

# Choosing the right chart & misleading with data

# Choosing the right chart

# Text

- Simple
- Concise
- Clear message

—  
**63 pct tjener mindre end 30.000 kr.**

Min løn ligger 13 pct. point højere på indkomstskalaen end mit gæt.

# Table

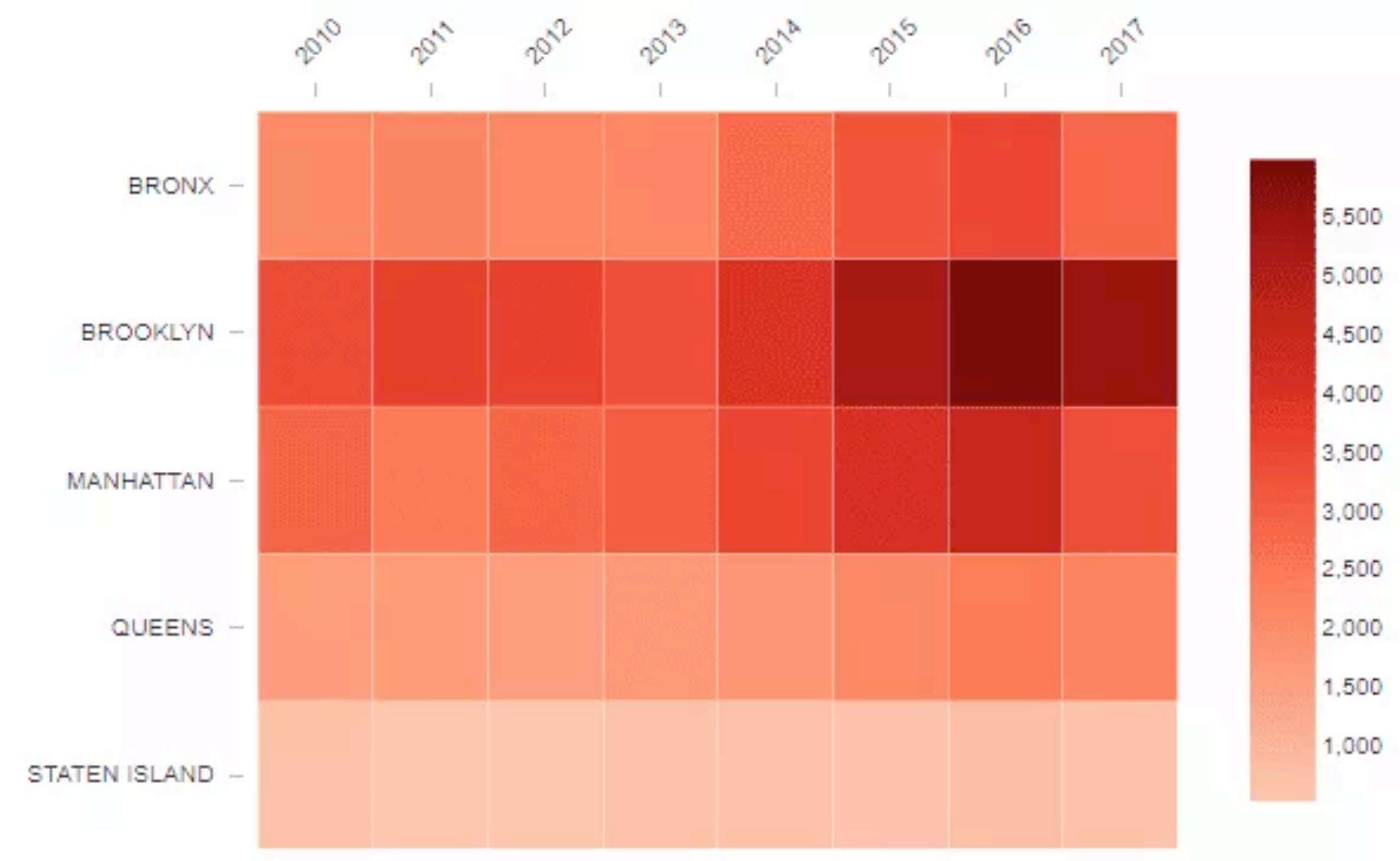
- Exploratory
- Hard to control narrative
- Can be boring
- Most people understands tables

	Bank loan monthly payments	Monthly lease payment	Minimum downpayment for lease	Total interest paid over 48 months	Monthly insurance payment
Ford Fusion	552	395	0	2,529	180
Honda Civic	538	424	0	2,466	236
Mazda 3	506	478	1,000	2,318	251
Toyota Yaris	435	490	1,000	1,992	198
VW Golf	596	550	2,500	2,730	244

# Heatmap

- Visualise data in tabular form
  - Leverage color encodings for brain to quickly interpret data
  - Use for relationships
  - Remember a good color choice and label explaining colors!  
<https://colorbrewer2.org/>  
#type=sequential&scheme=BuGn&n=3

