Get every one in the picture

Graphing Data

Workshop on data analysis and report writing for civil registration based vital statistics

Nadi, Fiji
30 January – 03 February 2023

Bloomberg Philanthropies
DATA FOR HEALTH INITIATIVE
Pacific Community
Communauté du Pacifique
Australian Bureau of Statistics
UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

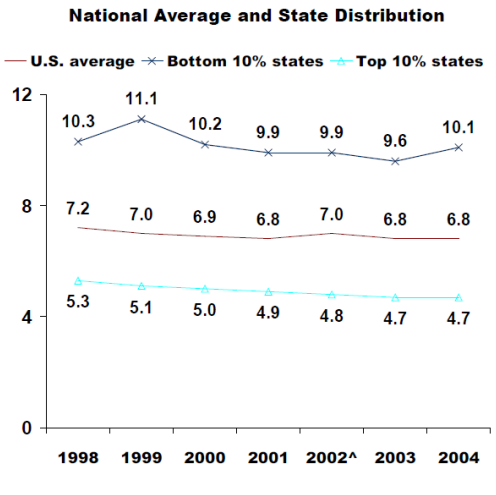
Outline of presentation

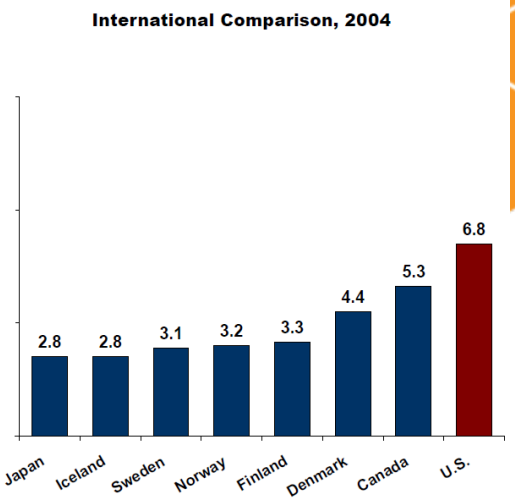
- Why use charts?
- What makes a good graph/chart?
- Types of graphs
  - Bar/column charts, line graph, pie chart, scatter plot
- Advantages and disadvantages
- Choosing a graph

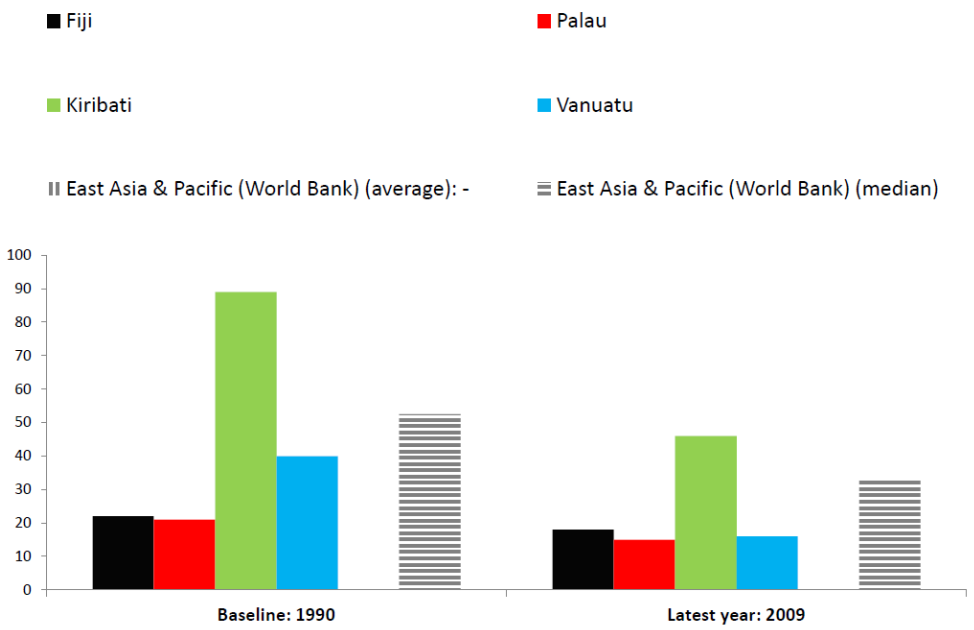
Graphing your data

Why use charts?

- **Comparison:** how much? Which item is bigger or smaller?
- **Changes over time:** how does a variable evolve?
- **Frequency distribution:** how are items distributed? What are the differences?
- **Correlation**
- **Relative** share of a whole





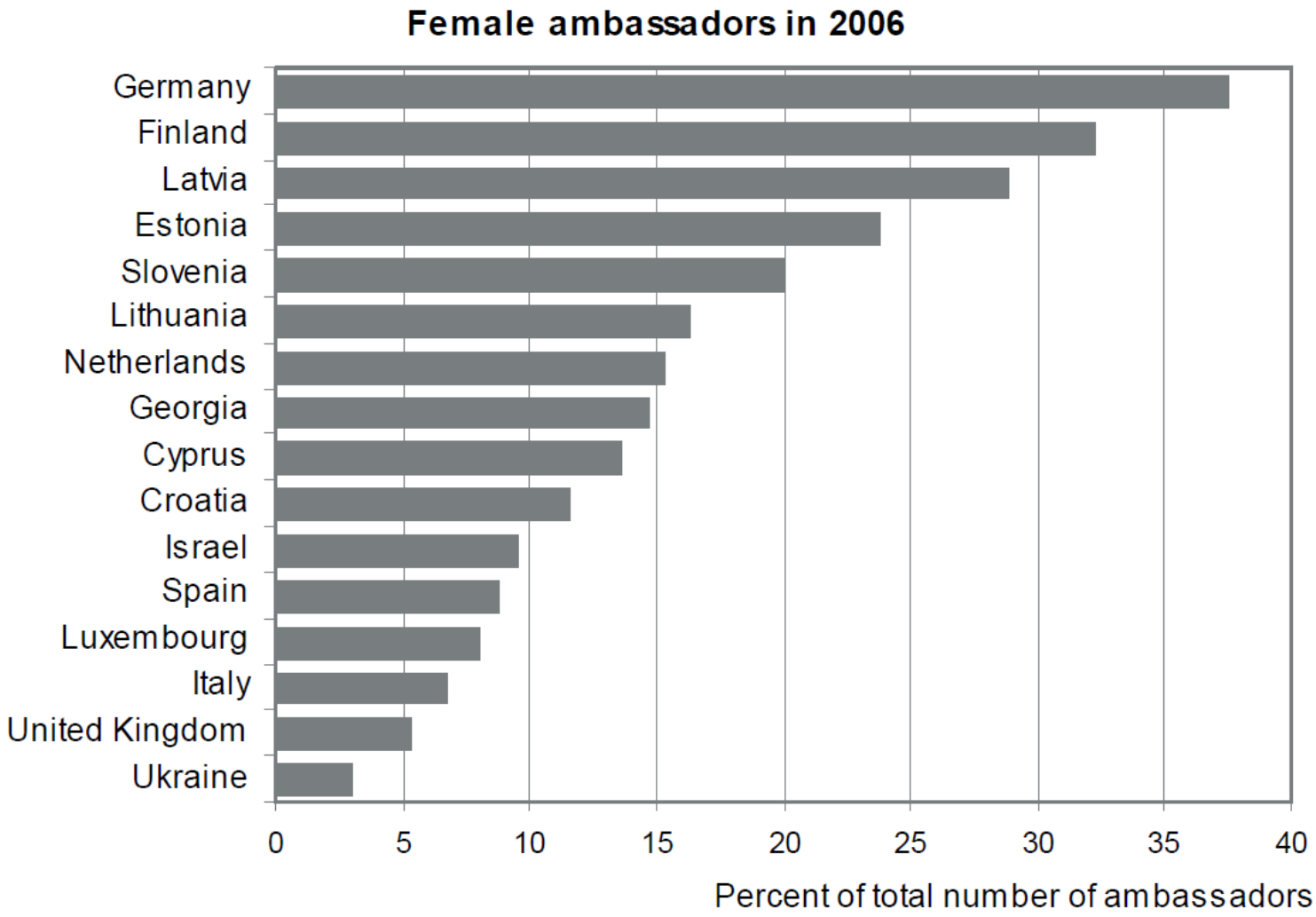


Checklist for a good chart

A good graph:

