

# SPSS<sup>®</sup> VERSION 16.0 for Windows

Analysis without Anguish



Sheridan J Coakes • Lyndall Steed • Clara Ong

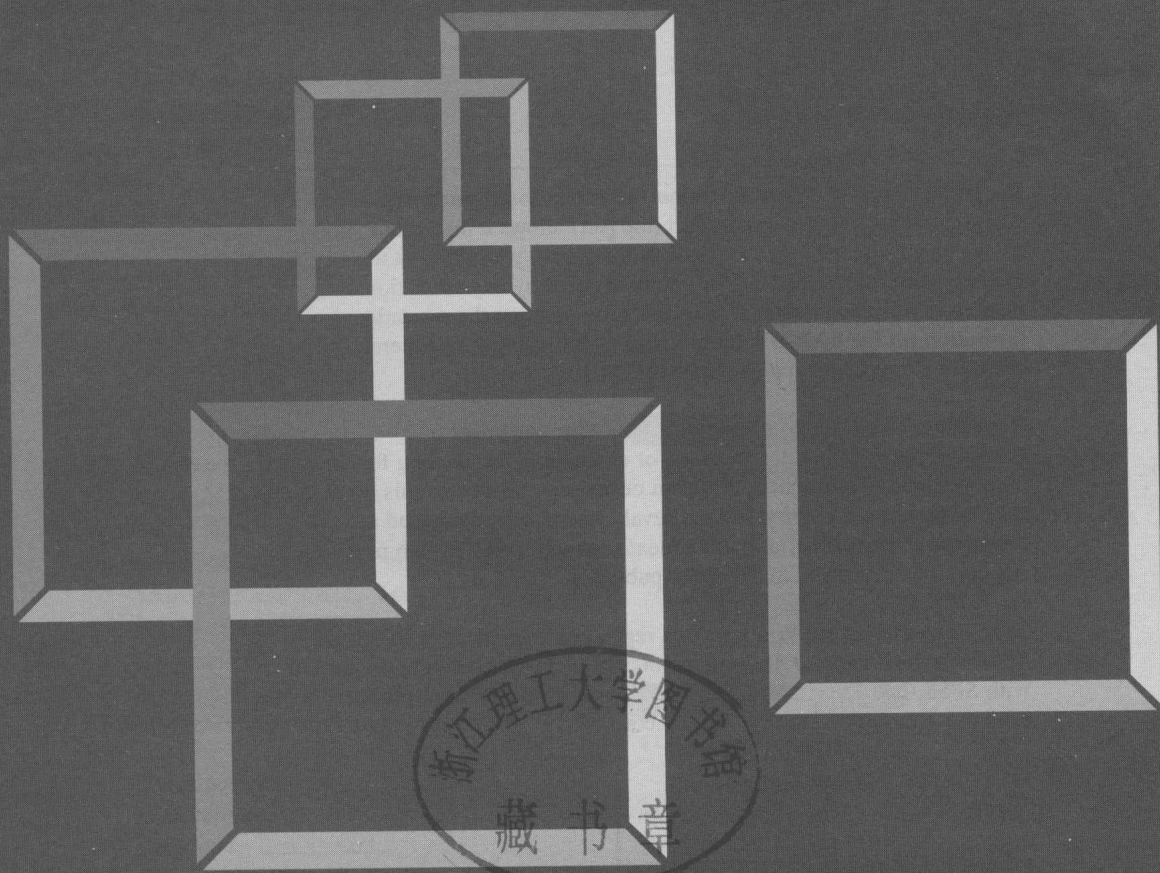




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# Preface

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SPSS is a sophisticated piece of software used by social scientists and related professionals for statistical analysis. This workbook is based on version 16.0, which is compatible with the Windows environment.

The SPSS program is segmented into modules, each with enhanced data management and reporting capabilities. There is a basic module, SPSS Base 16.0 for Windows, which can be expanded by purchasing a number of add-on modules.

SPSS version 16.0 represents only minor updates to version 15.0, designed to make data presentation and graphing even more accessible for the beginner and the experienced data user.

SPSS also offers a website ([spss.com](http://spss.com)), which includes frequently asked questions about installation and running of the software. While this text provides a range of practice examples for you to practise the various analytical techniques, many additional data files are available on the website for users to practise using the package.