# Heatmap



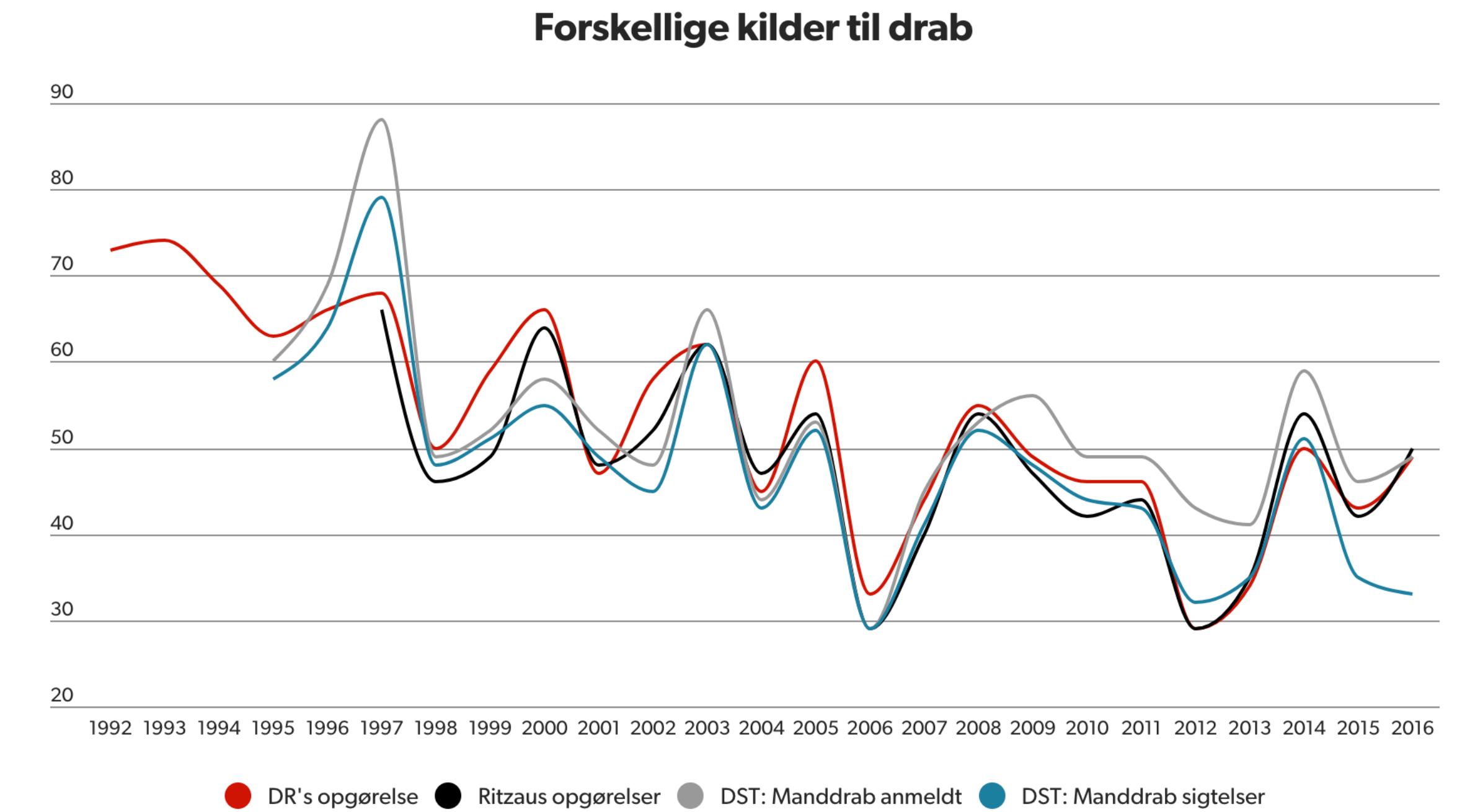
# Scatterplot

- Show relationship between two variables
- Often used in scientific fields
- Good for large number of datapoints



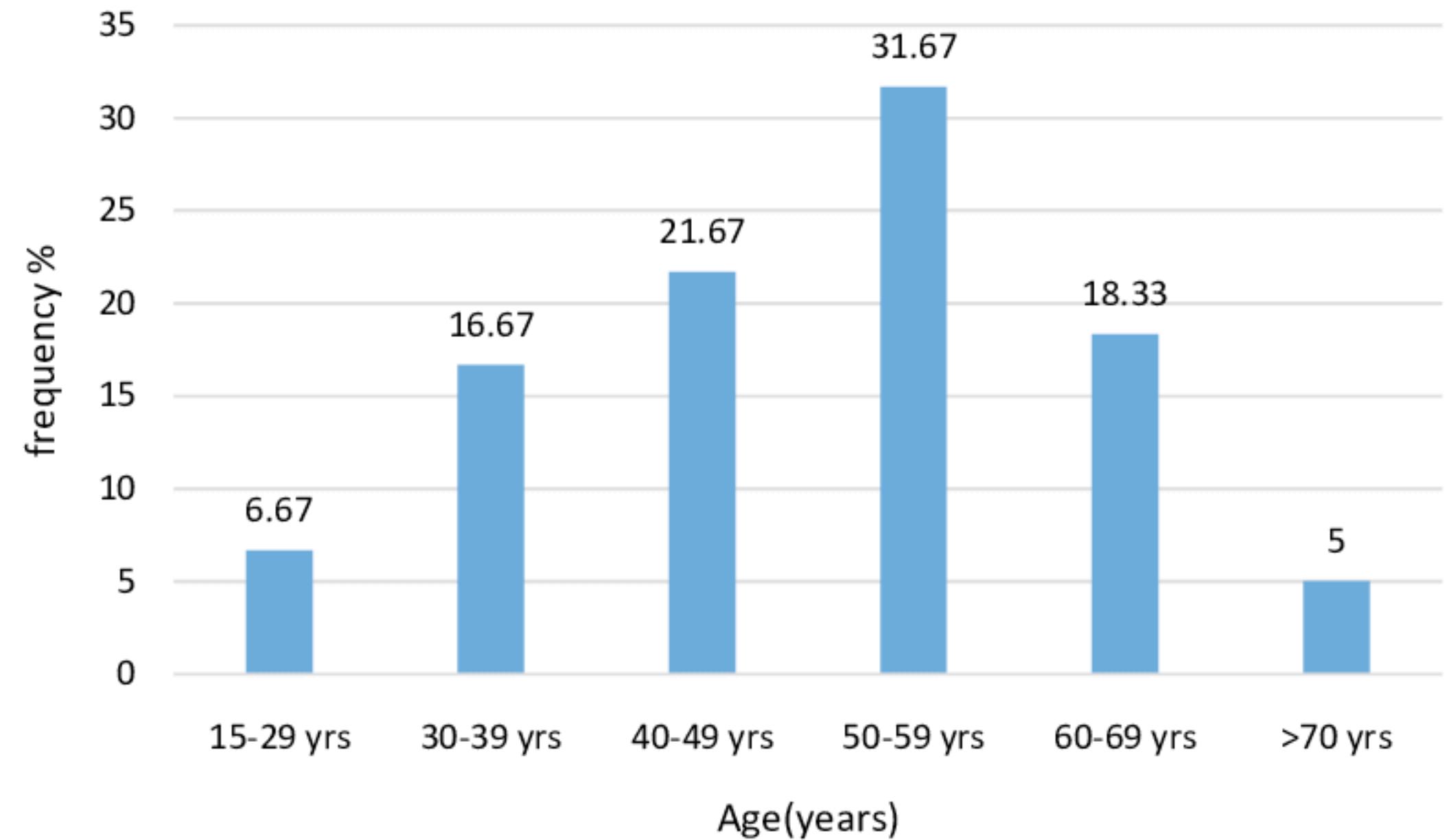
# Linechart

- Continuous data. Very often over time
- Communicates data in-between points
- Single or multiple series
- Start y-axis at 0!



# Barchart

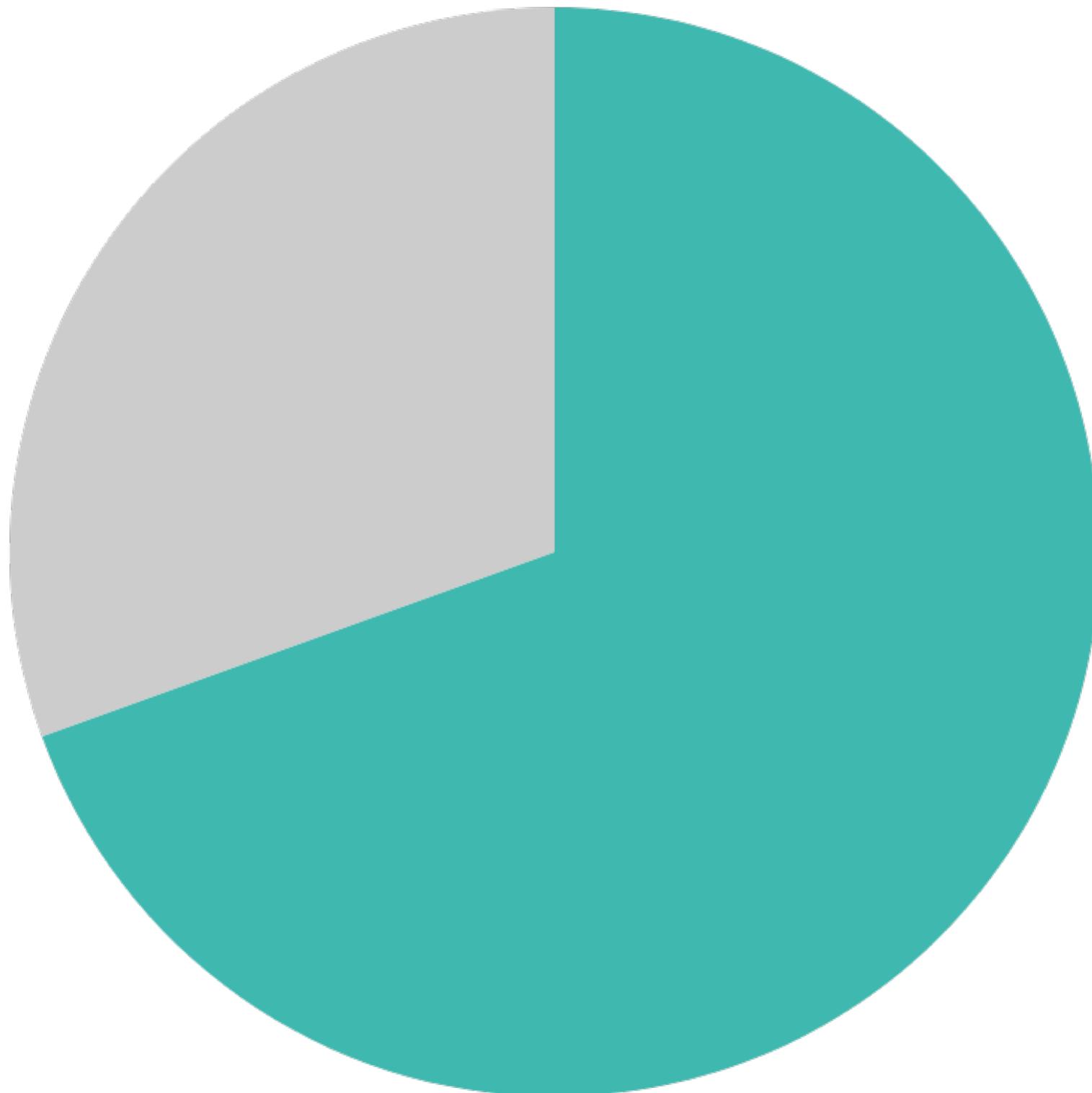
- Low learning curve
- Easy to read
- Be aware of Y-axis!
- Compare data across categories
- Different types (stacked vertical, horizontal, multiple series)



