

Why visualise?

To tell a story

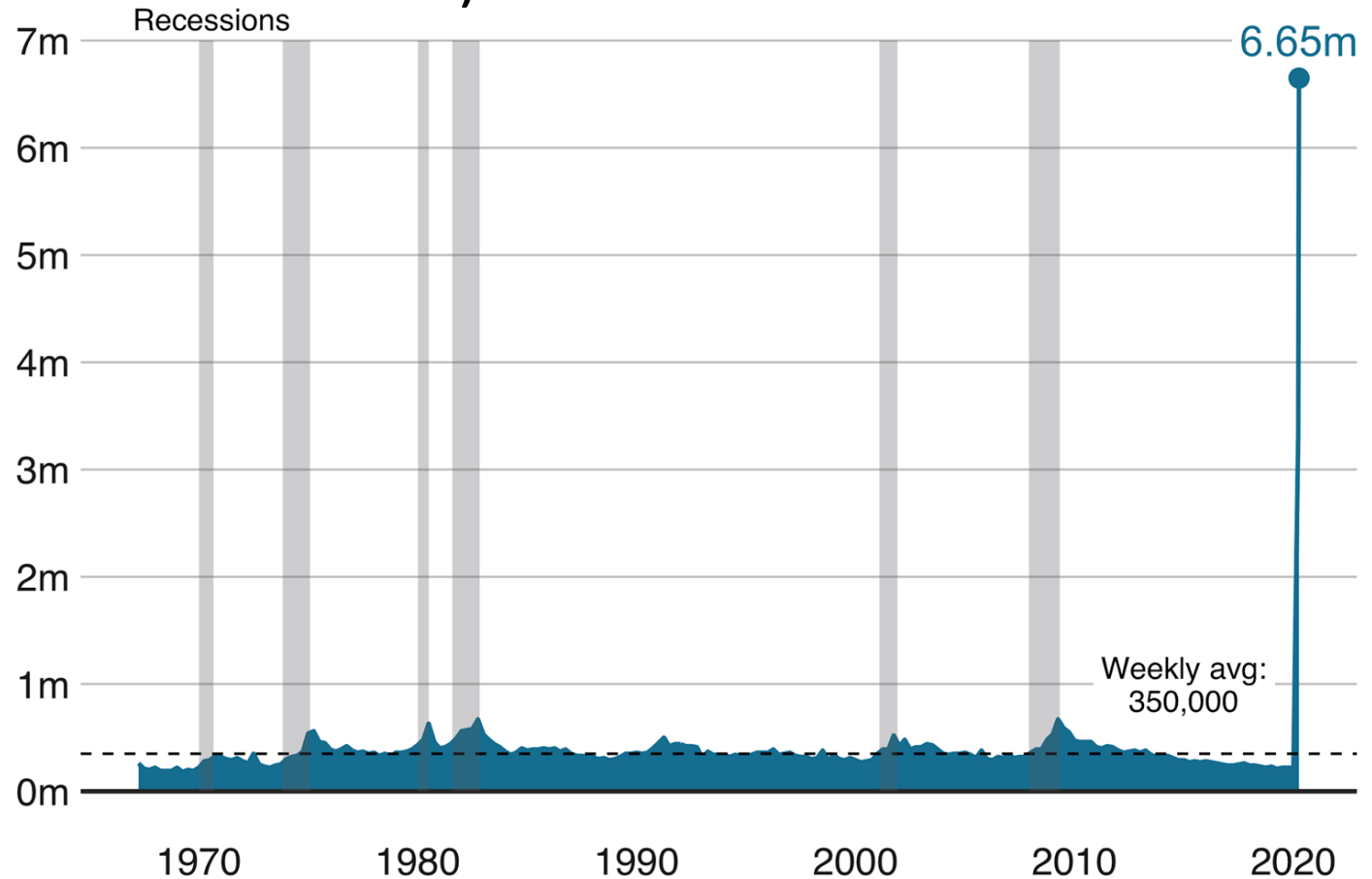
To illustrate a story

To explore the data - to find a story

Why visualise?

- “A graph is an argument” (Alberto Cairo)
- “Change is where the stories are” (Heather Krause)