## What is new in SPSS version 16.0 for Windows?

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SPSS 16.0 for Windows has a new interface which makes the package much easier to use. Dialogue boxes can instantly be resized to accommodate long variable names and lists. You can also quickly drag and drop variables from one pane to another while setting up your analysis.

In addition to its new interface, SPSS 16.0 for Windows includes more powerful data management such as the ability to:

- open multiple datasets within a single session
- directly import data from other programs
- transform data and replace text strings with an improved find and replace function
- better describe categorical data with enhanced value label capacity.

In addition SPSS Base 16.0 for Windows presents new ways to create graphics and custom charts in the Chart Builder including interactive chart functions.

SPSS Base 16.0 system enables a range of analyses outlined in this book; however, the analyses outlined below will require the use of two add-on modules, namely the SPSS Advanced Model and SPSS Categories modules.

- Two-way repeated-measures analysis of variance (ANOVA) — chapter 11
- Mixed/split plot design — chapter 13
- Multiple analysis of variance (MANOVA) — chapter 18
- Multidimensional scaling — chapter 21

Students accessing SPSS 16.0 at their respective University should have access to all modules. The Graduate pack includes the Base, Regression, and Advanced models, as well as a separate program for structural equation modeling called Amos 16.0.

More detailed information about the functions and capabilities of these modules are outlined on the SPSS website at [spss.com](http://spss.com). Also, if you need support during the installation of your software, many commonly asked questions are answered in the website's Technical Support page at [support.spss.com](http://support.spss.com).



## This edition

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This edition of *SPSS: Analysis without Anguish* continues the trend of previous editions in providing practical text intended as an introduction to SPSS and a guide for users who wish to conduct analytical procedures. We have also tried to improve the text from the feedback we have obtained from our readers.

Section 1 introduces the user to many of the features and techniques available within the SPSS package. In this section, the user will learn how to prepare data files, screen and transform data, and conduct various statistical analyses ranging from descriptive statistics, correlation to inferential and multivariate statistics, reliability and factor analysis.

Building on knowledge obtained in section 1, section 2 enables the user to examine 'real-life' data obtained from actual research projects. This provides students with a valuable opportunity to conduct a range of analyses on data which has been obtained through applied research practice. 'Chapter 23: Introduction and research questions' contains links to research questions, and adapted datasets that can be used with the Student version on the John Wiley website accompanying this title. The homework exercises and research scenarios in 'Chapter 24: Practising analytical techniques' have varying degrees of complexity to facilitate:

- students to undertake analysis at home
- lecturers to set take-home assignments based on the homework exercises.

The opportunity to examine data sets in this way, we believe, more closely reflects actual research practice. A range of research questions are posed and different techniques employed.

In line with previous editions, practice examples are included in section 3 to provide the user with some extra practice! Users will be able to obtain a quick and easy access to all the relevant data files on the student website ([www.johnwiley.com.au/highered/spssv16/student-res](http://www.johnwiley.com.au/highered/spssv16/student-res)).

As requested, we have included reporting at the end of each relevant chapter to illustrate how significant results from each of the particular tests should be presented. We have also introduced, where relevant, a 'handy hints' section at the end of most chapters, highlighting the significant points to remember when applying the particular techniques.

Although the workbook outlines each statistical procedure, this is not a statistical text and a degree of statistical knowledge is assumed. At the beginning of each chapter, assumption testing for each procedure is discussed and the procedure is approached simply and systematically.

Again, we've tried to keep the text clear and simple — no one text will satisfy all our readers; however, we hope that, as with past editions, the text is a useful and practical guide to statistical analysis.

The concept of the workbook arose from our collective experience of teaching and using research methods in an applied context. It has evolved from a recognised need to make research methodology more accessible and understandable to students who are undertaking research methods courses and to professionals who are taking part in social research within and across a range of disciplinary settings.

We still receive very positive feedback from you, the users of the book, who tell us that we have helped alleviate some of the 'anguish' associated with the analysis of research data. We trust that this edition continues to help in the regard.

Having worked through the book, you will be well on your way to effective research from coding, entering and exploring data, and undertaking appropriate analysis to creating meaningful data output.

We wish you well in your research endeavours. A very big thank-you goes out to you, our readers, for your continued support.