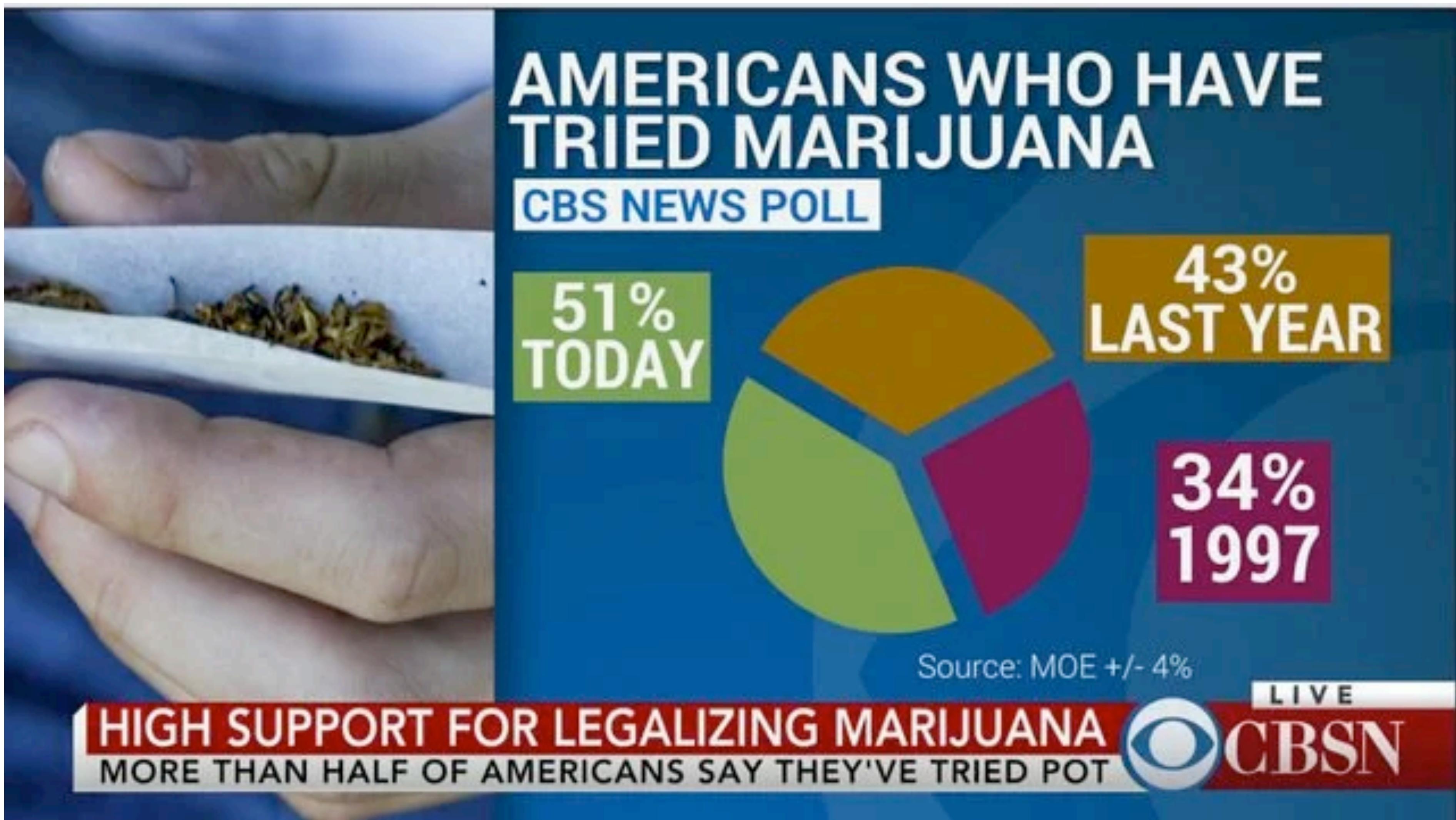
# Piechart

- Compare different categories
- No more than 5 categories
- Be very aware of what you are communicating!