- grab's attention
- Presents information clearly, simply, accurately
- Does not mislead
- Facilitates comparisons and highlights trends
- Illustrates messages, themes or stories in text

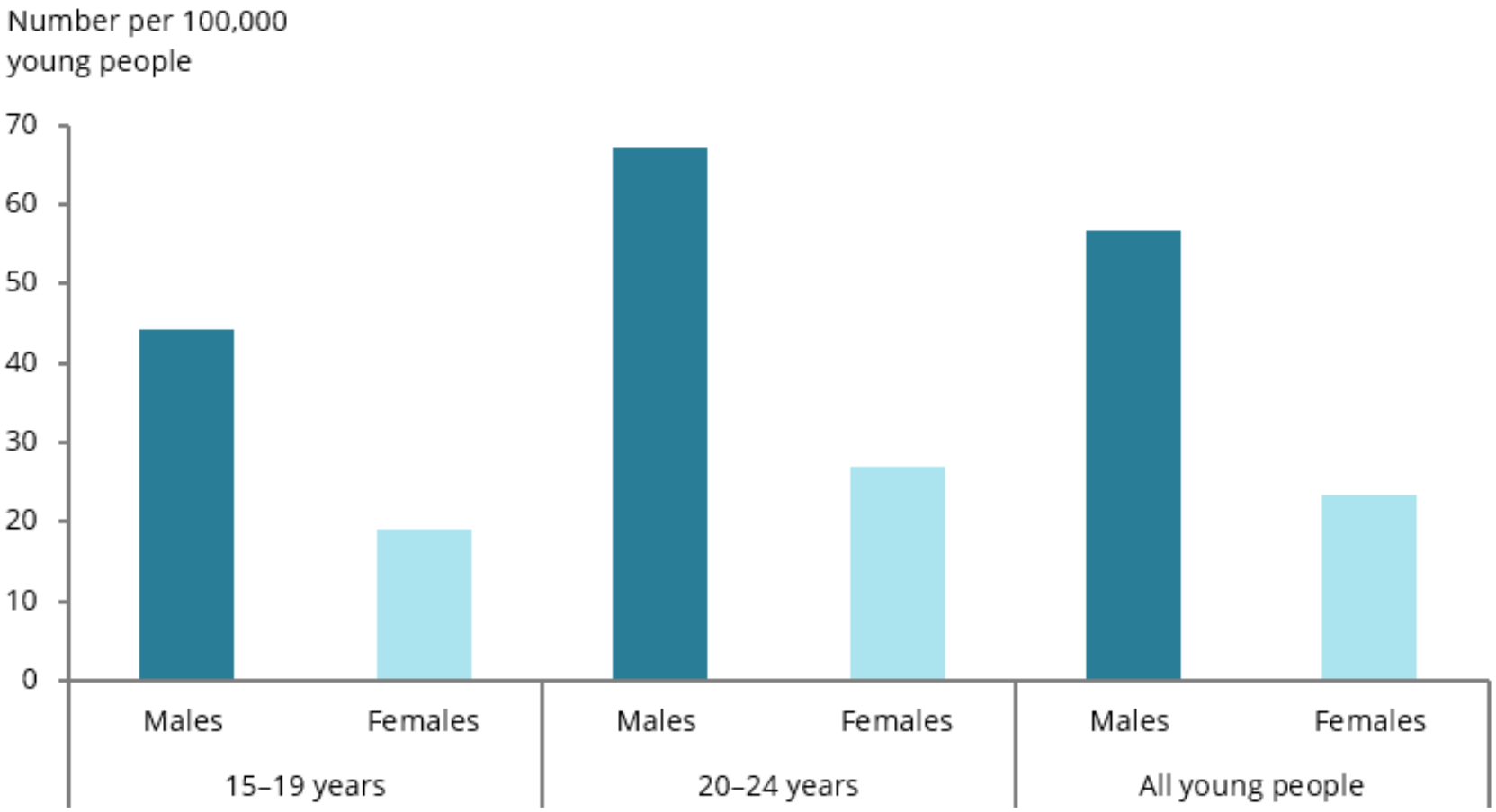
Bar charts



Source: UNECE Statistical Database

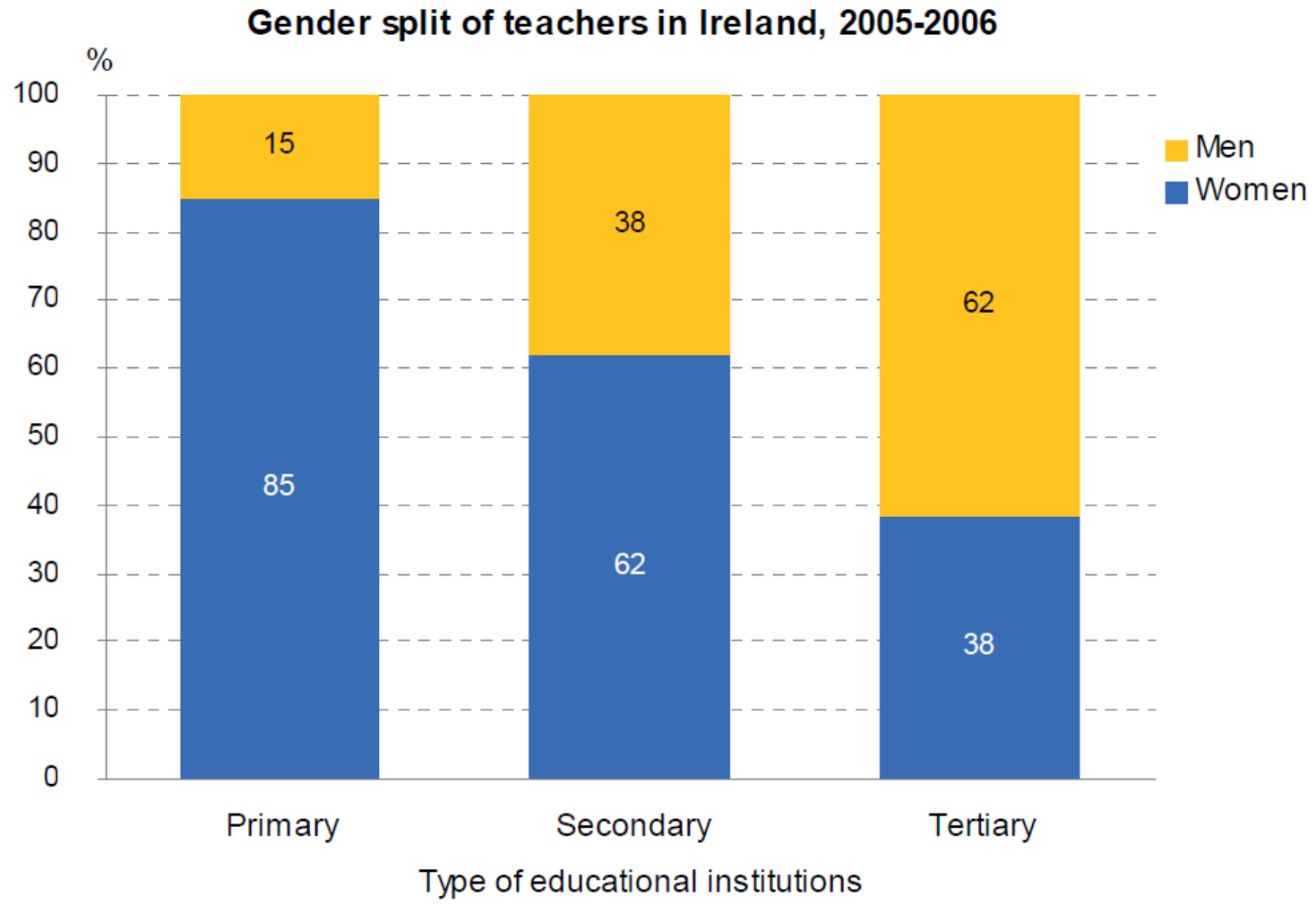
Column graph

Figure 1: Deaths among young people aged 15–24, by age and sex, 2019



Note: These data have not been adjusted for Victorian additional death registrations in 2019. See Technical notes for more details.
Chart: AIHW.

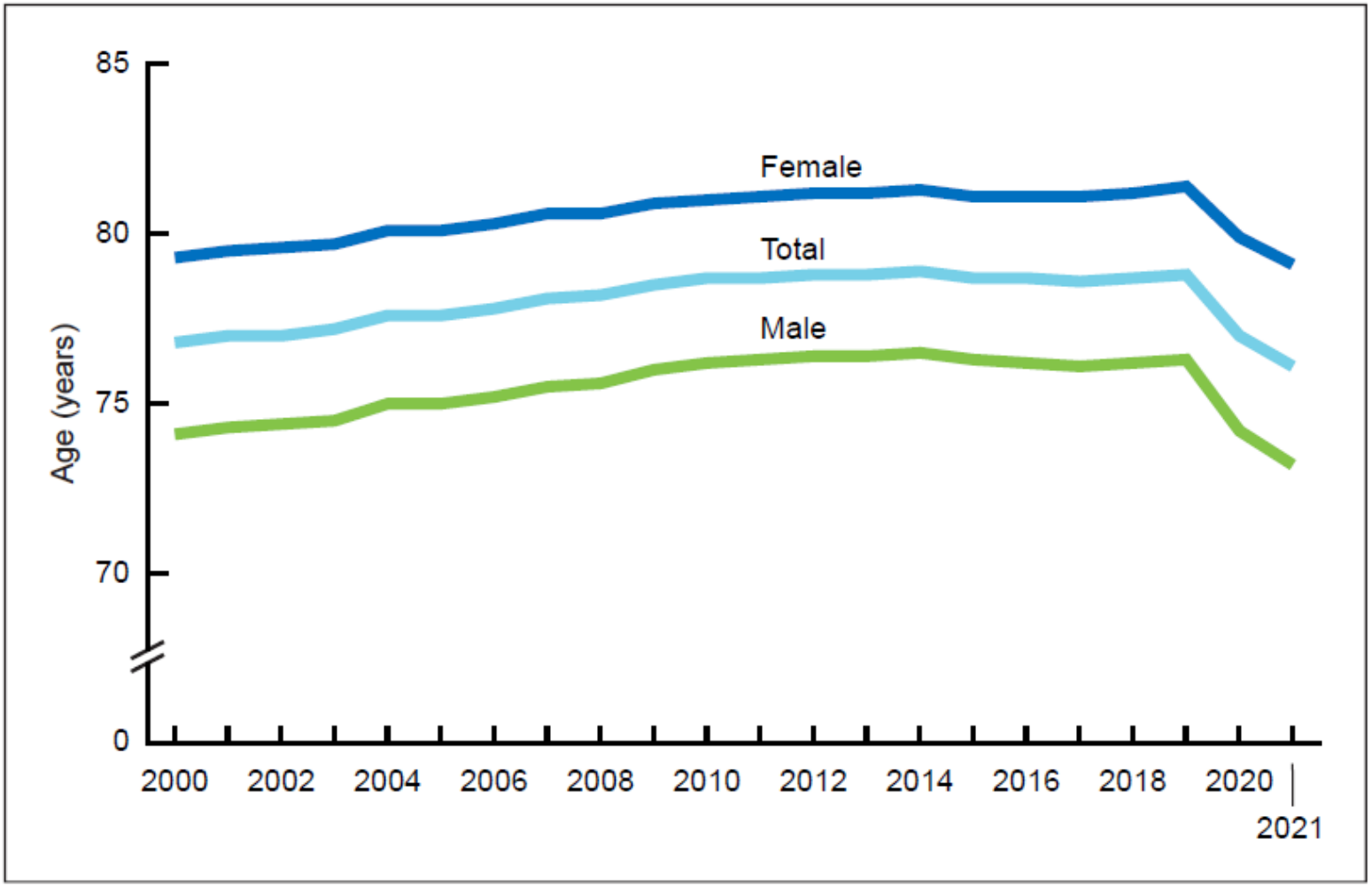
Stacked column graphs



