Reading and creating tables and graphs

Reading tables and graphs

Understanding and interpreting data presented in tables and graphs is an important skill for practitioners, policy and program staff and researchers.

Understanding and interpreting tables and graphs

The Australian Bureau of Statistics provides a useful outline of the key steps to understanding and interpreting data in tables and graphs:

1. Look at the layout of the table or graph:

   - Check the title of the table or graph as this should tell you what the table or graph is about.

   - Check the row and column names in a table and the x and y axis and legend (if any) in a graph to determine what variables are used.

   - What measures are used? Are there numbers, percentages or rates?

   - What sort of graph is used? The type of graph used can sometimes tell you the type of information being conveyed. For example, a line graph often conveys information about trends/patterns over time.

2. Check footnotes and explanatory notes that are usually under the table or graph to ascertain accuracy, reliability, currency and limitations:

   - Where has the data come from? Is the source reliable?

   - When was the data collected?

   - Is the data current? You may need to check if more recent data is available.

3. Once you have assessed the reliability and currency of the data, have a thorough look at the data and how it is presented:

   - What information is the table or graph conveying?

   - Are there any trends or patterns in the data? If you are reading a table, scan any totals columns or rows as this may assist you to get an idea of any overall trends in the data.

   - What relationships can you see between the data?

   - Does anything stand out?

   - What conclusions can be drawn?

Creating tables and graphs

Tables and graphs can be used to present complex results in an easy to read format and to support the narrative in the text of a report or paper. Tables are useful for organising complex numerical information whilst graphs help to illustrate and compare patterns, changes, trends and relationships.

What type of graph should I use?

Type of graph		Can be used for:
Bar charts (column graph and horizontal bar graph)		Displaying discrete data, comparing data values and showing relationships between variables. Use a stacked bar chart if you want to compare parts to a whole.
Line graph		Displaying relationships between two types of information and trends over time. It is recommended that no more than four values are used in a line graph
Dot chart or scatter graph		Displaying multiple data values and showing relationships between variables
Histogram		Presenting data from the measurement of a continuous variable
Age pyramid		Presenting population age structure
Pie chart or doughnut chart		Use sparingly as it is difficult to determine the size of different values in pie charts and doughnut charts. Only use for simple comparison of no more than four categories that are not equal values. Bar charts can be used instead of pie charts.

Source: Australian Bureau of Statistics (ABS), 'Displaying information: Graph types'

You can create tables and graphs easily in Word or Excel. Before you start, consider:

- What information are you trying to convey to your audience?
- Should this information be conveyed in a table or graph?
- If you have decided to use a graph, what is the purpose of the graph? Which type of graph should be used?

Don't forget

- Limit the amount of information in a table as large tables are difficult to read. If you have a lot of information in the table, consider splitting the table or using shading to make the table easier to read.
- Graphs should be simple and not cluttered and they should show the data accurately. Avoid using 3D graphs.
- Give your table or graph a title. Keep the title brief, informative and engaging.
- Specify the units of measurement on the x and y axis.
- Label each part of the chart or graph and consider using a legend if you have a lot of information in the graph.
- Number your table or graph e.g. Table 1 or Figure 1.
- Reference the table or graph number in the text of your report or paper
- Include any relevant footnotes and reference the source of the data under the table or graph

Useful resources

Further information about creating graphs in Excel and Word is available on the Microsoft Office support website.

Understanding statistical concepts and terminology by the Australian Bureau of Statistics includes an outline of the key steps to understanding and interpreting data in tables and graphs.

Further information about how to create pivot tables, charts and dashboards:

Introduction to pivot tables, charts and dashboards in Excel (Part 1)

Introduction to pivot tables, charts and dashboards (Part 2)

How to create a dashboard using pivot tables and charts in Excel (Part 3)

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