US jobless claims hit new record



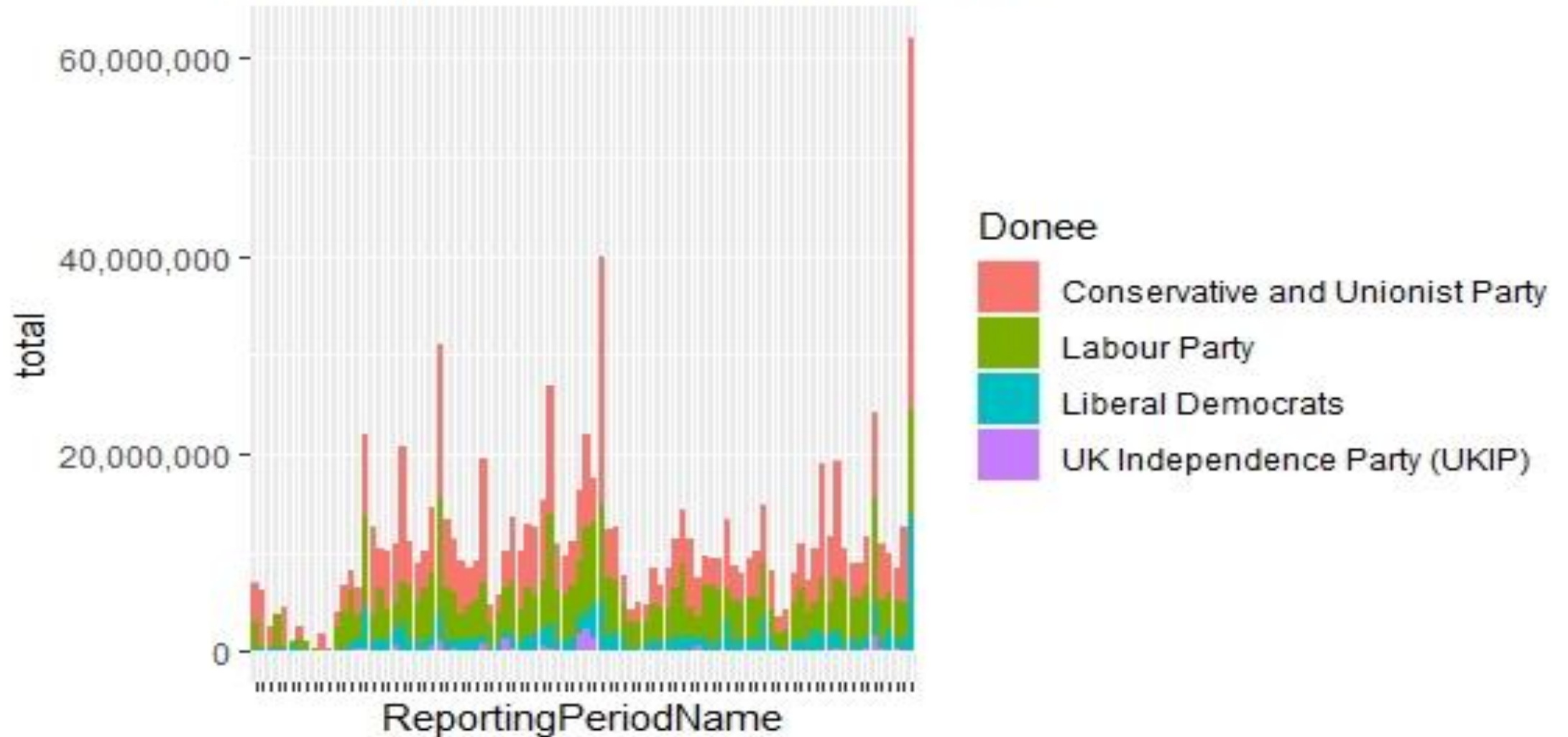
Source: US Bureau of Labor Statistics

What can you visualise?

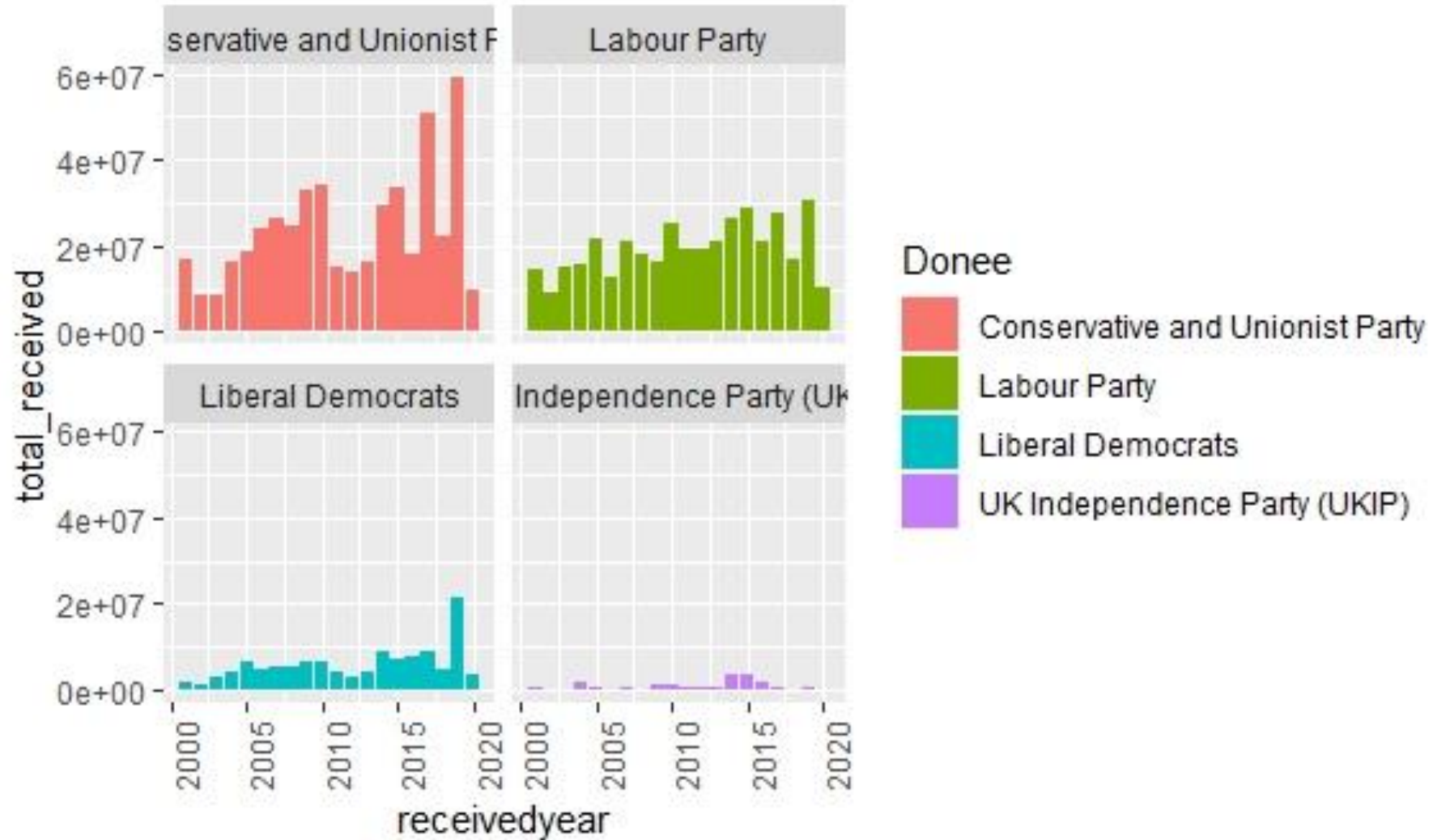
Comparison
Composition
Distribution
Relationships