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How to use SPSS



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# SECTION 1

How to use SPSS





# Introduction to SPSS

This chapter provides an introduction to using SPSS Version 16.0 for Windows. It discusses aspects of the SPSS environment, describes the menu options and toolbars, and provides instructions on how to begin and end an SPSS session.

## Getting started

If this is one of your first experiences with the SPSS package, do not be put off. Before long, you will be able to manoeuvre around the package with ease and carry out all kinds of analytical procedures. Now, it's time to familiarise ourselves with the SPSS program and its attributes.

When SPSS is initially installed, the SPSS program group is created in the **Programs** menu. To start an SPSS session, double-click on the SPSS 16.0 for Windows icon.



## The SPSS environment



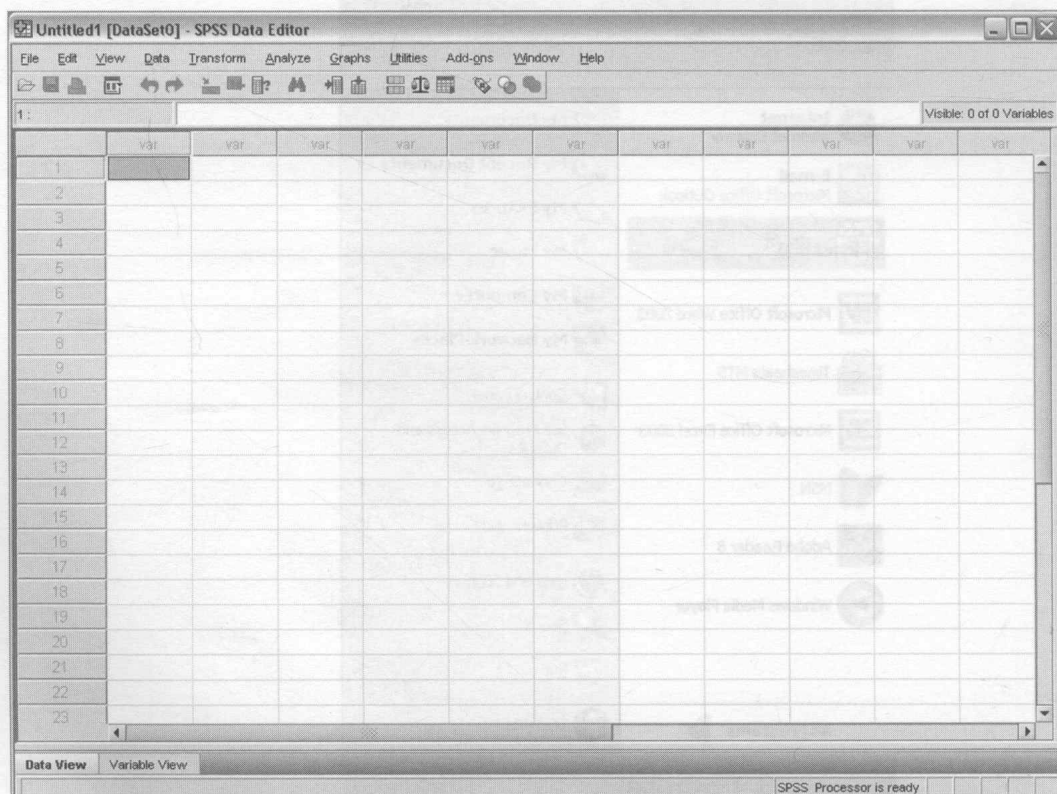
SPSS for Windows provides a powerful statistical analysis and data management system in a graphical environment, using descriptive menus and simple dialogue boxes to do most of the work for you. Most tasks can be accomplished simply by pointing and clicking the mouse.

In addition to the simple point-and-click interface for statistical analysis, SPSS has eight different types of windows:

- Data Editor
- Viewer
- Draft Viewer
- Pivot Table Editor
- Chart Editor
- Text Output Editor
- Syntax Editor
- Script Editor.

### Data Editor

The Data Editor is a versatile spreadsheet-like system for defining, entering, editing and displaying data. This window opens when you start an SPSS session and displays the contents of a data file. In this window, you can create new data files or modify existing ones. As outlined, the data editor is like a spreadsheet in which cases are represented in rows and variables are represented in columns.