Source: UNECE Statistical Database

Line graphs

Figure 1. Life expectancy at birth, by sex: United States, 2000–2021



NOTES: Estimates are based on provisional data for 2021. Provisional data are subject to change as additional data are received. Estimates for 2000–2020 are based on final data.
SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

United States Vital Statistics Rapid Release Report No. 23 Provisional Life Expectancy Estimates for 2021

Line graphs

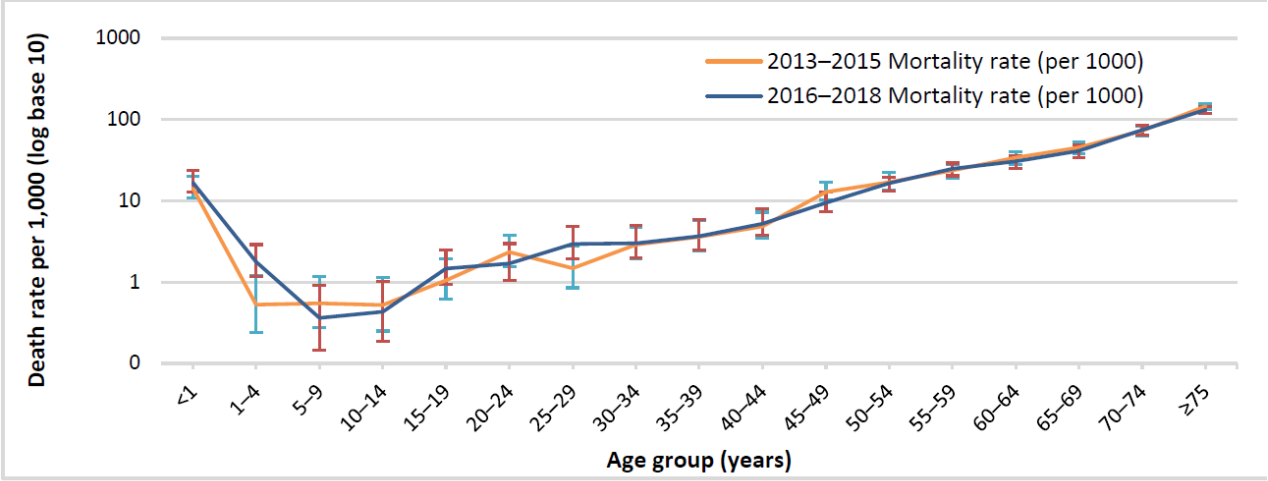


Figure 2.2: Male Age-Specific Mortality Rates (deaths per 1000 people), by 3-year period, 2013–2018.