vaccinerede      Ikke vaccinerede

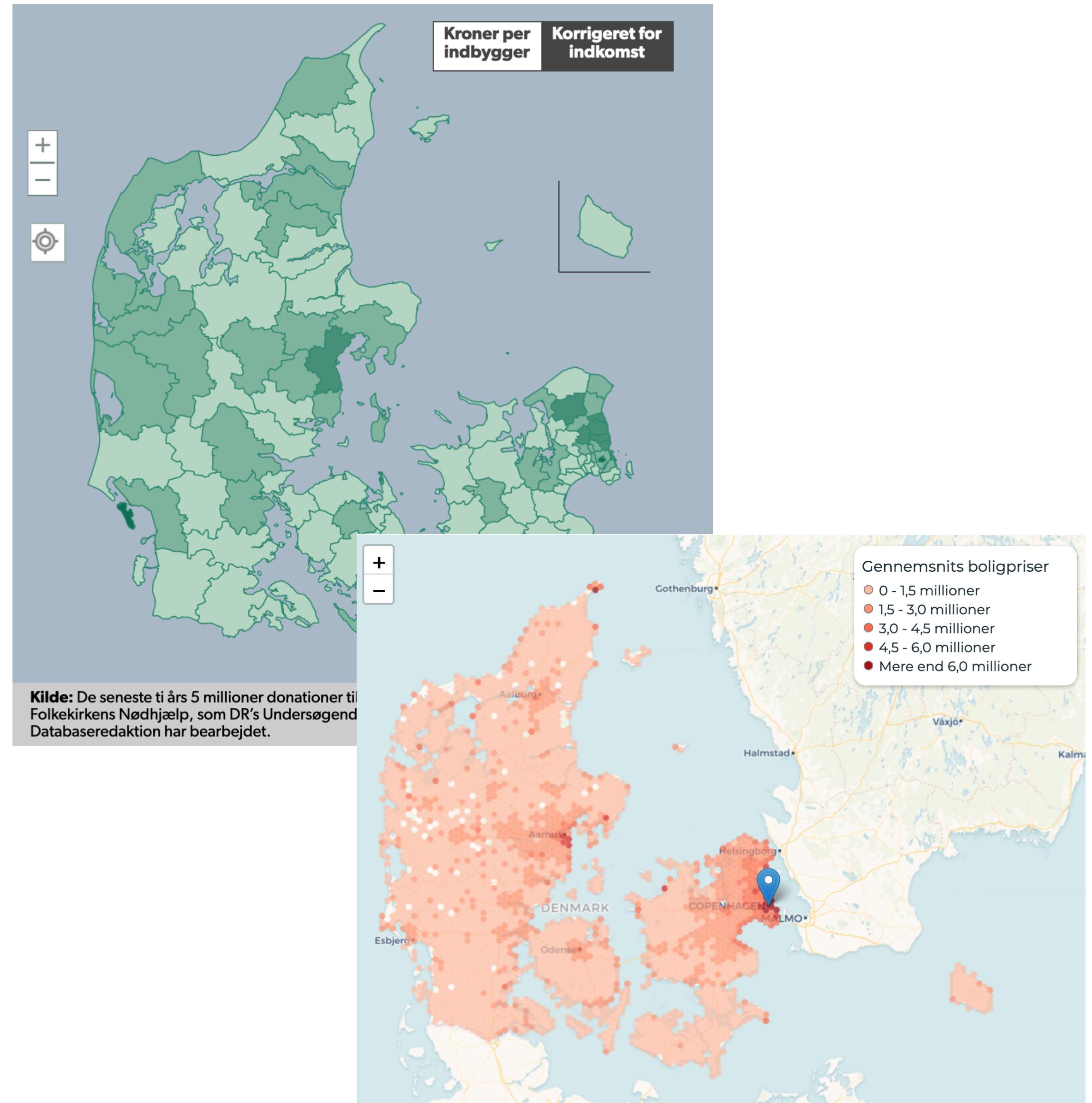


# Piechart



# Mapchart

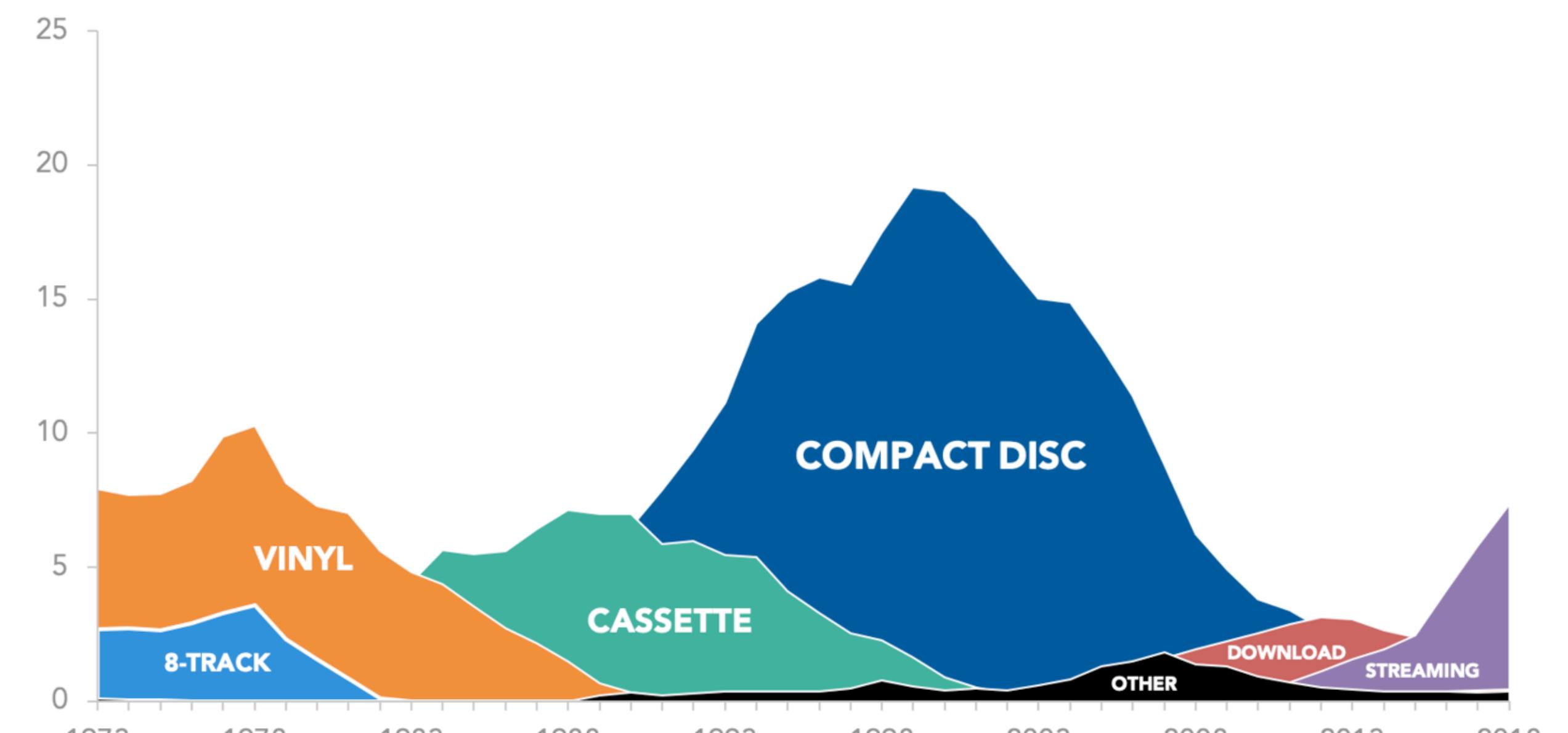
- Good for geographical data
- Often a bit more exploratory
- Can communicate very clearly
- [https://colorbrewer2.org/  
#type=sequential&scheme=BuG  
n&n=3](https://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3)



# Area

- Rise and fall of data series
- Emphasise Part-to-whole
- Not good for volatile data sets
- Not good for fine differences

US music sales by format (inflation-adjusted)  
IN BILLIONS (USD)



SOURCE: Recording Industry Association of America

# Word cloud

- Fun
  - Very visual
  - Exploratory
  - Can be hard to interpret



## Word cloud displaying the most frequently used words in the titles of collected articles

# Tips

- Dont use 3D!
- Avoid secondary Y-axis in line chart!
- Strongly consider when using circle diagram!

**So how to choose?**

What do you want to say?



# How to choose 2

- Not an exact science!
- Cheat sheet
- What is the right graph? The one that is easiest for your audience to understand!
- Let's try ChatGPT





Posted by u/ThinIntention1 1 year ago



**21 How do you determine/choose WHICH visualization to pick?**



**Question**

So I normally go with my intuition and based on graphs which i have seen before and then pick ,my visualizations.

But is there a formal way? How do you pick and choose which type of visualization you would use?