Comparison

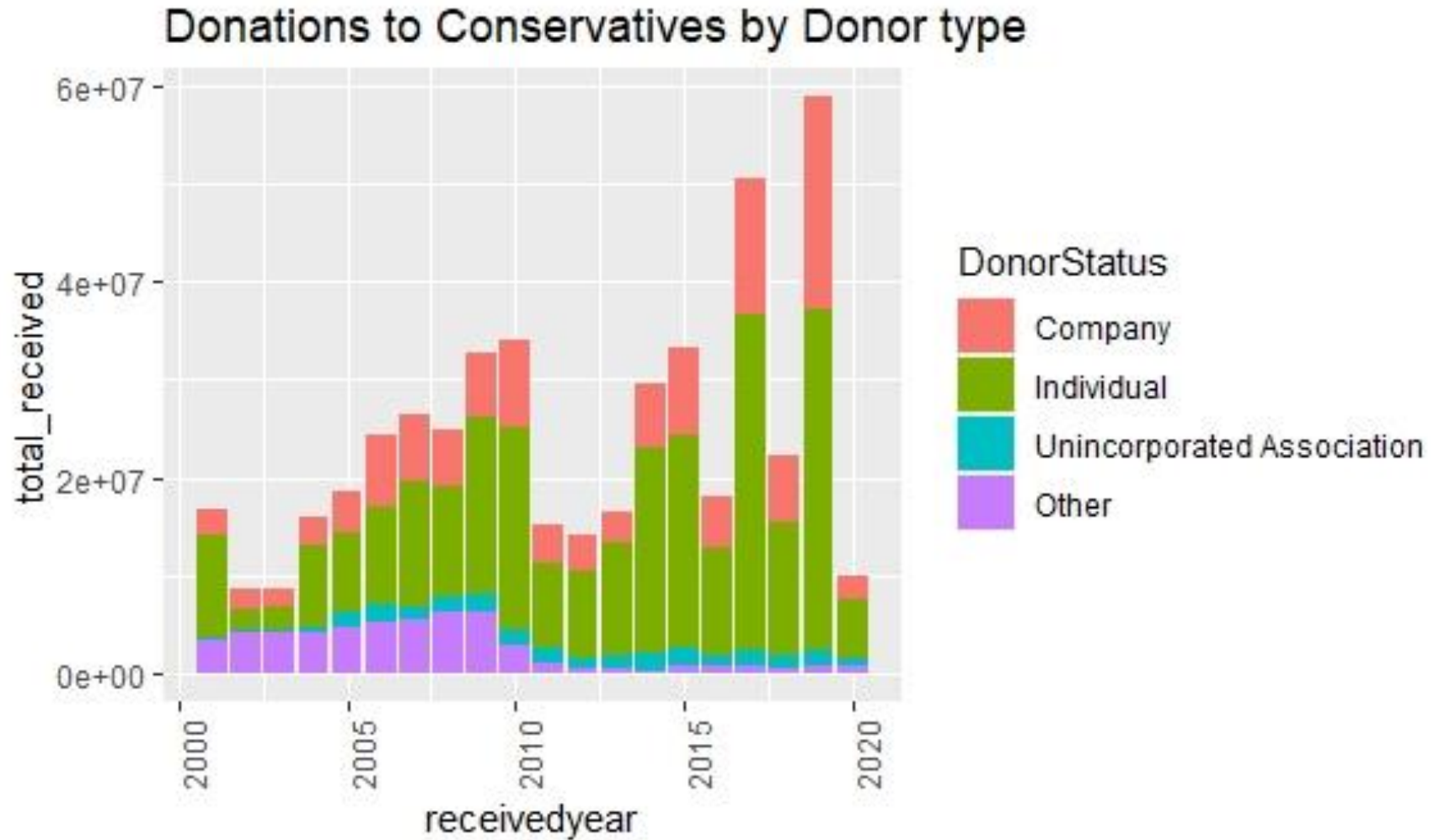
Donations to Main Parties over time



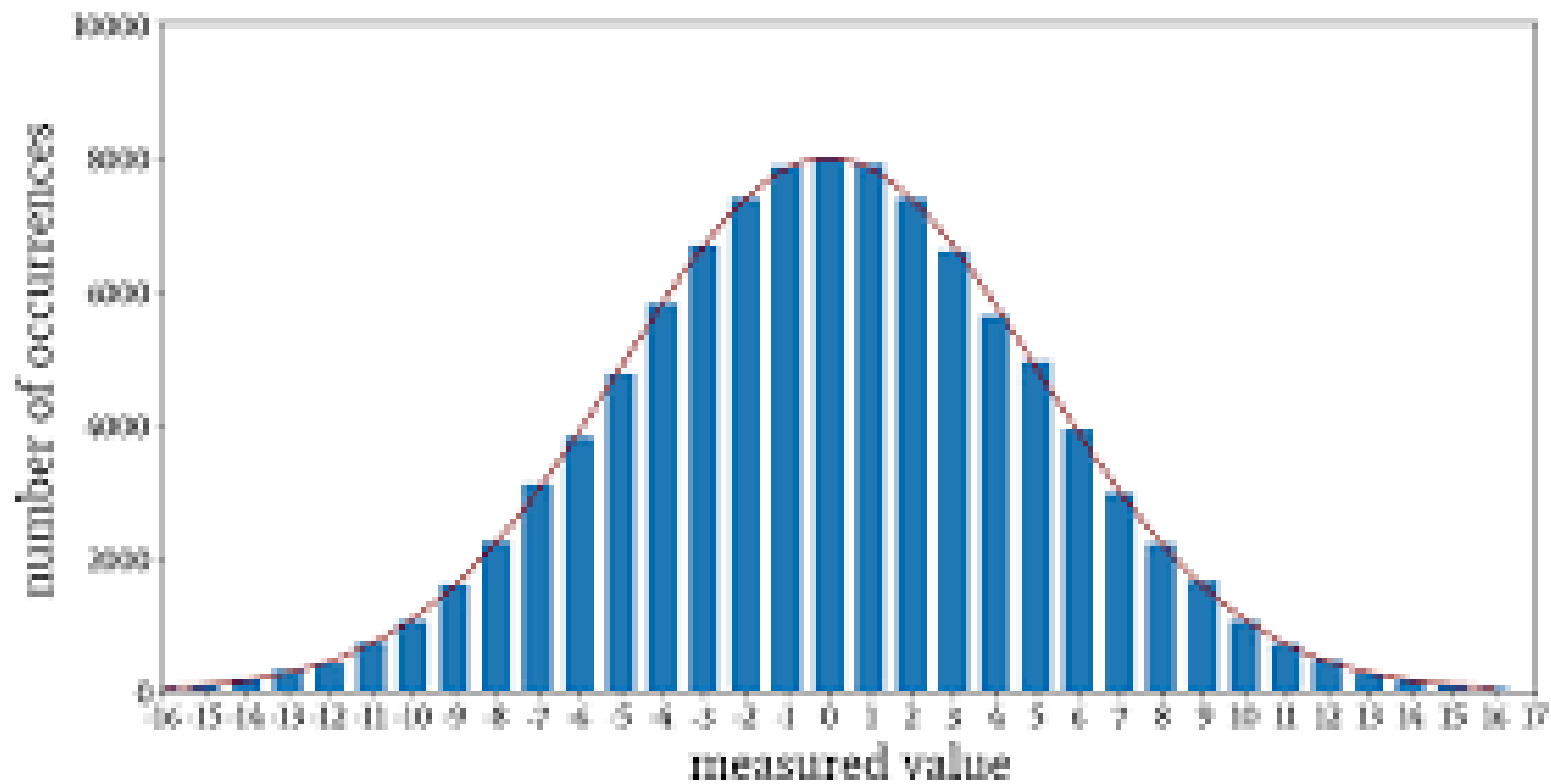
Comparisons