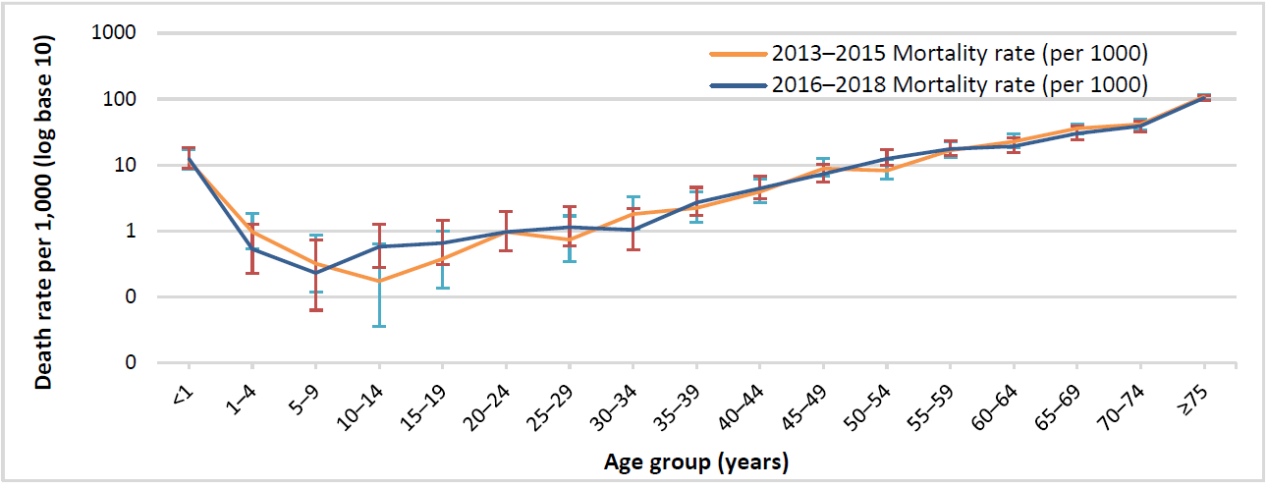
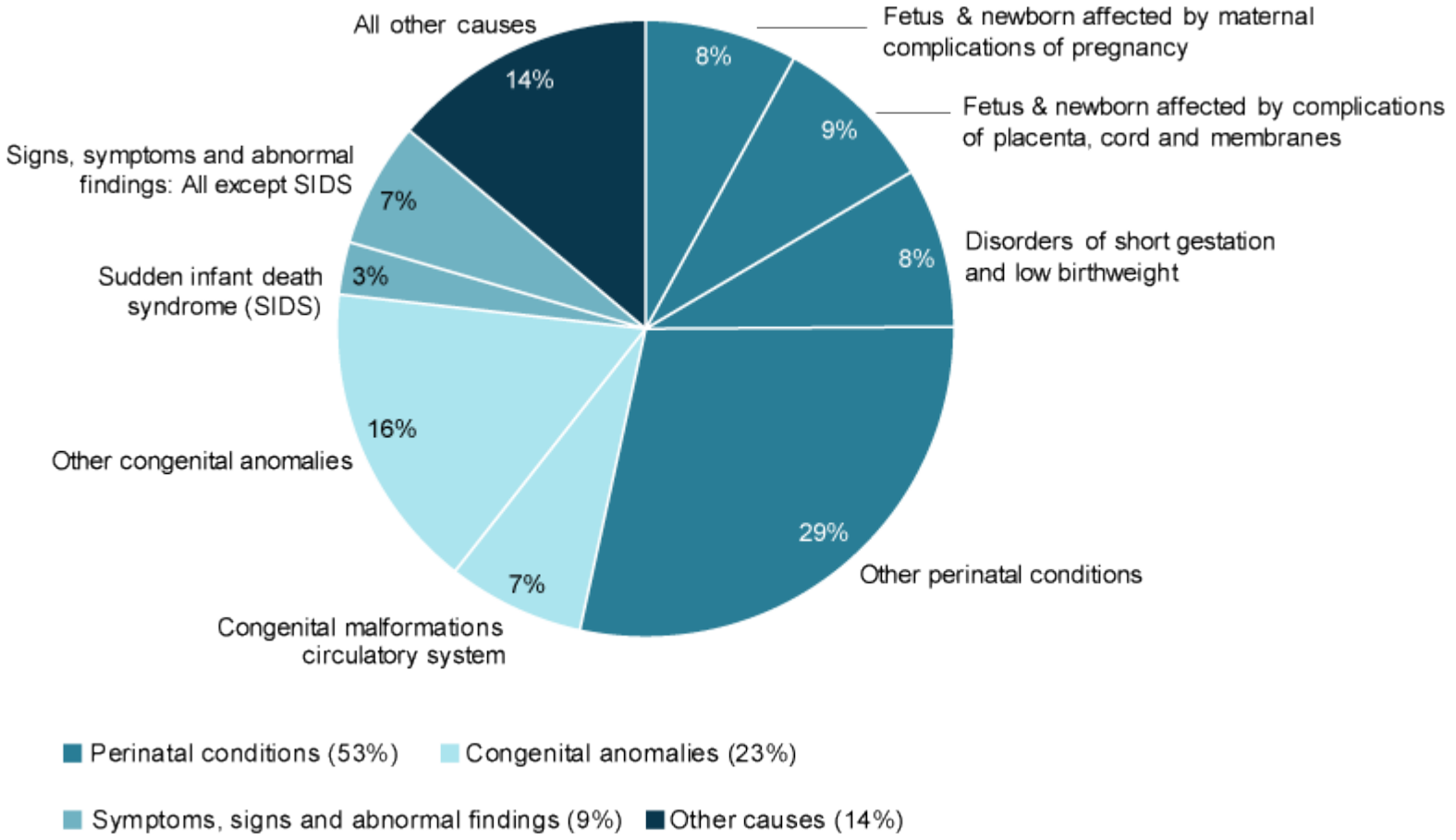


Figure 2.3: Female Age-Specific Mortality Rates (deaths per 1000 people), by 3-year period, 2013–2018.