DVRCD · 1 yr. ago

Great Questions. Generally, I approach it by working backward with what I am trying to communicate or what analytic question I am answering. Each graph has unique features that make using them preferable to other graphs. For example, if you are trying to communicate trends over time, a line graph is a good place to start, sales across regions then maybe using a clustered bar chart is a good starting point.

The more you work with various visualizations, the more you will refine your intuition.

If you are unsure, try to create and then compare different but similar charts, pause, and ask yourself, 'as a viewer, what are different ways to read or interpret these two charts. Picking up on those differences will help develop a stronger awareness of how each chart and chart element function and communicate.



ExPorkie15 · 1 yr. ago

Can't go wrong with pie chart. 🎉



15



Reply



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Report



Save



# Exercise 1

Using the following data create charts to show the following points  You can just draw the graph or create using excel

- Chrome is in 2018 the most used browser
- Opera has gained traction the last couple of years
- In 2016 IE and Firefox has equal amounts of data
- More than half of users come from their mobil in 2018

The users are young top of class students from 18-30

Send them to [behu@kea.dk](mailto:behu@kea.dk)

# Browser usage

- Find the data at Ressources -> 1. Semester -> Datavisualisering -> 02-choosing-the-right-graph -> browser-usage.xlsx or browser-usage.numbers

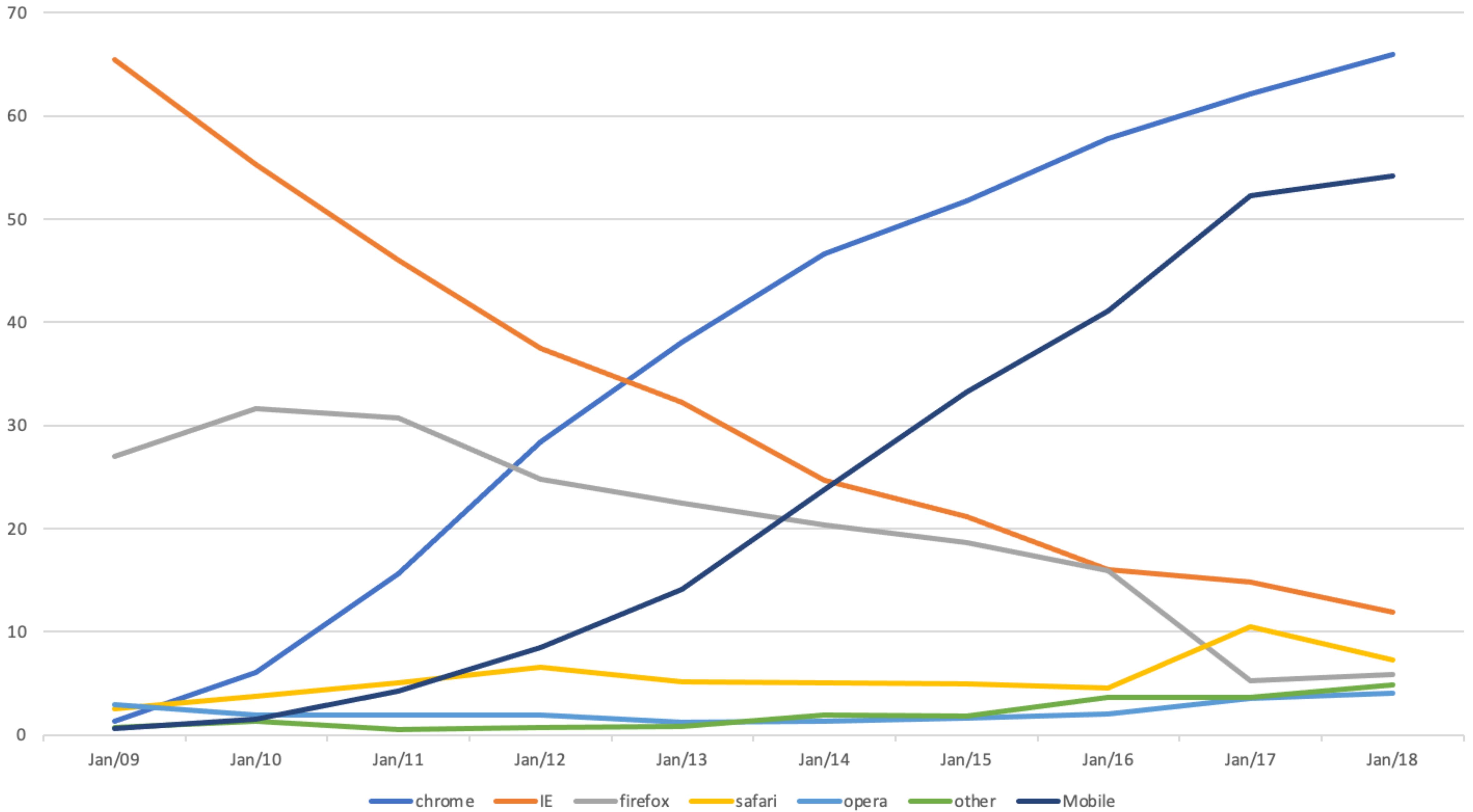
Table 1

date	chrome	IE	firefox	safari	opera	other	
Jan/18	65,98	11,87	5,87	7,28	4,11	4,88	54,20
Jan/17	62,09	14,85	5,28	10,49	3,58	3,71	52,28
Jan/16	57,75	16,00	15,95	4,60	2,03	3,68	41,04
Jan/15	51,72	21,16	18,70	4,94	1,67	1,81	33,24
Jan/14	46,60	24,65	20,39	5,09	1,32	1,96	23,77
Jan/13	38,08	32,25	22,47	5,12	1,22	0,86	14,13
Jan/12	28,40	37,45	24,78	6,62	1,95	0,79	8,49
Jan/11	15,68	46,00	30,68	5,09	2,00	0,55	4,30
Jan/10	6,04	55,25	31,64	3,76	2,00	1,31	1,56
Jan/09	1,38	65,41	27,03	2,57	2,92	0,70	0,67