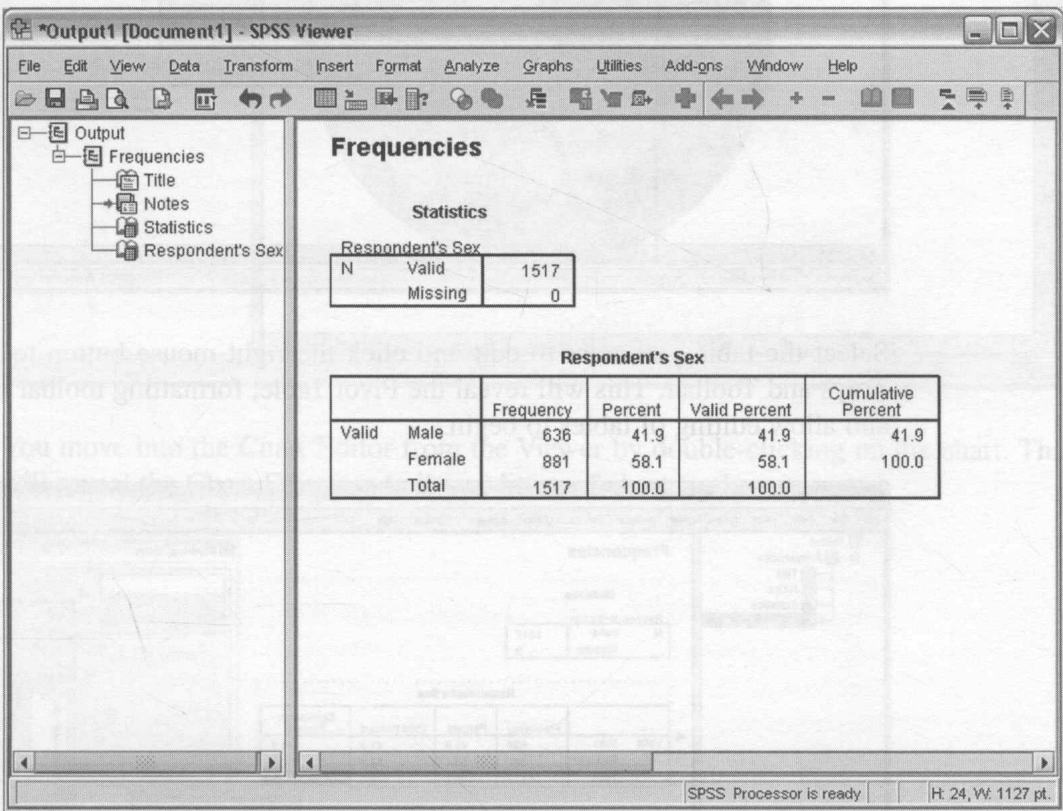




# Viewer and Draft Viewer

The Viewer makes it easy to browse your results, selectively show and hide output, change the display, order results and move presentation-quality tables and charts between SPSS and other applications. This window opens automatically the first time you run a procedure that generates some output. The window displays all statistical results, tables and charts, and allows you to edit the output and save it in an output file for later use. This window also allows you to access the Pivot Table Editor, Text Output Editor and Chart Editor, and to move between SPSS and other applications, for example Word.