Composition



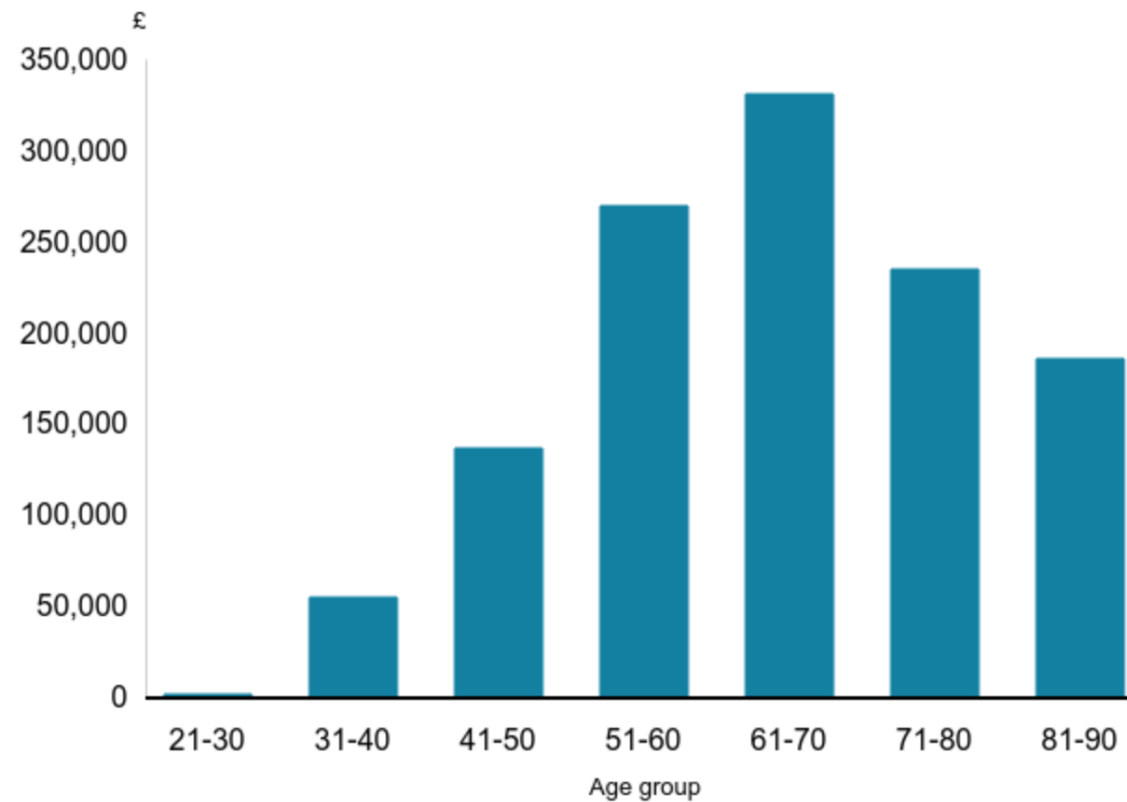
Distribution



Distribution

People in their 60s have the highest average wealth