Source: Tonga National Vital Statistics Report 2013-2018

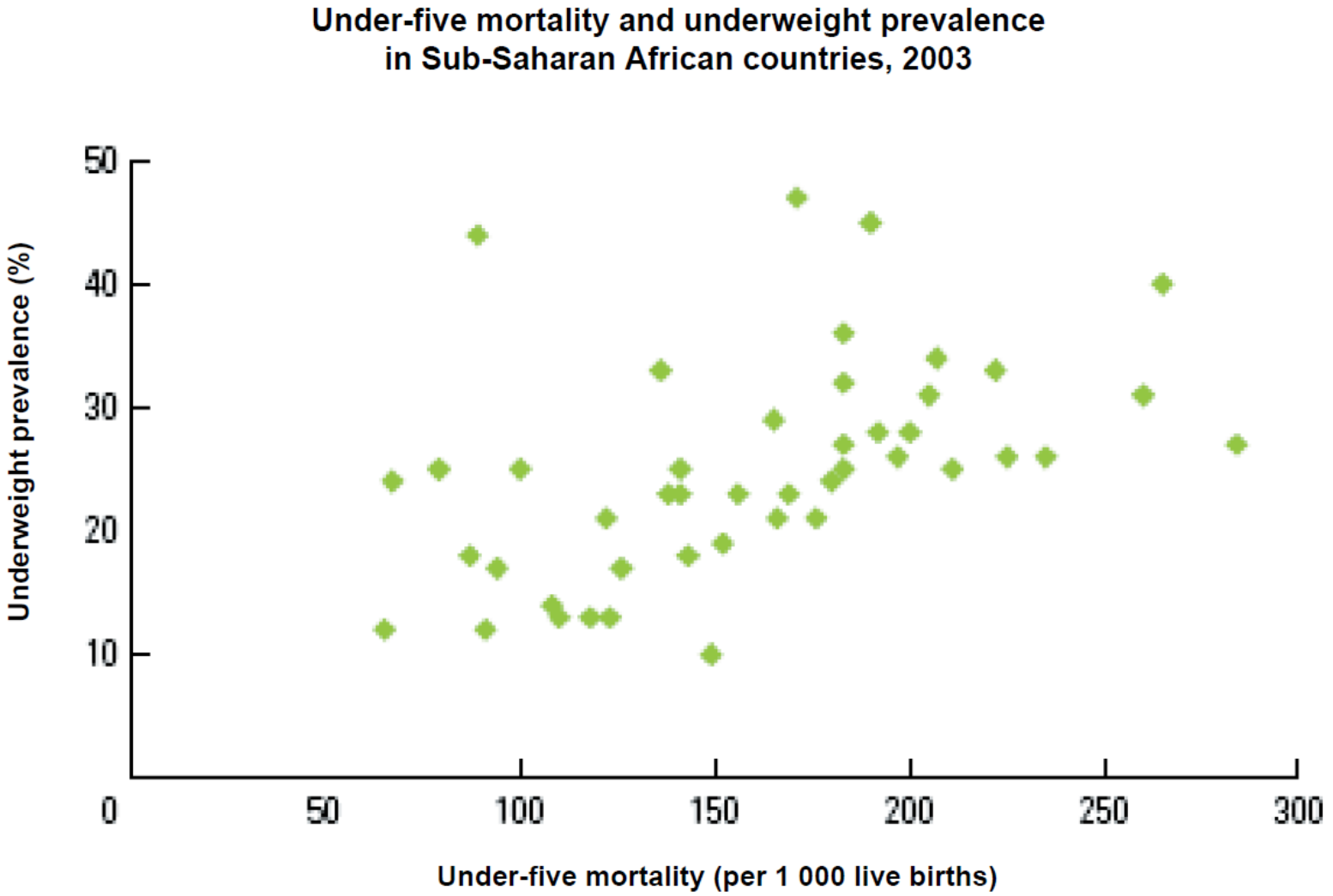
Pie charts

Figure 1: Leading causes of infant death, 2017



Note: Due to rounding the proportions do not sum to 100.
Chart: AIHW. Source: Analysis of AIHW National Mortality Database.

Scatter plot

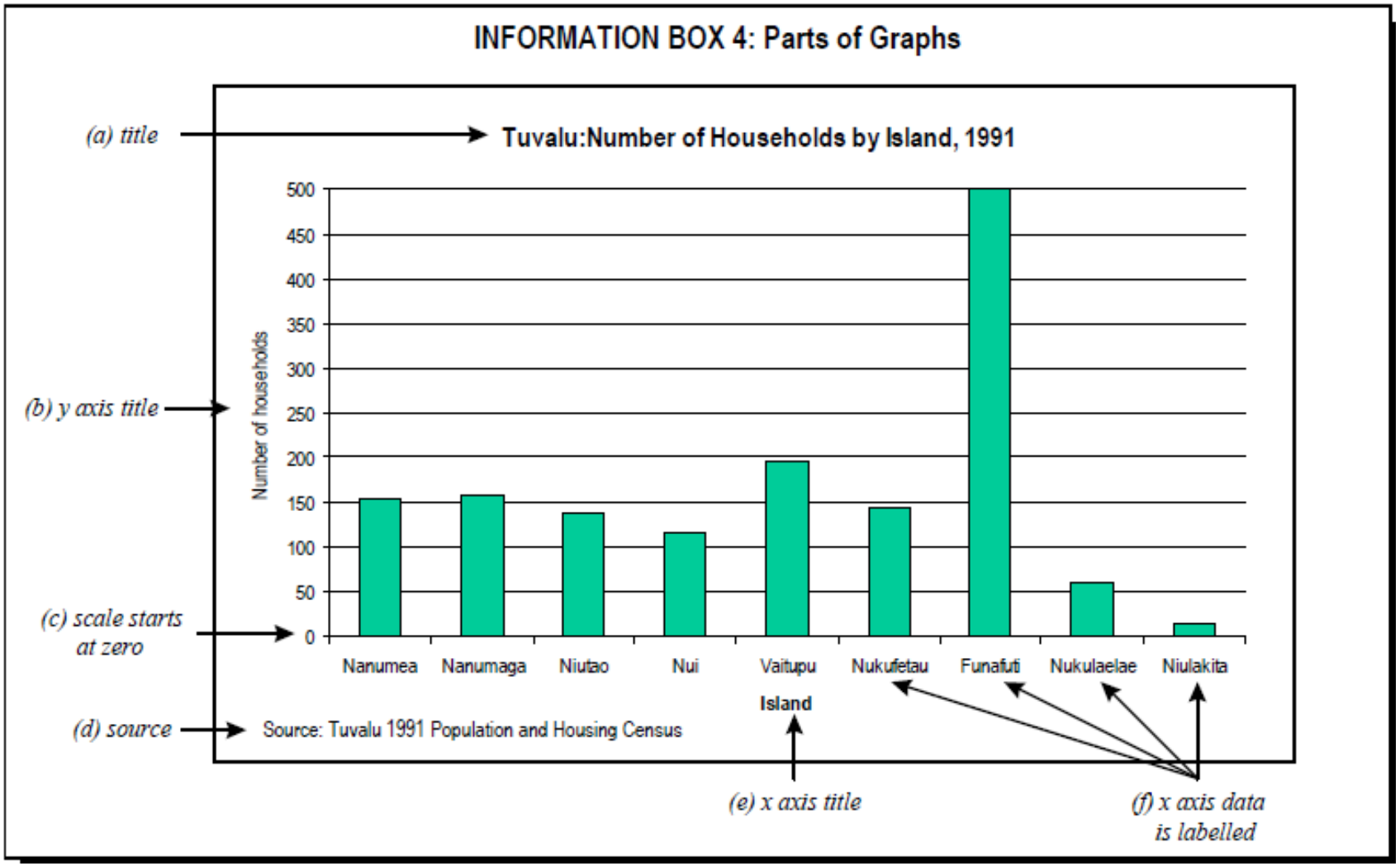


Source: Jamison et al. (2006) *Disease and Mortality in Sub-Saharan Africa, 2nd edition*, Washington D.C., The World Bank[7].

