

Chart design

A guide on how best to structure charts commonly used in statistical commentary.

Table of contents

1. Keep it simple (KISS)
2. Chart size
3. Number of lines per chart
4. Location of y-axis
5. Gridlines and unit intervals
6. Gaps between bars
7. Borders and backgrounds
8. 3D and other chart effects

Keep it simple – if there are several relationships in the data and they're not well represented using one chart, separate the data into several charts.

The chart shouldn't feel separate from the report. Use the same font type and size for charts as the body font in the surrounding report.

EXAMPLE

Do



Unemployed adults age 16 to 64 by region

England, 1993

EXAMPLE

Don't



Unemployed adults age 16 to 64 by region

England, 1993

Unemployed adults age 16 to 64 by region

England, 1993

The maximum number of lines plotted on a chart depends on how similar or different the data are and what you want to highlight.

You need to make sure that each line is easily distinguished from the others.

EXAMPLE



Small multiples solution

Use small multiples if it is difficult to distinguish between the plot lines of four or more similar data sets. Use the same scale for all charts when comparing two or more data series.

EXAMPLE



A singular time series of interest can also be highlighted, with all other data sets toned down.

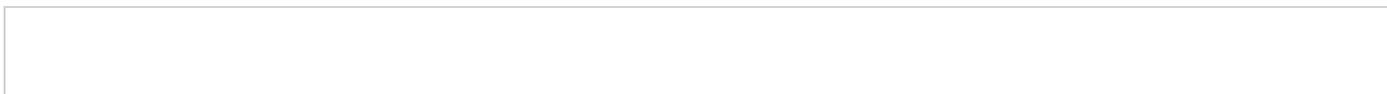
EXAMPLE



Slope chart solution

Use a slope chart to highlight changes between selected years. The granularity of the data is not evident, however trends are easily noticed.

EXAMPLE



Locate the y-axis on the left or the right of the chart area. Place it on the right if the most recent values are the most interesting or relevant. Otherwise, put it on the left of the chart.

Use gridlines sparingly. There should usually be between four and eight gridlines per chart, depending on the size of the chart and the level of data. They should provide enough reference points to read the data values in the chart easily.

Don't use too many gridlines.

Don't use too few gridlines.

Do

Choose sensible gridline intervals.

Do

Don't

Gridlines should always be grey: RGB value (190,190,190).

Don't

A standard bar chart should have gaps between bars that are slightly narrower than the bars. The exceptions to this are the exception of histograms and clustered bar charts.

Example

A clustered bar chart should have gaps between the clusters that are slightly wider than a single bar.

Example

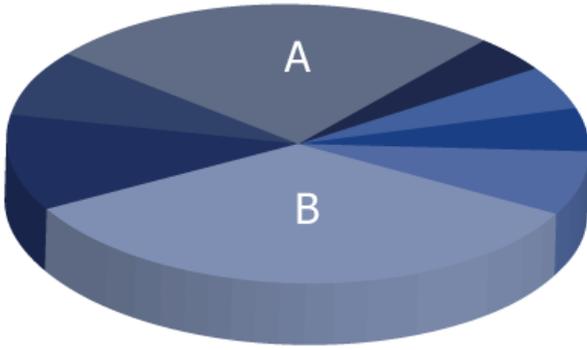
Don't use borders and backgrounds for charts.

Don't

Don't use 3D when creating charts. The false perspective will distort the data.

For example, categories A and B seem equal when plotted in 3D. However, category B is noticeably larger, as shown when plotted in 2D.

Example



When plotted in 3D, the highest value appears to be around 7.9 in 2012. The same data in 2D clearly shows the highest value is 8 in 2010.

Example

In 3D, bar W looks smaller than bar Z. However they're both equal.

Example