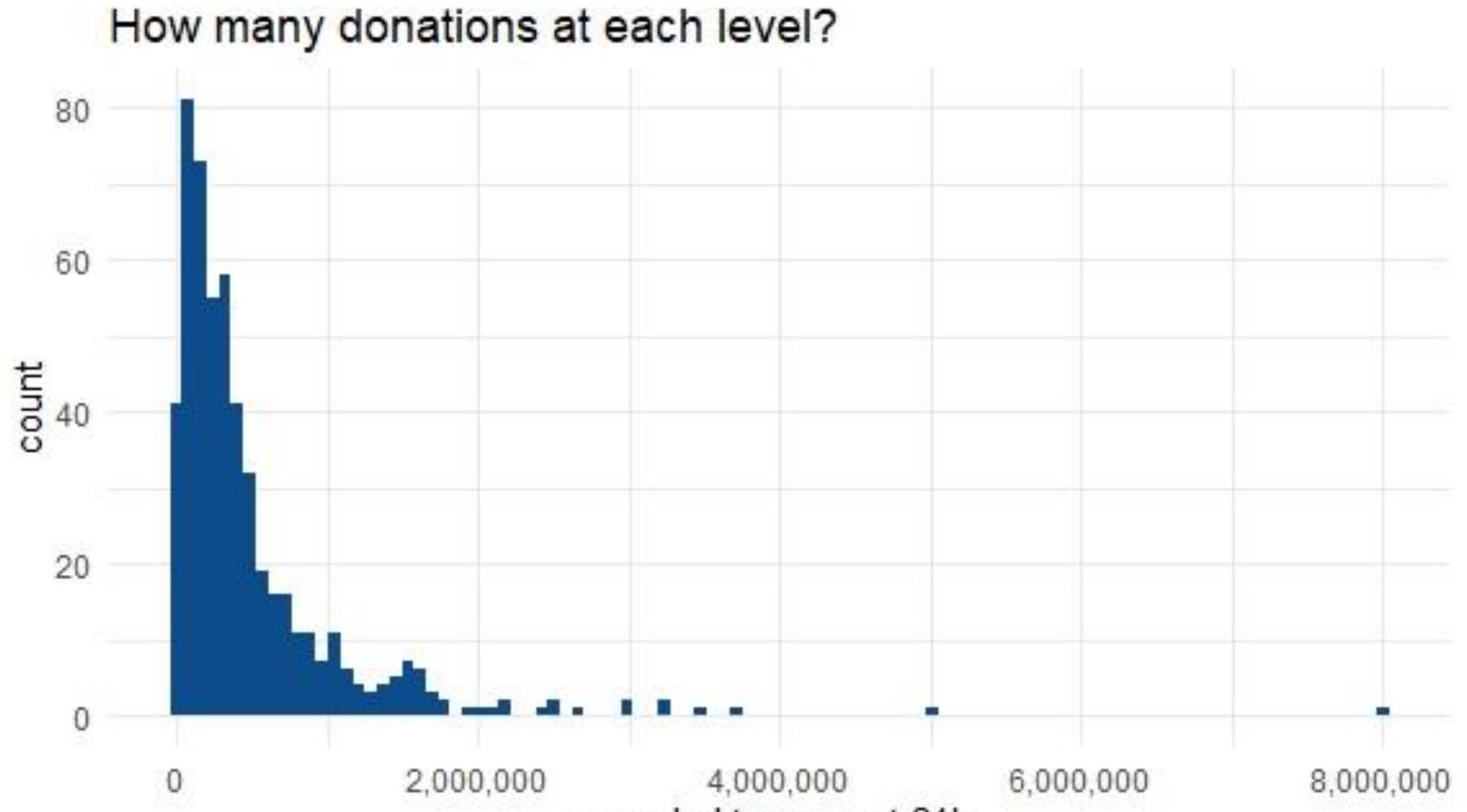
Net family wealth per adult, 2014-16



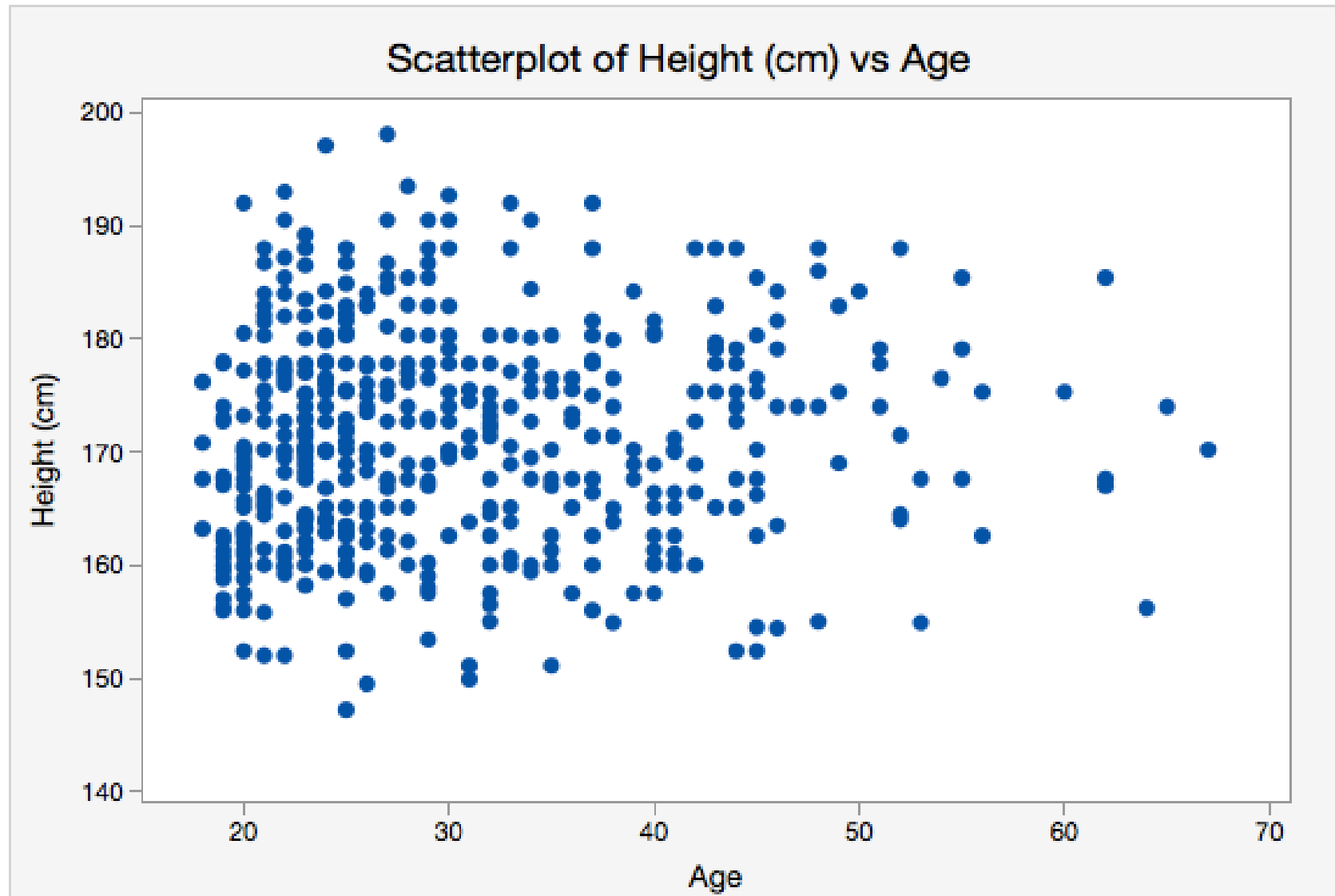
Median figure used. Adjusted for inflation.