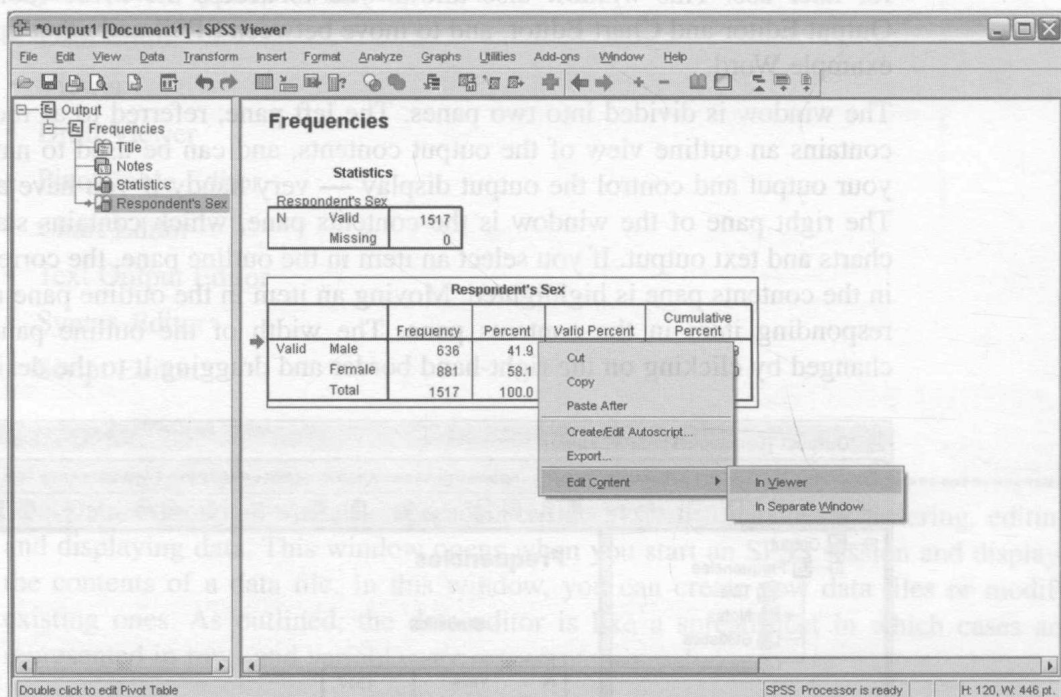
The window is divided into two panes. The left pane, referred to as the outline pane, contains an outline view of the output contents, and can be used to navigate through your output and control the output display — very handy if you have a lot of output. The right pane of the window is the contents pane, which contains statistical tables, charts and text output. If you select an item in the outline pane, the corresponding item in the contents pane is highlighted. Moving an item in the outline pane moves the corresponding item in the contents pane. The width of the outline pane can also be changed by clicking on the right-hand border and dragging it to the desired width.



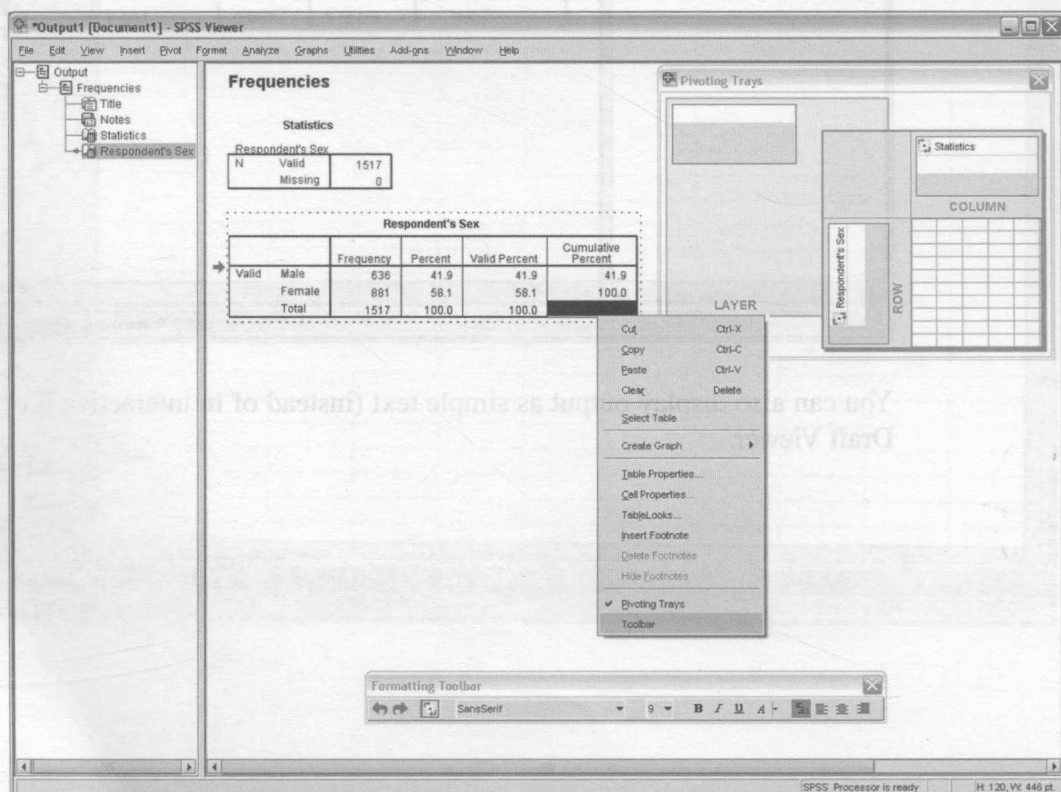
You can also display output as simple text (instead of in interactive pivot tables) in the Draft Viewer.