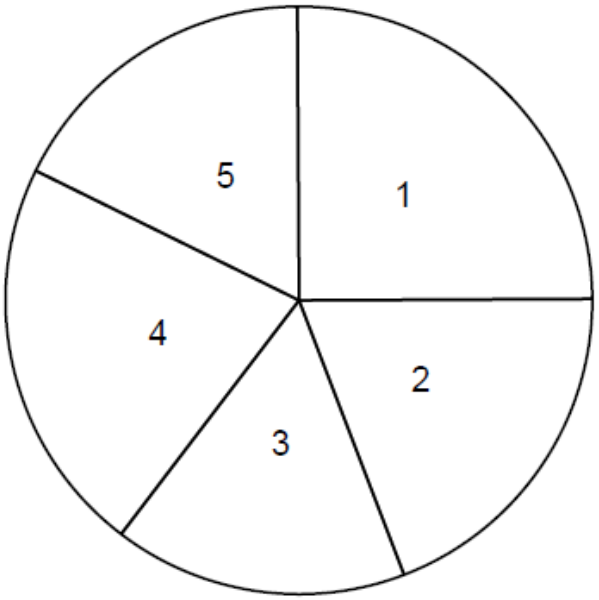
Advantages and disadvantages

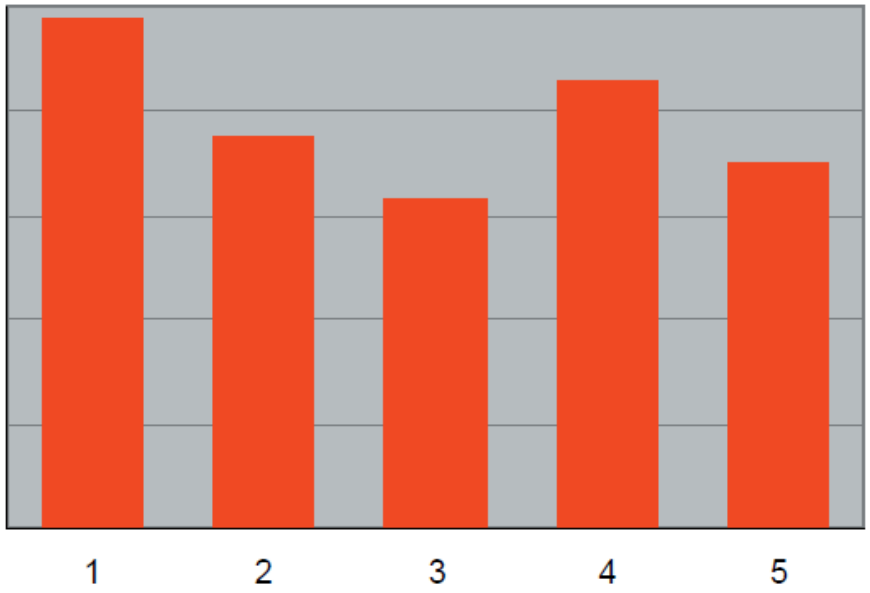
Chart type	Advantages	Disadvantages
Bar chart (vertical)	Simple and clear Works for categories and time series	Not good for long time series Small space for long names
Bar chart (horizontal)	Good for large number of categories Works for long names	Not appropriate for time series
Line chart	Simple and clear Best for time series	More than three lines gets confusing
Pie chart	Shows distribution of one variable	Not good for making comparisons Too many ‘slices’ gets confusing
Scatter plots	Shows relationships between variables	Can be difficult to interpret

Components of a good graph

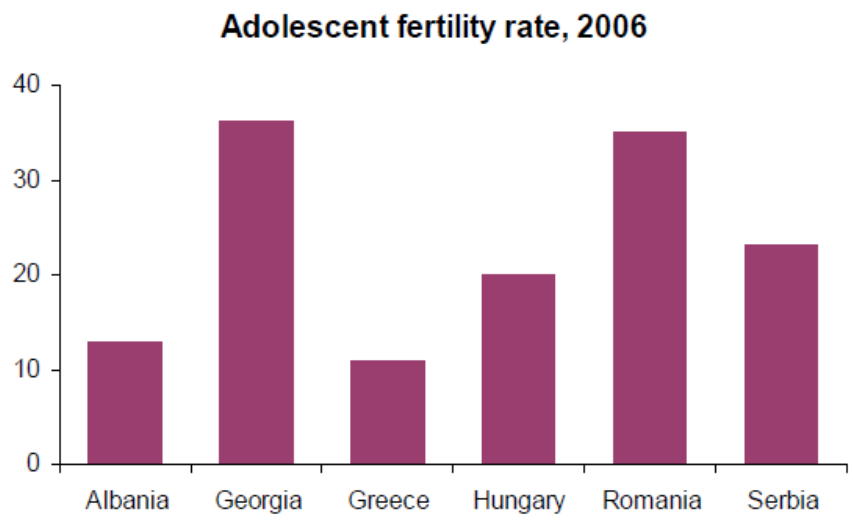
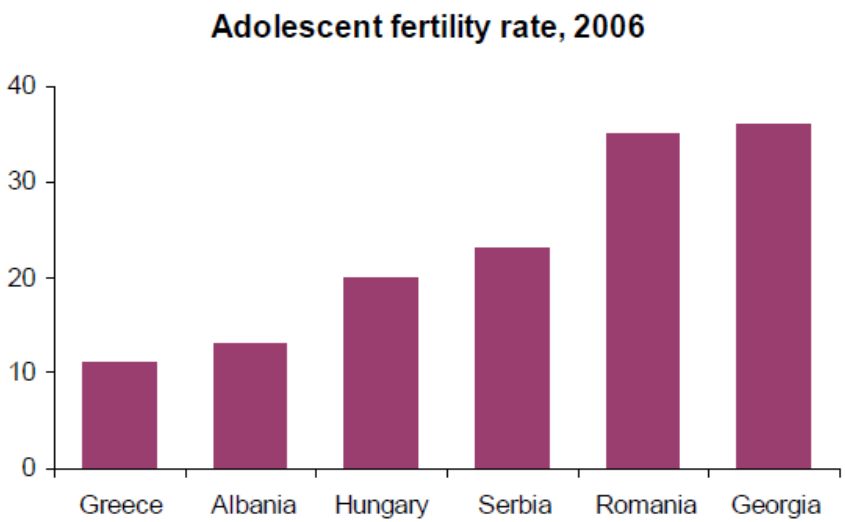


Which type should I use?

