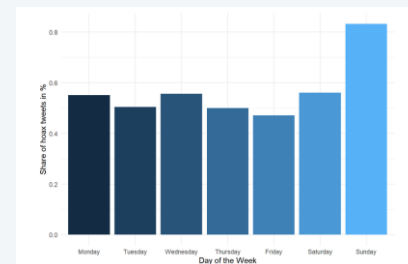
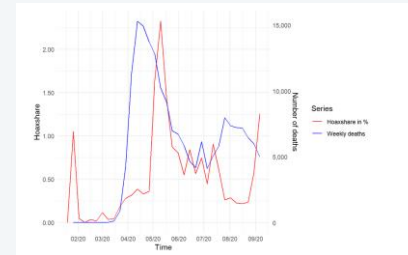
That's all





# More visions (check [here](#))

- Time Series
  - More is not always better
- Bar chart
- Histogram
  - Density histogram
- Density Plot
- Map
- Integrating javascript



# Takeaways



- R is great for doing visualisations
- Have a go yourself:
  - Find some data
  - Make a nice diagram with R Markdown
  - Tell some story with it (With R Markdown)
  - Post to R Pubs as well as the Datathon Visualisation Challenge 2020
- To find data you can have a look at the Data Resources Channel
- If you are on twitter you can share @datastoriesshub