Source: Resolution Foundation/ONS Wealth and Assets Survey

Distribution



Relationships



Relationships

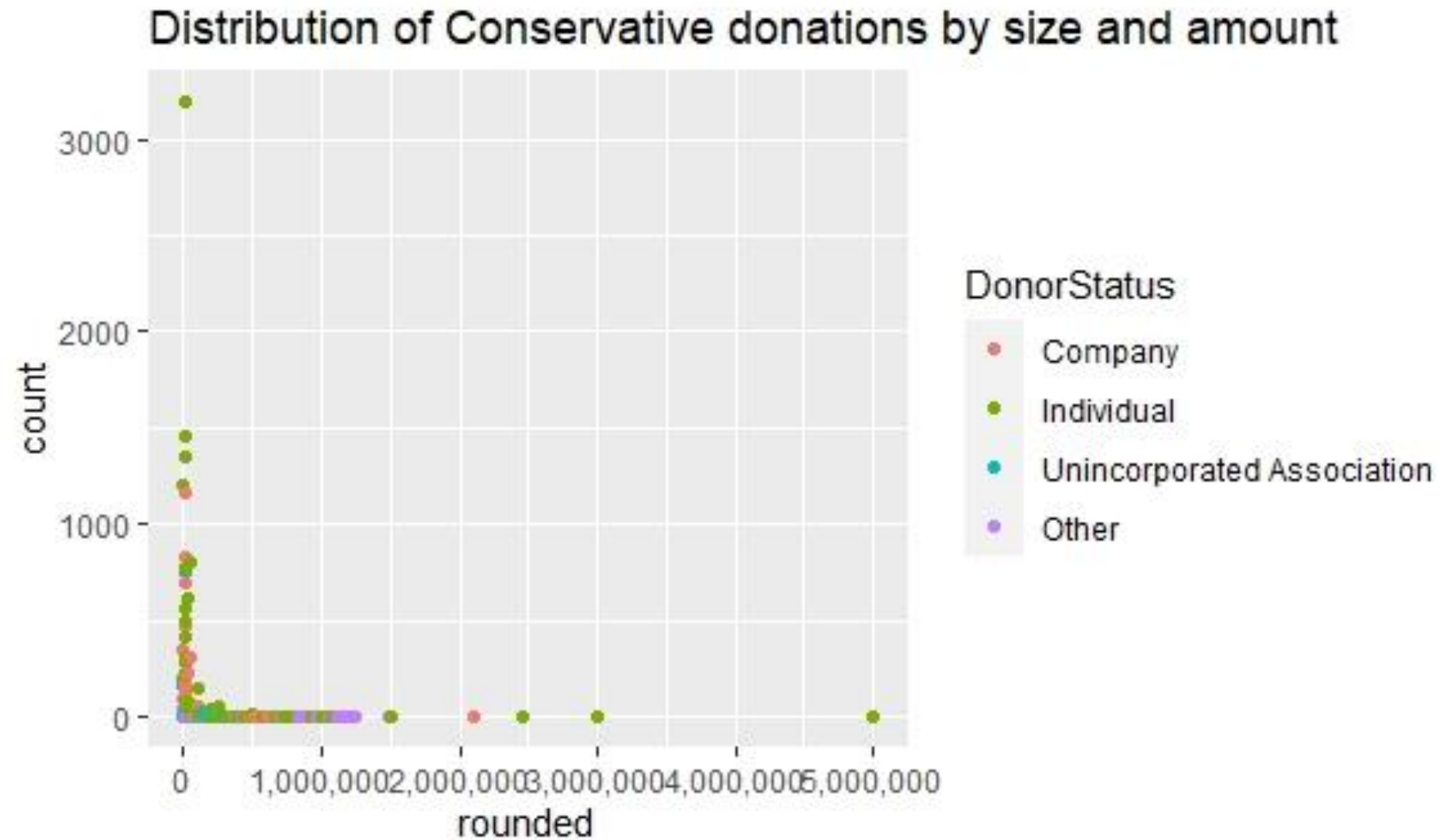
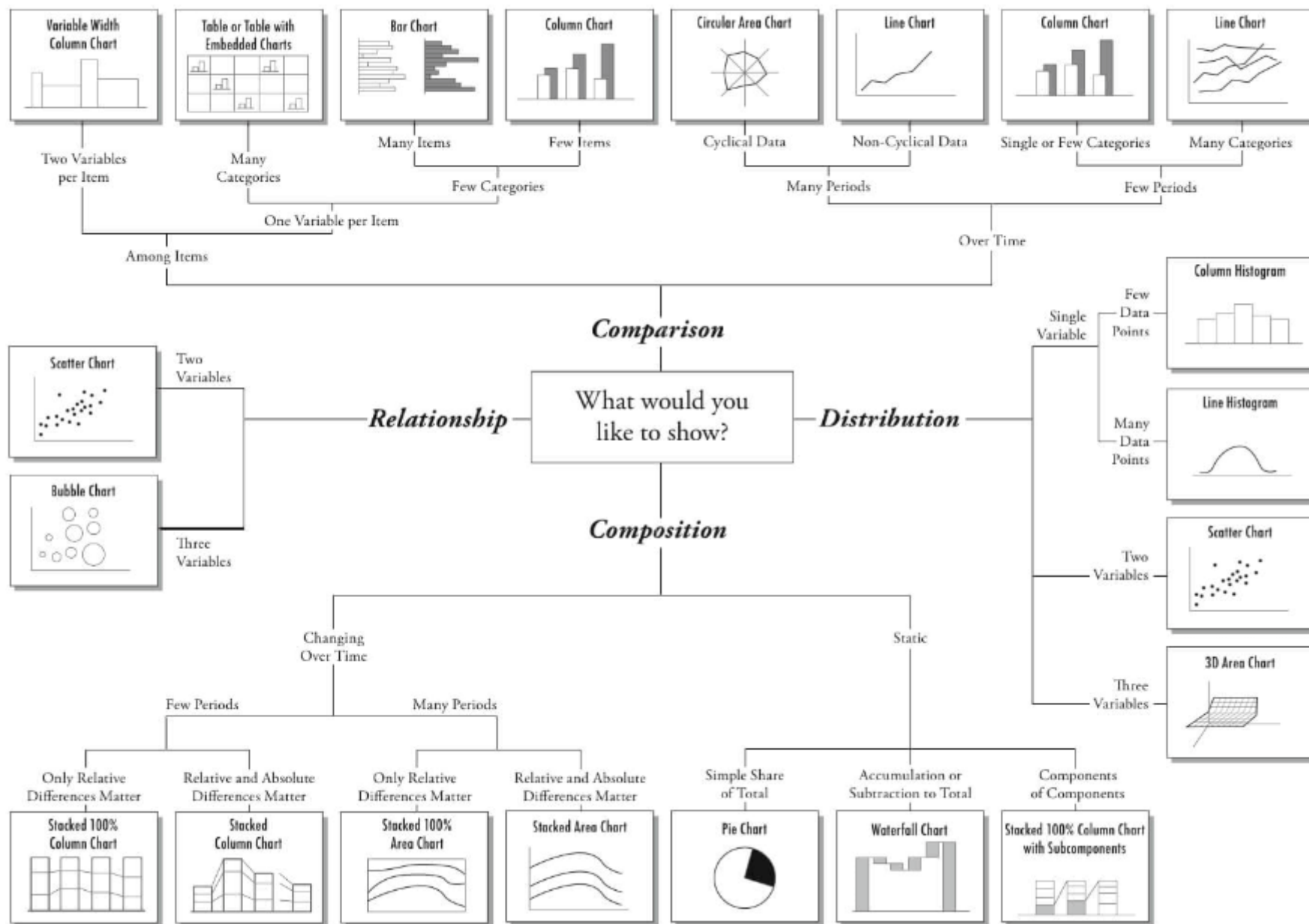
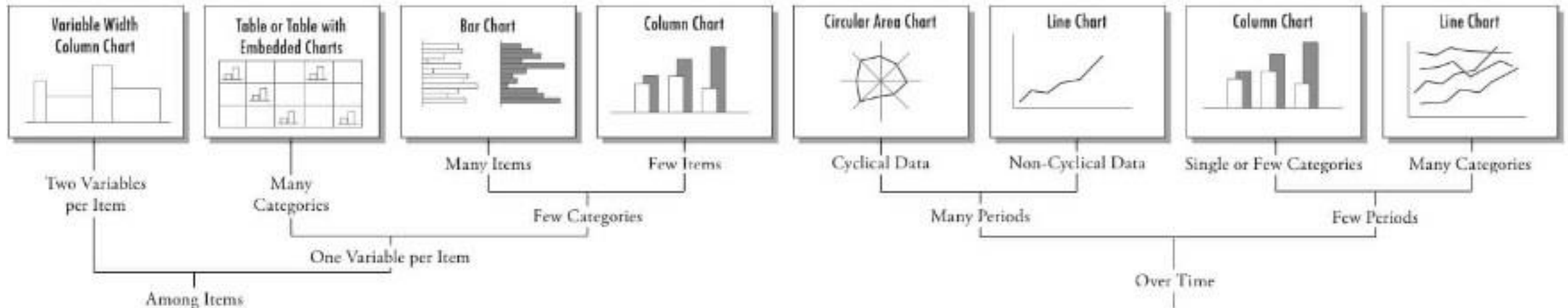