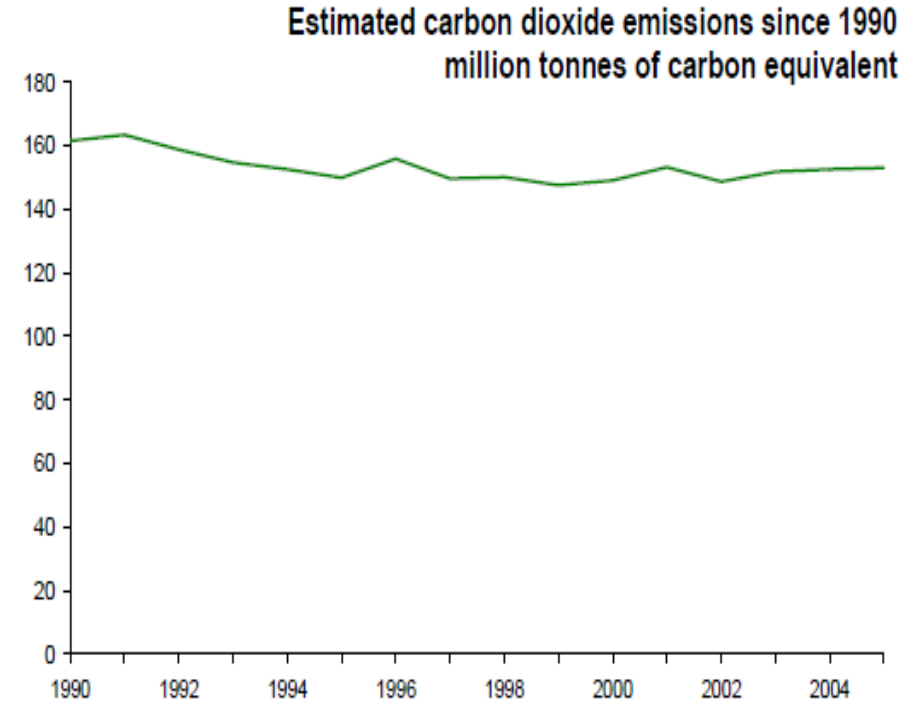


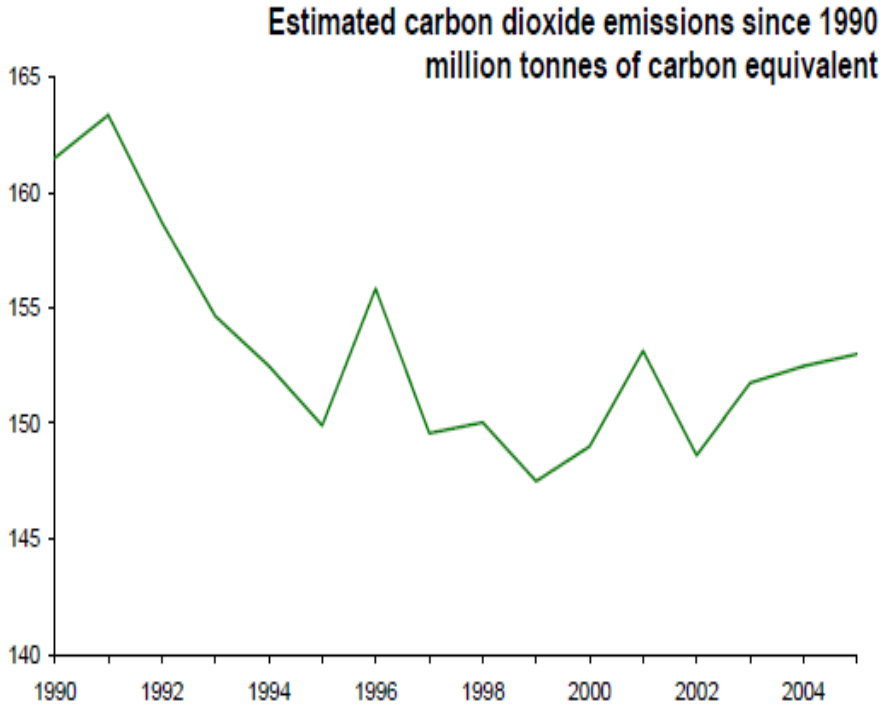


Sort your data

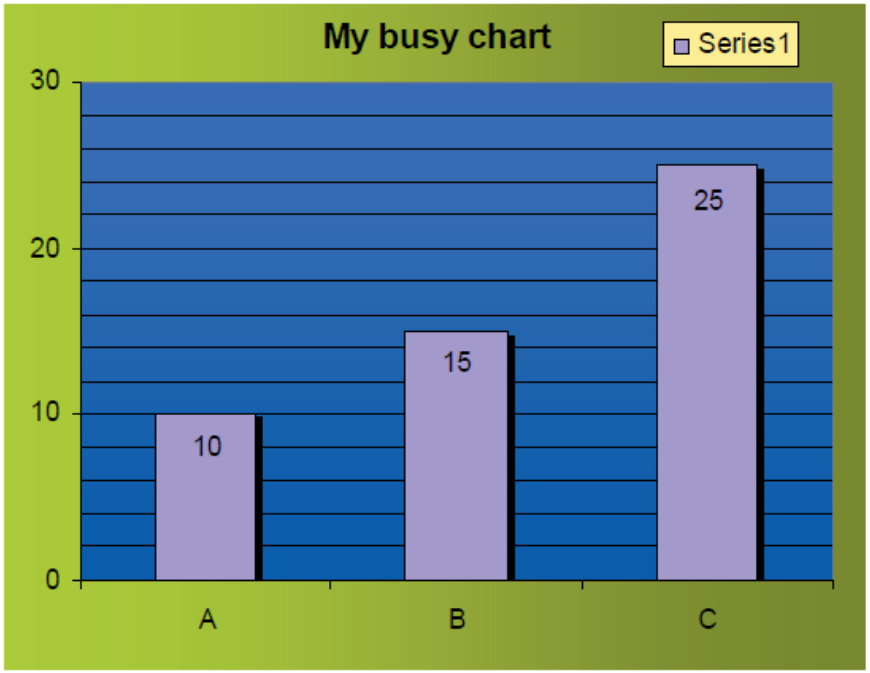
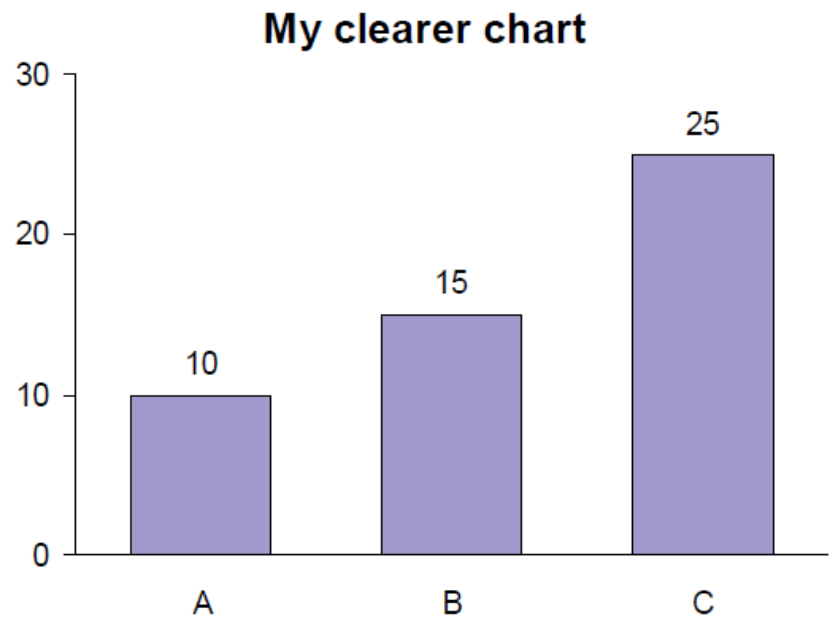
BAD EXAMPLE	GOOD EXAMPLE
	
The data are presented by alphabetical order of countries. The values are very difficult to compare. Attention is on the first and last values, which have no specific relevance.	The data are presented in order from smallest to largest values. It is easy to compare them. Attention is focused on the minimum and maximum values of the dataset.

Re-setting axis scales – caution!