Table 1-1

Mobile
54,20
52,28
41,04
33,24
23,77
14,13
8,49
4,30
1,56
0,67

Chart Title

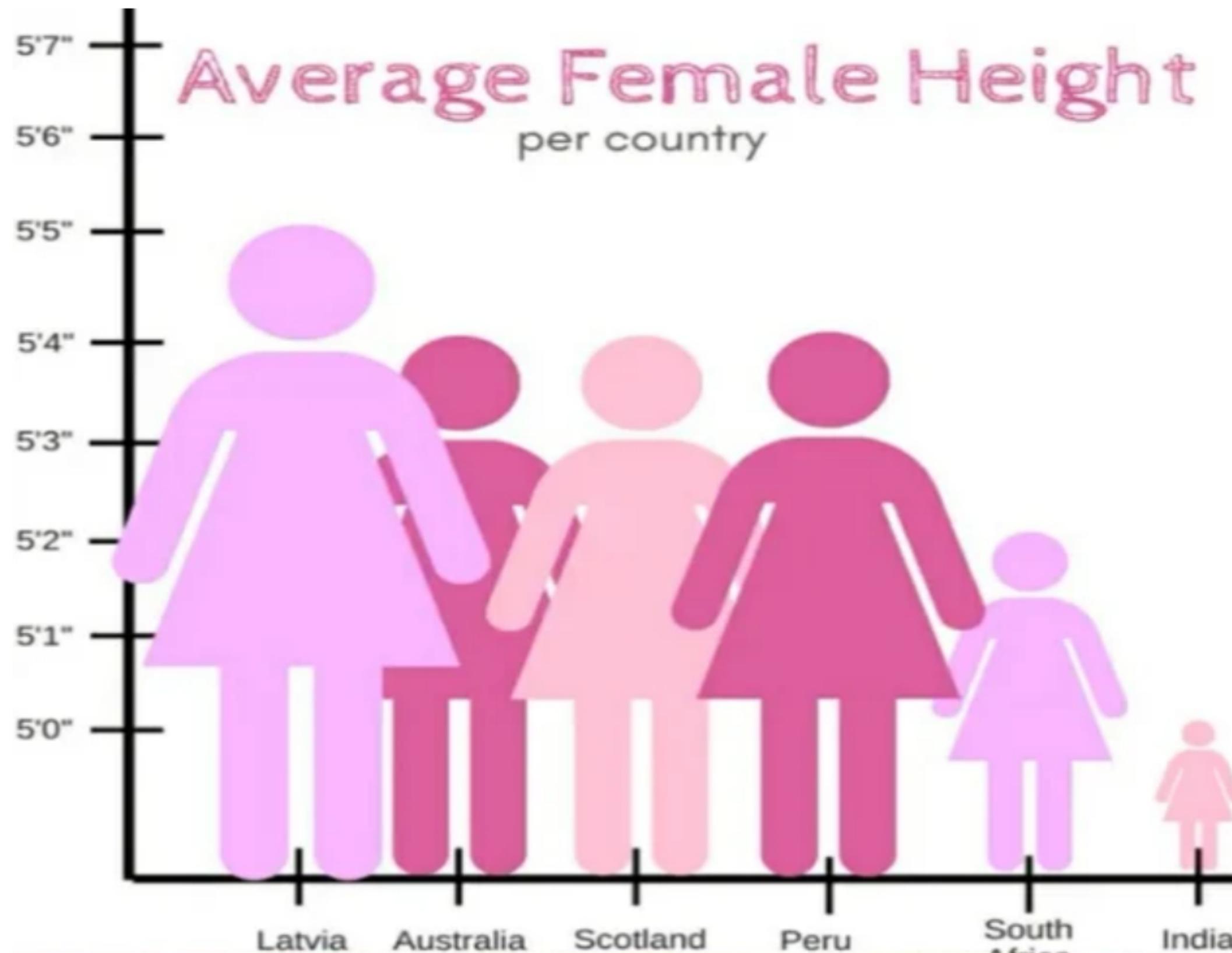


# Misleading with charts

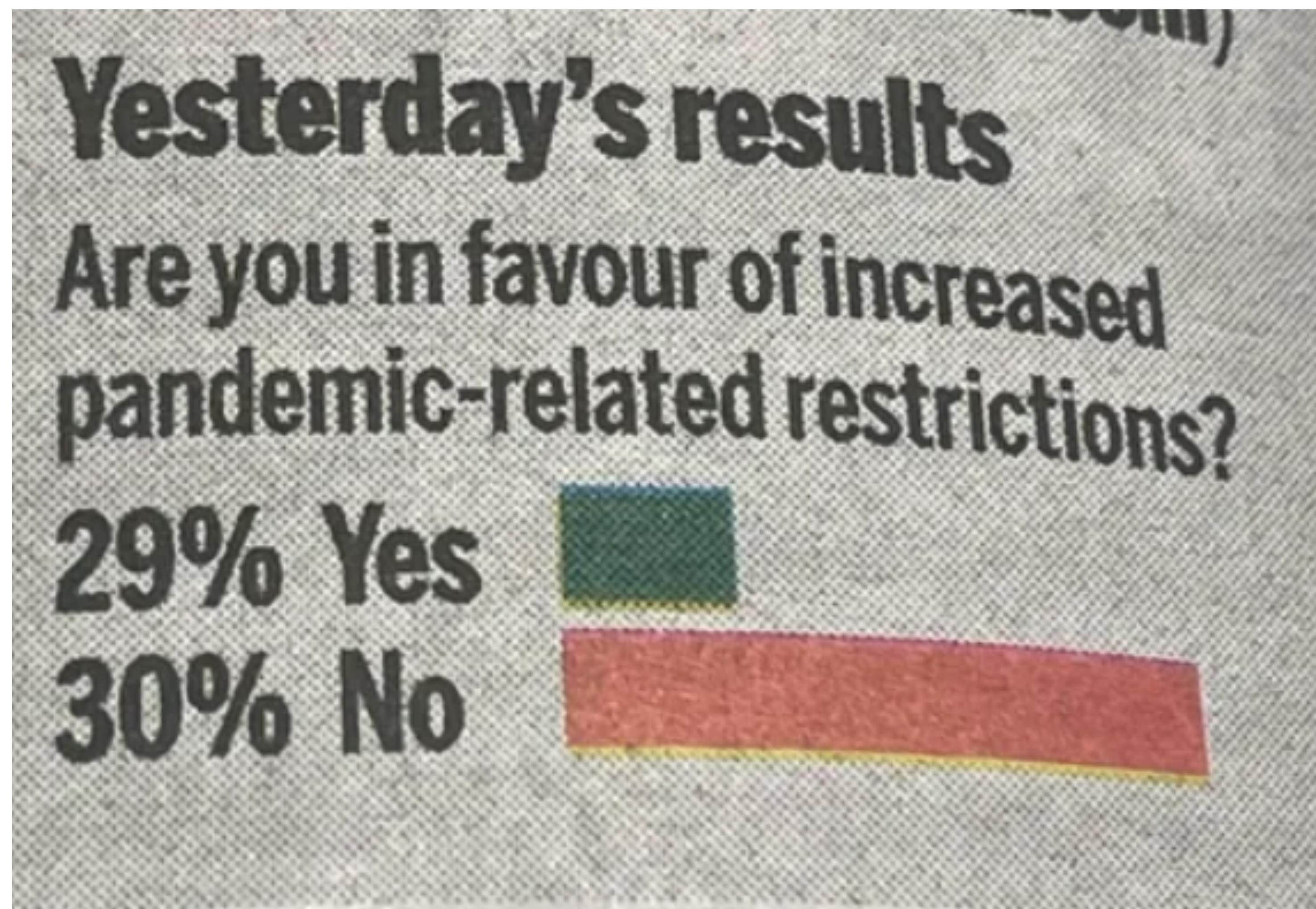
