COMPARING THE DURABILITY OF TIRES

9.   Displaying and Describing the Data with SPSS

In this part, we will demonstrate how to use SPSS to produce the computer outputs we referred to in Sections 4 and 5. The hyperlinks in the text below allow you to refer to the statistical outputs contained in the sections.

The matched pairs in our case study have been reduced to a single set of measurements by finding the difference between the two observations in each matched pair. We will describe first how to create a new variable *diff*, whose values are the differences.

Click on *Transform* in the main menu to obtain the following submenu.

Transform	Statistics	Graphs
Compute...		
Random Number Seed...		
Count...		
Recode		▶
Rank Cases...		
Automatic Recode...		
Create Time Series...		
Replace Missing Values...		
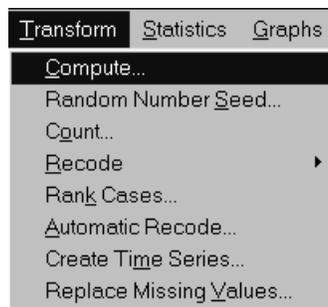
Then click on *Compute* to open the *Compute Variable* dialog box.

Compute Variable

Target Variable: `diff` = Numeric Expression: `brand_a - brand_a`

Type&Label...

brand_a
brand_b

+	<	>	7	8	9
-	<=	>=	4	5	6
*	=	~=	1	2	3
/	&	|	0	.
**	~	()	Delete

Functions:
ABS(numexpr)
ANY(test,value,value,...)
ARSIN(numexpr)
ARTAN(numexpr)
CDFNORM(zvalue)
CDF.BERNOULLI(q,p)

If...

OK   Paste   Reset   Cancel   Help
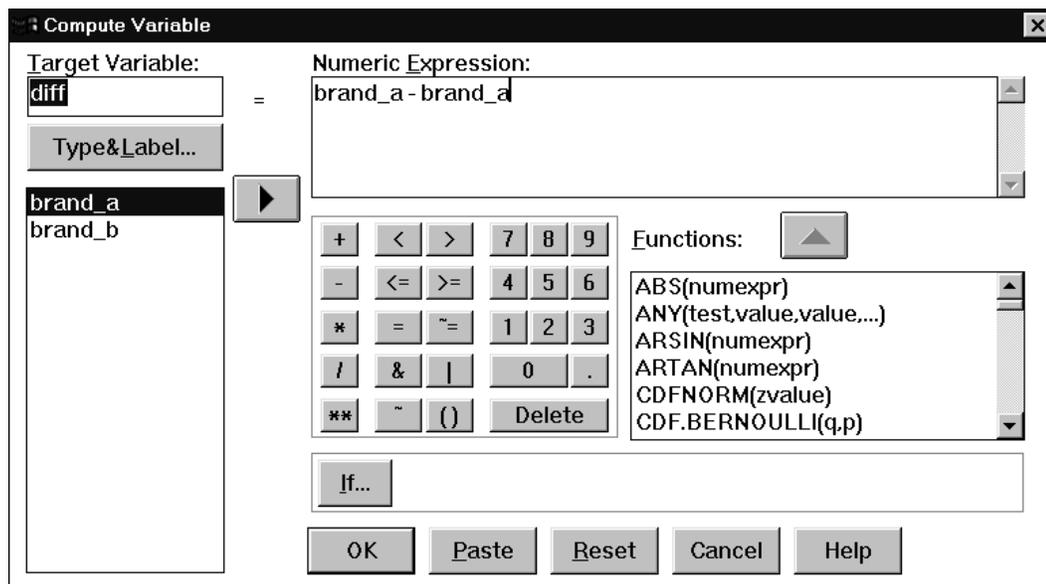
Type in the name of the target variable *diff*, and then click on *brand_a* variable and the arrow to move the variable to the *Numeric Expression* box. Enter minus sign, and enter in the same way the *brand_b* variable. Click OK. The new variable *diff* is defined.