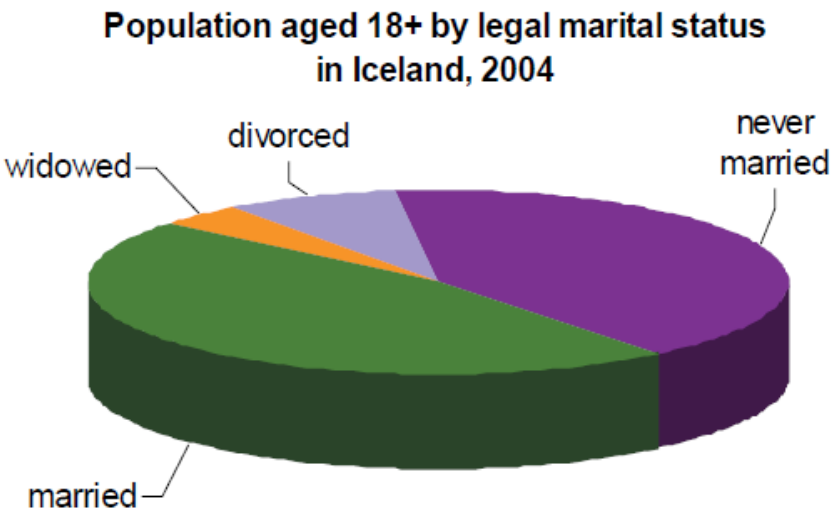


Keep it simple

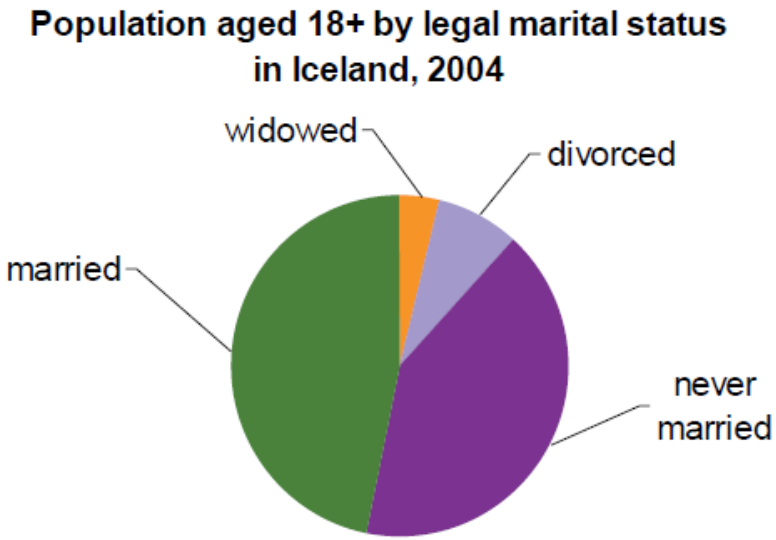
BAD EXAMPLE	GOOD EXAMPLE
	
All components have maximum impact. The result is a busy chart, difficult to read, even though it shows only three values.	This chart is much easier to read. Minimal use of support components ensures that data take centre stage.

Keep it simple

BAD EXAMPLE

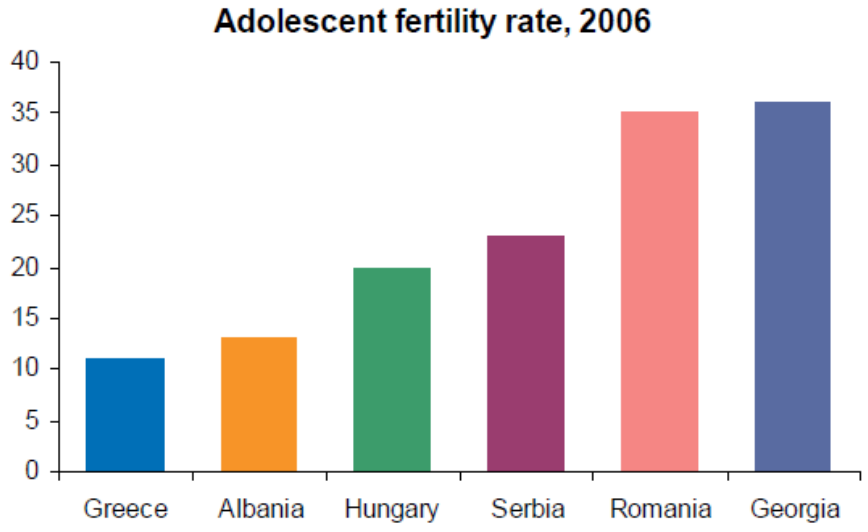


GOOD EXAMPLE

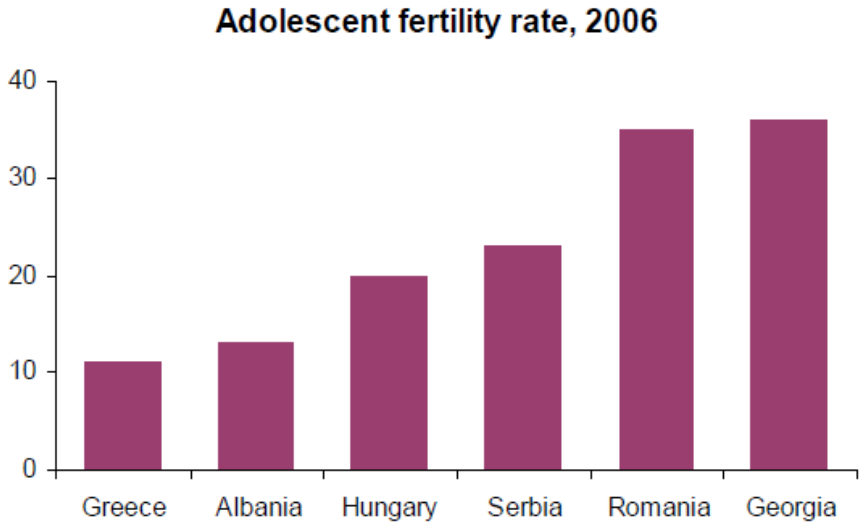


Keep it simple

BAD EXAMPLE

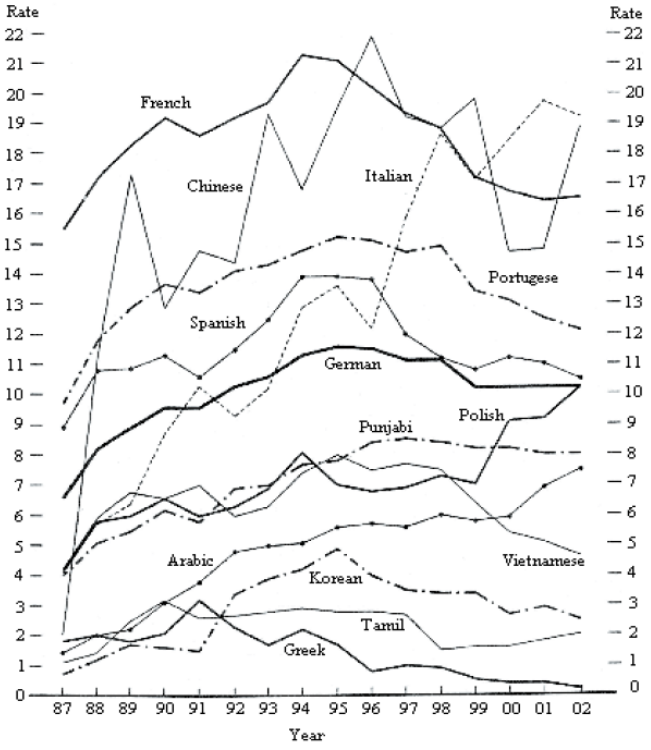


GOOD EXAMPLE



LOAD OF INFORMATION- Caution!

Number of students taking English as a second language at West High School, by first language spoken, 1987 to 2002



Source: Statistics Canada, *Learning Resources: Using graphs*[5].

Any QUESTIONS?