# Truncated Y-axis



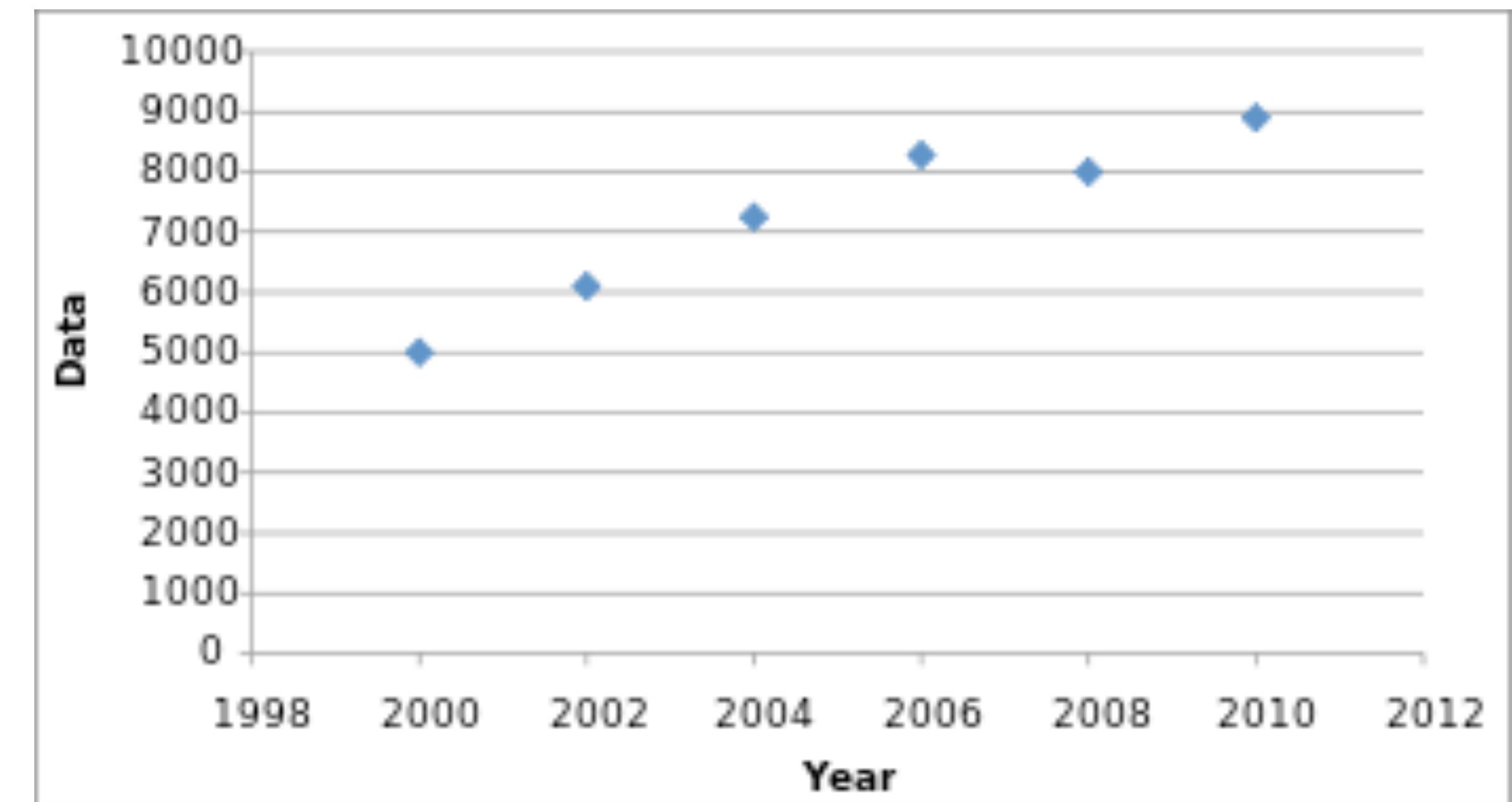
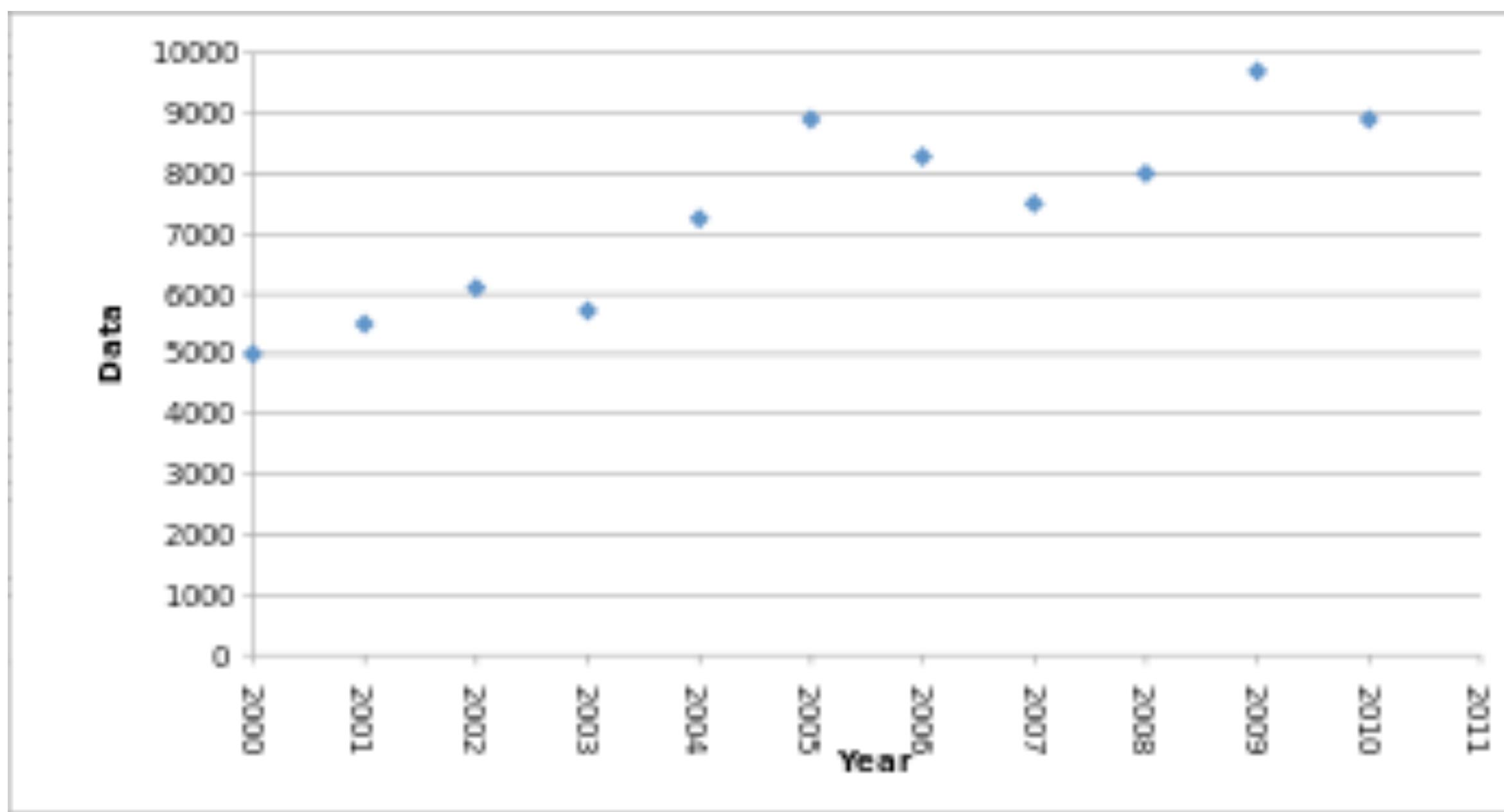
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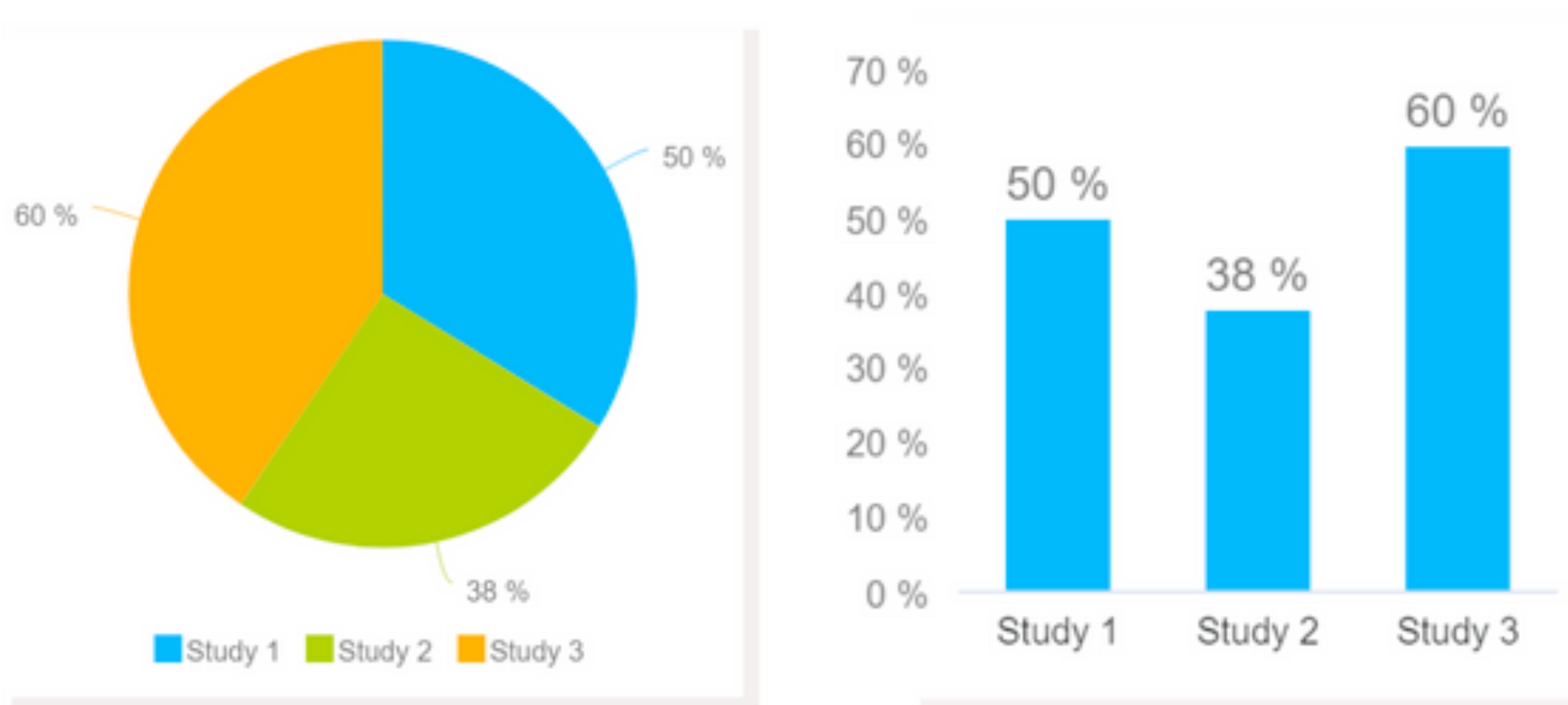
# Truncated Y-axis



