Workshop on SPSS Syntax

1. Using SPSS Syntax to Run Univariate and Bivariate Analyses

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SPSS Windows

- Default:
  - Data editor (→ *.sav)
  - Output viewer (→ *.spv)
- The missing third window:
  - Syntax editor (→ *.sps)

What Can You Do with SPSS Syntax?

- Statistical Analysis
  - Univariate (covered here)
  - Bivariate (covered here)
  - Multivariate
- Variable Transformation
  - Create new variables
  - Change existing variables
  - Rename existing variables
  - etc.
- Data File Manipulation
  - Combine files
  - Split files
  - Aggregate individual cases to summarized cases
  - Transpose variables to cases or cases to variables
  - etc.

Read/Save SPSS Data File

Read SPSS Data:

get file="FILE ADDRESS".

Save to SPSS Data:

save out="FILE ADDRESS".

Elementary Statistical Analysis

- Univariate Analysis:
  - Mean, median, mode
  - Standard deviation, variance
  - Frequency, percentage, cumulated percentage

- Bivariate Analysis

<table>
<tr><td></td><td colspan="3">Independent Variable</td></tr>
<tr><td>Dependent Variable</td><td>Categorical (2 categories)</td><td>Categorical (3+ categ's)</td><td>Continuous</td></tr>
<tr><td>Categorical (2 categ's)</td><td colspan="2" rowspan="2">Crosstabulation (Chi-square test)</td><td>Logistic Regression</td></tr>
<tr><td>Categorical (3+ categ's)</td><td>Multinomial Logistic Reg (NOMREG)</td></tr>
<tr><td>Continuous</td><td>t-test</td><td>ANOVA (F-test)</td><td>Correlation /Regression</td></tr>
</table>

SPSS Syntax for Univariate Analysis

Y is a continuous variable:

descriptive var=***Y***/stat=all.

- "stat=all" generates mean, median, standard deviation, variance, minimum, maximum, kurtosis, skewness, and other descriptive statistics.

Y is a categorical variable:

frequencies var=***Y***
/histogram=normal.

- "histogram=normal" generates a histogram chart, compared with normal distribution.
- "stat=all" can be added to generate similar descriptive statistics as the left.

SPSS Syntax for Bivariate Analysis

Test	SPSS Syntax	Notes
t-test	t-test group=***X*(VALUE1,VALUE2)**/var=***Y***	IV has 2 groups.
ANOVA	means ***Y*** by ***X***/stat=anova.	IV has 3+ groups.
Crosstabulation	crosstabs ***Y*** by ***X***/cell=col/stat=chi.	Show column %.
Correlation	correlate ***Y X***.	Correlation matrix.
Regression	regression dep=***Y***/enter=***X***.	
Logistic Regression	logistic regression ***Y*** with ***X***.	IV has 2 groups.
Multinomial Logistic Regression	nomreg ***Y*** with ***X***.	IV has 3+ groups.

X is the independent variable; ***Y*** is the dependent variable.

Multivariate Analysis

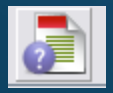
Dependent Variable	Independent Variables		
	Categorical	Mixed of Categorical and Continuous	Continuous
Categorical (2 categories)	Logistic Regression		
Categorical (3+ categories)	Multinomial Logistic Regression (NOMREG)		
Continuous	MANOVA, Multiple Regression	Multiple Regression	

SPSS Syntax for Multivariate Analysis

Test	SPSS Syntax	Notes
Logistic Regression	logistic reg ***Y*** with ***X1 X2*** ... by ***Z1 Z2*** …	***Z1, Z2*** … categorical variables
Multinomial Log Reg	nomreg ***Y*** with ***X1 X2*** ... by ***Z1 Z2*** …	***Z1, Z2*** … categorical variables
MANOVA	manova ***Y*** by ***X1 X2*** ...	
Multiple Regression	reg dep=***Y***/enter ***X1 X2 C1 C2*** ...	***C1, C2*** … dummy coded variables

X is the independent variable; ***Y*** is the dependent variable.

Where to Find Help

- Inside SPSS syntax window:
  - type the first word (e.g., t-test, regression, etc.) of a syntax statement, and click the "Syntax Help" icon  on the top panel
  - the help page of the relevant statement will show up in your web broswer
- Google "spss syntax tutorial" to find dozens of good sites, such as
  - Learning Syntax – Raynald's SPSS Tools
  - Getting Started with SPSS Syntax
  - Statistical Consulting Seminars: Introduction to SPSS Syntax
  - …