Now we will demonstrate how to obtain a scatterplot of tread depths of brand A versus brand B. The instructions how to obtain scatterplots in SPSS are included in the *Charts* section of the *Introduction to SPSS for Windows* module. For your convenience we will demonstrate how to use the instructions in our case study.

Select *Graphs* in the main menu, and choose *Scatter*....You will obtain the following dialog box:

After clicking on *Scatter...* you will obtain the following dialog box:
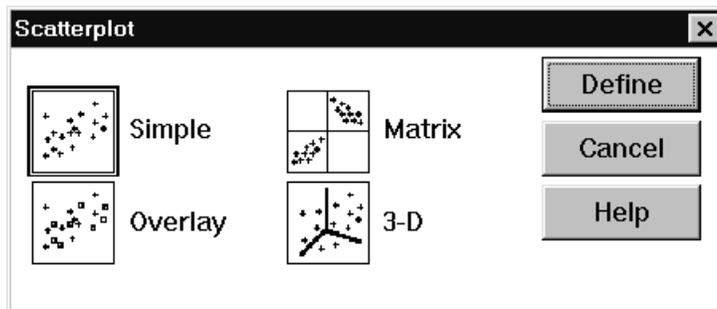
In order to obtain a scatterplot of the tread depths of brand A tires versus the tread depths of brand B tires, choose *Simple* in the box. The dialog box displayed should be filled out as follows:
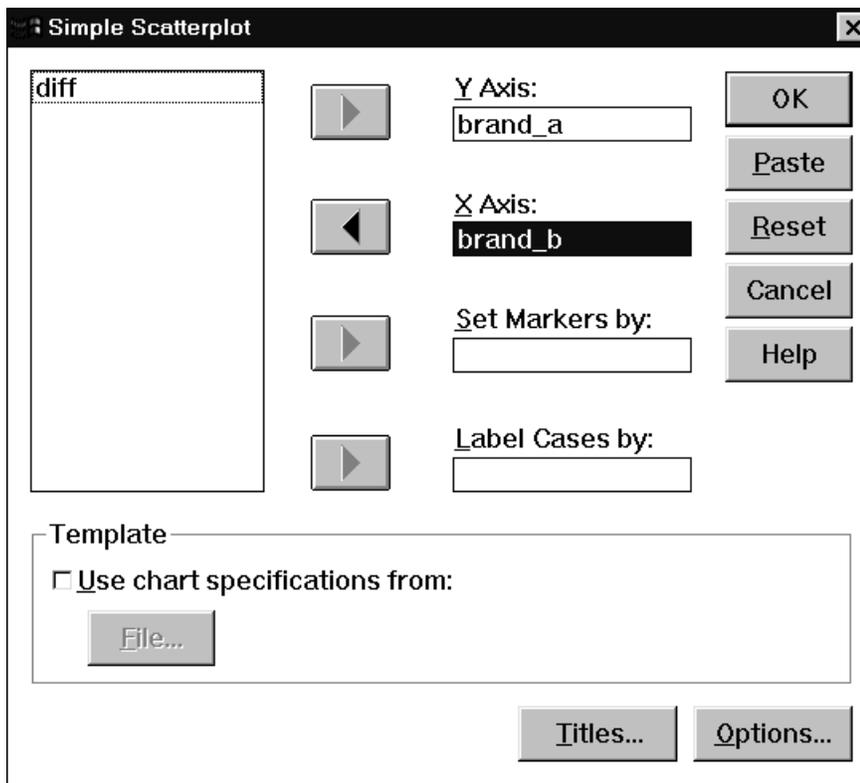
Click on OK to obtain a scatterplot displayed in Section 4.1.

In order to obtain a boxplot and a histogram of the differences, click on *Graphs*, and then on *Boxplot...* or *Histogram...* command in the submenu. Use the procedures for the *diff* variable.