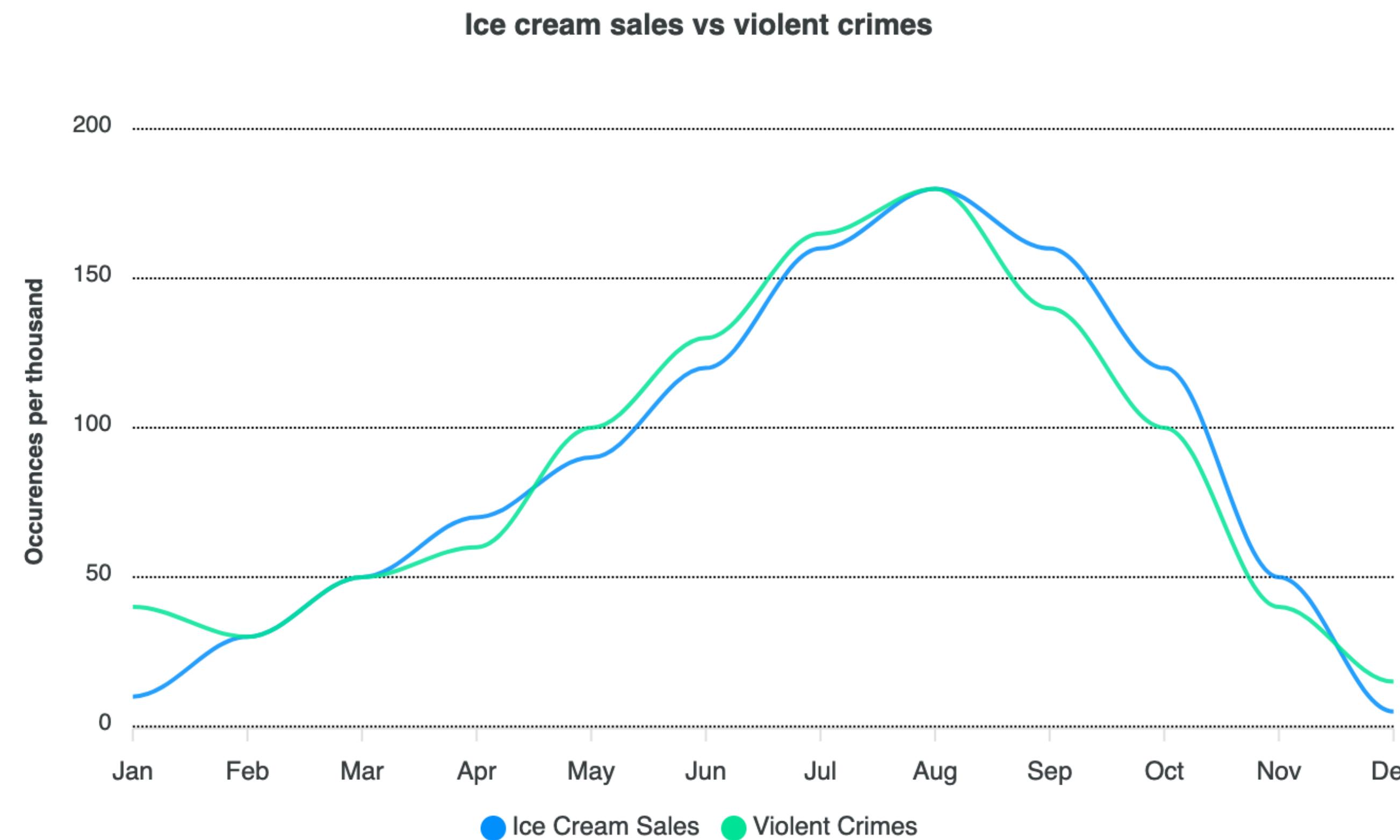
# Omitting data



# Using the wrong chart type



# Correlation vs causation



<https://www.tylervigen.com/spurious-correlations>

# Exercise 2

Using the following data create misleading charts to show the following points  Folkeskole students in 9th grade

- Safari and IE and nearly equally big in 2018
- The use of Firefox is on the rise
- IE is the most used browser
- Number of mobile users is falling
- Opera was in jan 2018 larger than chrome
- Send to behu@kea.dk

# Exercise 3

- Create a data visualisation using one of the datasets in this course (dmi, browser, password, etc). Remember to define
  - Who you are communication to
  - What you want to tell them
  - How you want to tell that
- Why have you chosen that graph? Pros and cons
- I will select some groups to present their data visualisation