## The SPSS Pivot Table Editor

Output displayed in pivot tables can be modified in different ways. Using this editor, it is possible to edit text, rearrange rows, columns and layers, add colour, create multi-dimensional tables and selectively hide and display results. You move into the Pivot Table Editor from the Viewer by selecting the table you want to edit, and click the right mouse button to select Edit Content in Viewer.



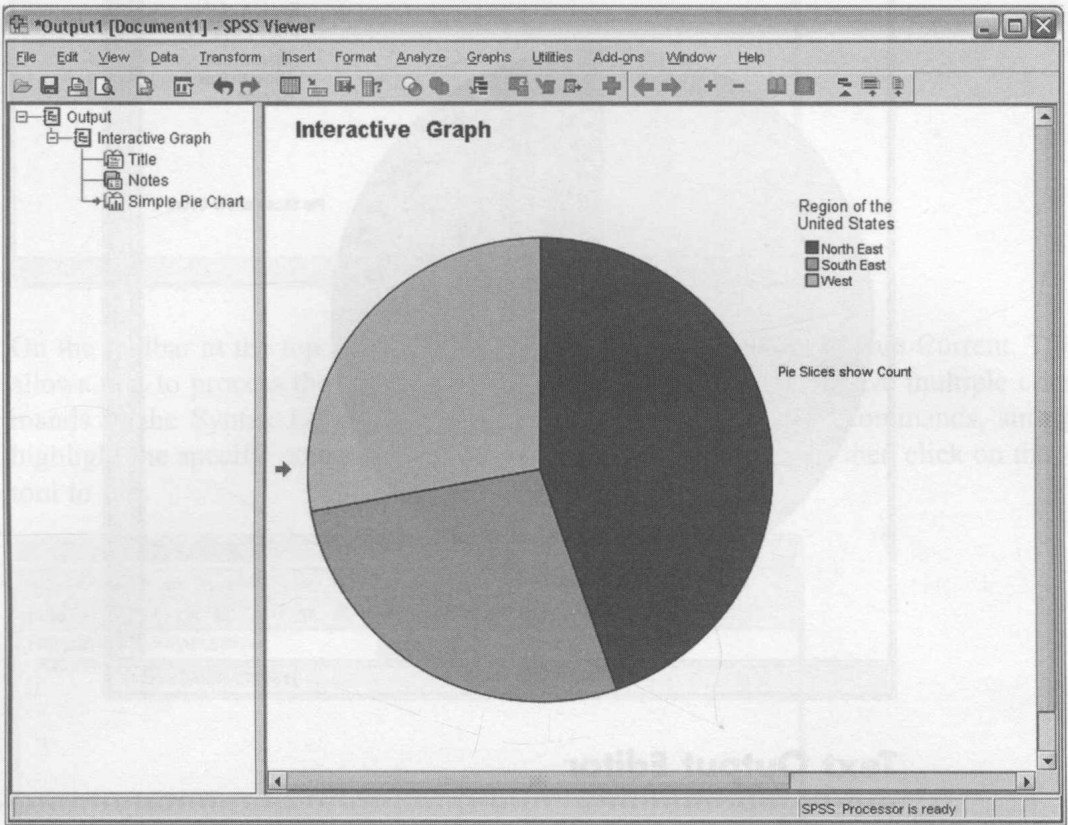
Select the table you want to edit and click the right mouse button to select Pivoting Trays and Toolbar. This will reveal the Pivot Table, formatting toolbar and pivot trays, and allow editing of tables to begin.





# Chart Editor

High-resolution, full-colour pie charts, bar charts, histograms, scatterplots, 3-D graphics and more are included as standard features in SPSS. These can be edited in the Chart Editor. Changes in colour, font, axes, rotations and chart types can also be made using the Chart Editor.



You move into the Chart Editor from the Viewer by double-clicking on the chart. This will reveal the Chart Editor and allow editing of charts to begin.