Chart Suggestions—A Thought-Starter

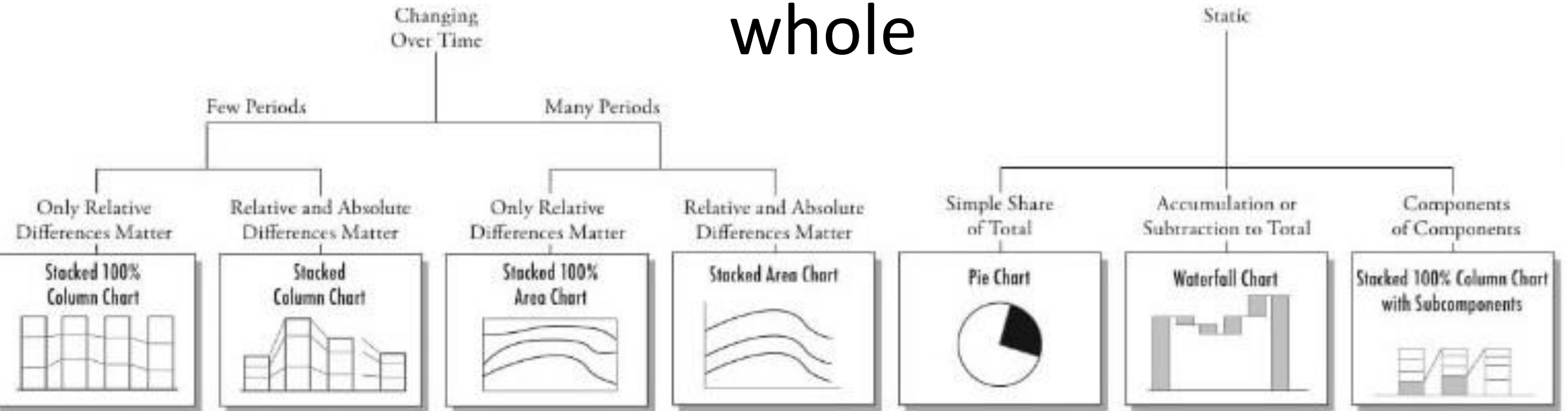


Comparison* – bigger, more expensive



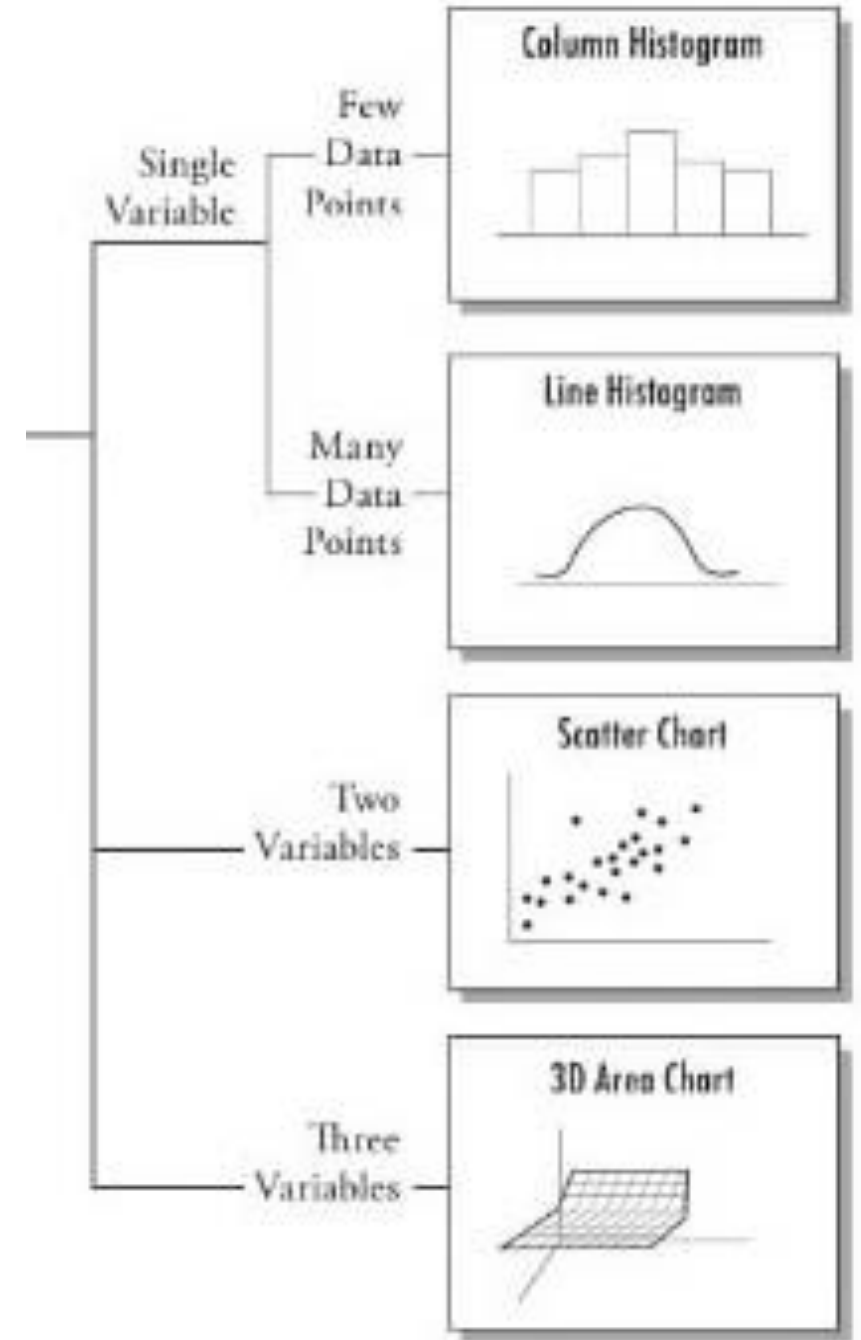
(*to a certain extent almost all graphs involve comparison at their heart)

Composition: see the elements which make up the whole



Distribution

one variable vs another -
eg spend through time,
age and height,
salary and education level