The descriptive statistics for the diff variable can be obtained by the *Explore* command.
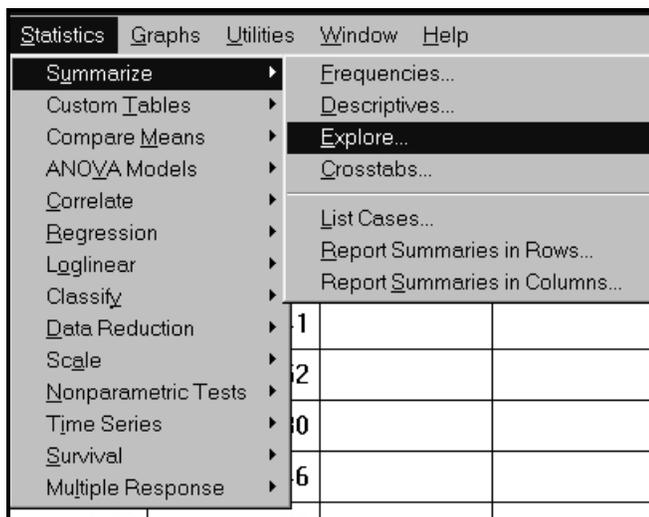
By clicking on *Explore*, the following dialog box opens.

Explore ✕

brand_a
brand_b

Dependent List:
diff

OK

Paste

Reset

Cancel

Help

Factor List:

Label Cases by:

Display
● Both   ○ Statistics   ○ Plots

Statistics...   Plots...   Options...
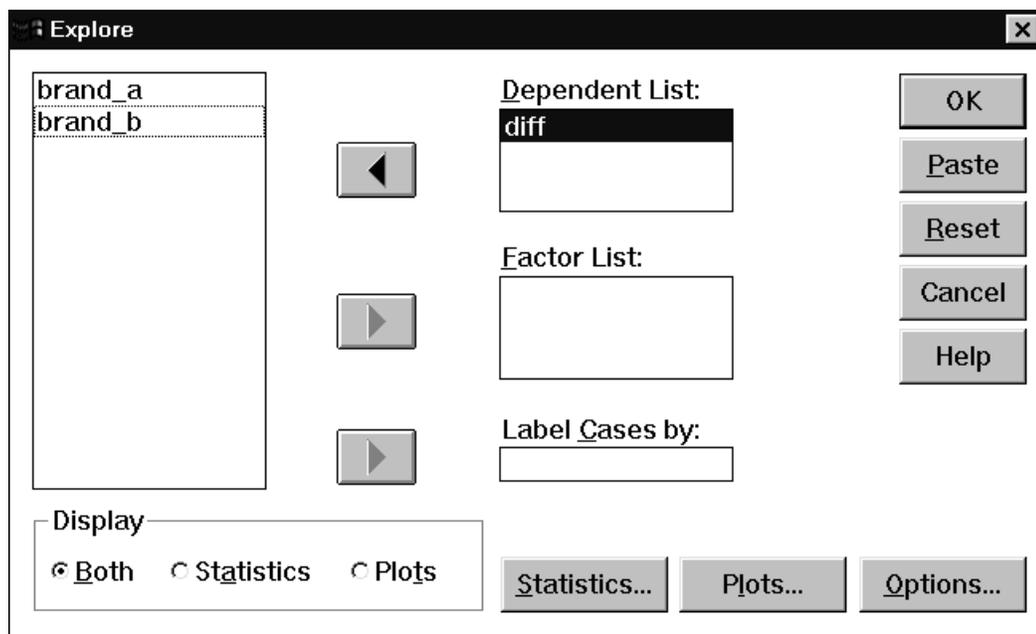
Now click OK. The following output will be displayed:

DIFF

Valid cases: 20.0   Missing cases: .0   Percent missing: .0

Mean	.2765	Std Err	.0611	Min	-.2300	Skewness	-.5952
Median	.3650	Variance	.0747	Max	.6600	S E Skew	.5121
5% Trim	.2833	Std Dev	.2734	Range	.8900	Kurtosis	-.9362
95% CI (.1486, .4044)		IQR	.4400			S E Kurt	.9924