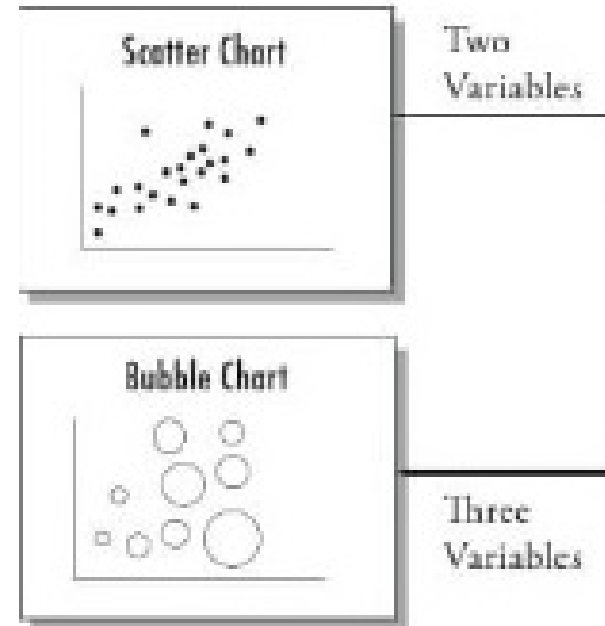


Relationships

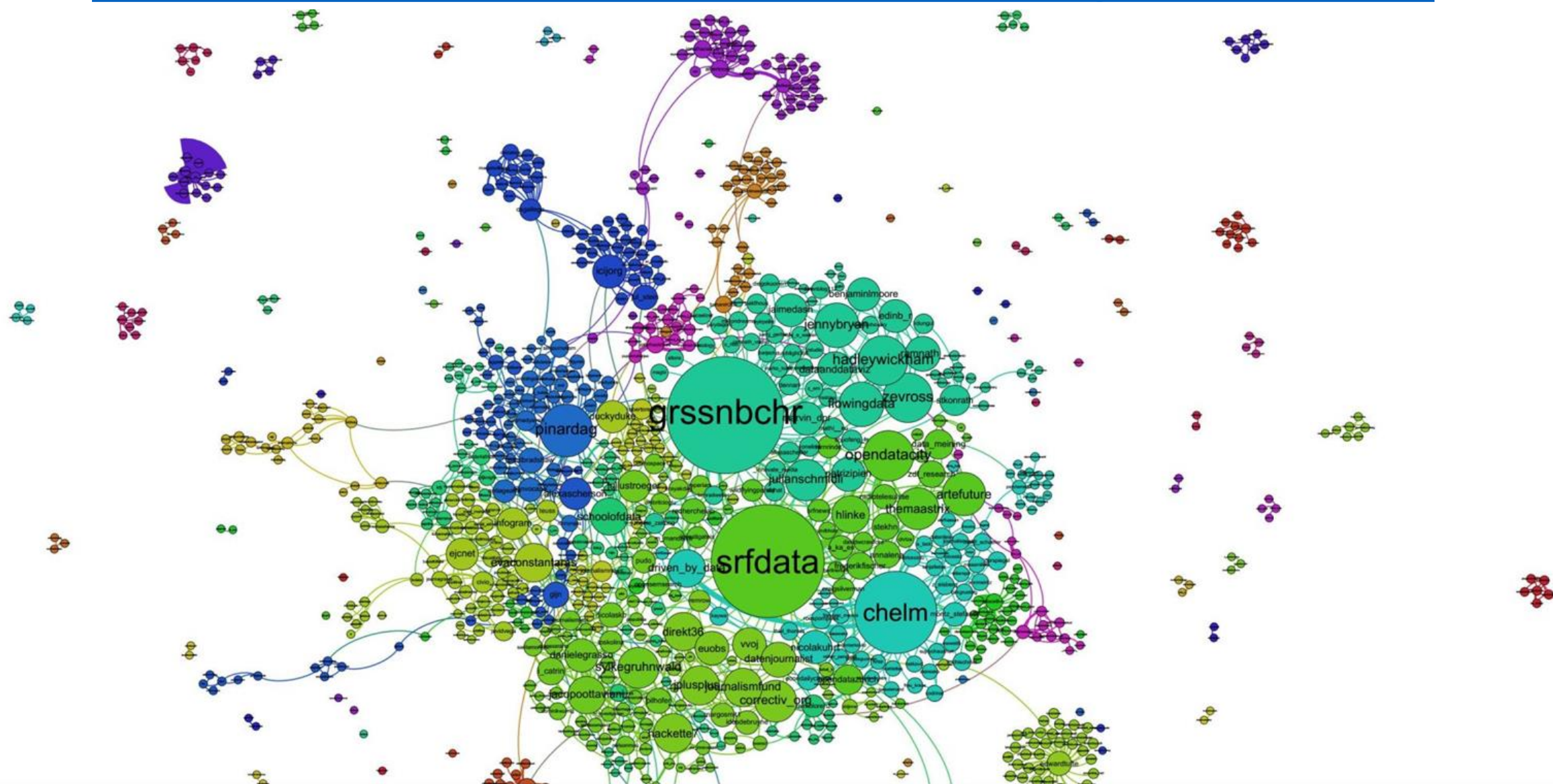
very similar to
distribution.

eg GDP and infant
mortality – perhaps over
time, by country.

Also networks



Network of tweets about #datajournalism



Gapminder



Which Visualization?

A Quick Reference

You have the following data (sample):

Discrete Categories,
Ordered categories,
and Continuous Metrics

Here's how to plot them

Categories		Ordered Cats		Continuous Metrics			
City	Airline	Class	PriceBracket	Month	Distance	FlightTime	Price
Alphaville	XeroTrip	Coach	\$	1	300	120	250
Betastan	YoloFly	Business	\$\$	2	500	185	1,525
Chicago	ZeusAir	First	\$\$\$	3	650	240	4,023
...

Discrete Categories

Ordered Categories

Continuous Metrics

Metric, grouped by
1 category

Bar (Row)

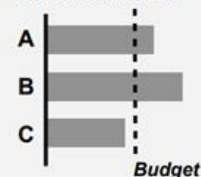


Sideways layout means readable labels

Dot Plot



Benchmark Bar



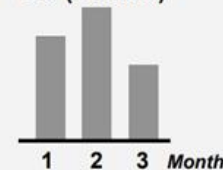
Budget

Bar (Column)



Histogram. Boxes help convey the underlying bins

Bar (Column)



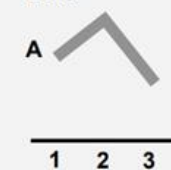
Increasing values move horizontally. So use Column, not Row

Area



Adds continuity to x-axis.

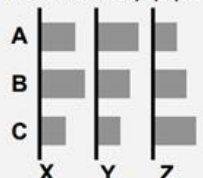
Line



A non-zero y-axis base may be less misleading here

... by
2 categories

Bar Table X,Y,Z,...



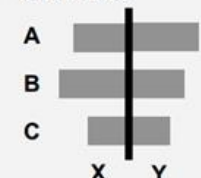
Compare X to Y to Z, 'Small multiples'. Please use this more

Bar Table X,Y, Delta

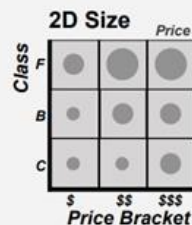


Comparisons are slow. Plot critical Deltas explicitly

Mirror Bar

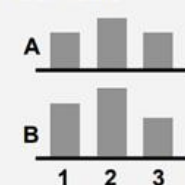


Compare X to Y, leverages human symmetry perception



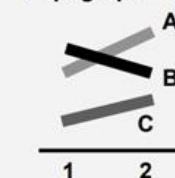
2D Bubble

Bar Table



Compare a metric across an ordered category

Slopegraph



With two values, slope encodes delta

Dual Axis



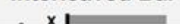
Use (below) instead. Crossings here are salient + meaningless

Lines

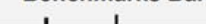


Getting spaghetti? Split into subset or Line-Table (below)

Interleaved Bar



Benchmarks Bar



2D Heat



Bar Line Table



Line Table



Visual vocabulary – Financial Times

Visual Vocabulary

Designing with data

There are so many ways to visualise data – how do we know which one to pick? Click on the coloured categories below to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations

Inspired by the Graphic Continuum by Jon Schwabish and Severino Ribecca



A table? Or a graph?

Use Tables When

- The display will be used to look up individual values
- It will be used to compare individual values
- Precise values are required
- Quantitative values include more than one unit of measure
- Both detail and summary values are included

Use Graphs When

- The display will be used to reveal relationships among whole sets of values
- The message is contained in the shape of the values (e.g., patterns, trends, exceptions)

Adapted from:

Few, Stephen. (2012). *Show Me the Numbers: Designing Tables and Graphs to Enlighten*.(4)57