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2016 SPSS Workshop 1

Facilitators: Wendy and Sarah



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There is a range of services that the Research Commons provides:

- **Nvivo Software Support**
- **SPSS Software Support**
- **Thesis Formatting**
- **Citation Management**
- ***FIREtalks***
- **...**



SPSS services

1. Workshops (<http://elred.library.ubc.ca/libs>)

- Workshop 1: Introduction to SPSS I
 - SPSS Overview(Interface, Basic Concepts)
 - Data Entry: Introduction to SPSS II
 - One Variable: Descriptive Statistics/Inferential Statistics I
- Workshop 2:
 - Data Management
 - Bivariate analysis

2. Consultations every week

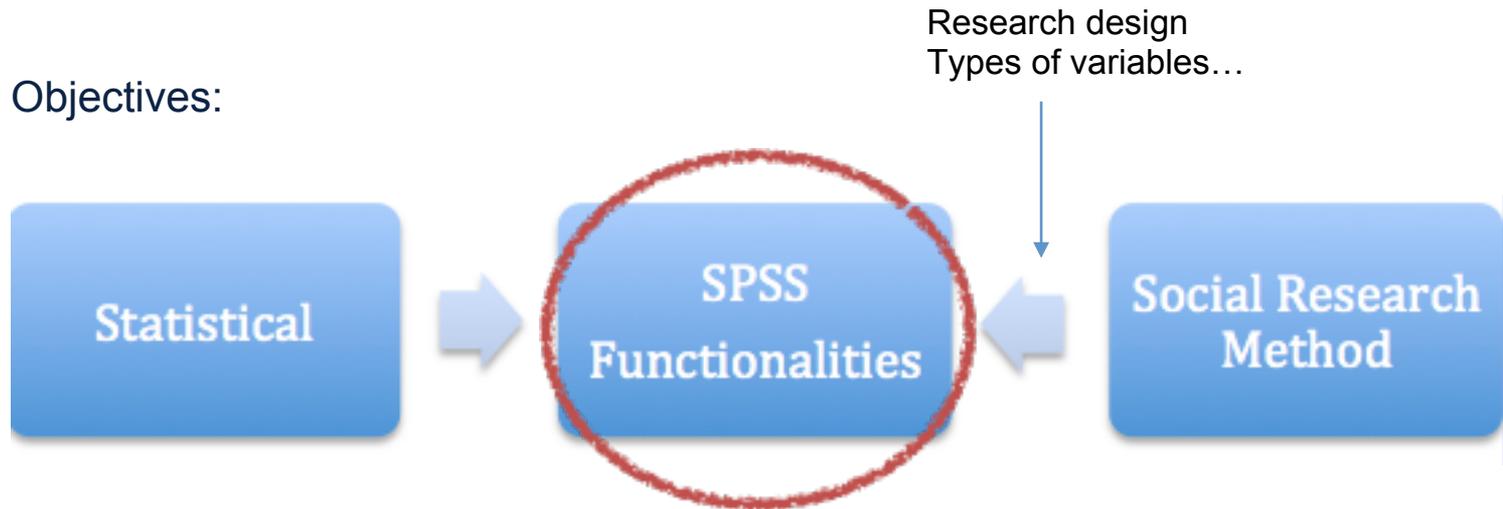
To book a consultation, please fill out a request form:

<http://koerner.library.ubc.ca/services/research-commons/statistical-software-support/>



How can we help you?

Objectives:



- produce data files
- organize/manipulate data
- carry out statistical computations

Why are you coming to SPSS workshops?

Goal: help you get started on SPSS!

- ◇ Friendly, open and collaborative environment
- ◇ Actively think about how to use SPSS for your research
e.g. connecting your research design with SPSS
- ◇ Making SPSS procedures clear to beginners



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A reference tool to outside resources

Resources

SPSS Functionalities

I want to get tutorials on some general features

SPSS Statistics Essential Training
- Tutorial via Lynda.com. This is a subscription site, you should have access via VPL (Vancouver Public Library) if you have a library card.

SPSS On-Line Training
Workshop - Central Michigan U.

<http://www.statisticshowto.com/spss-how-to-index/>

SPSS- Help- Tutorial

Research Methods

I want to understand more statistical analyses and the links between analysis and types of variables

Bryman, Alan. Social research methods. Oxford university press, 2012. Chapter 15
Quantitative analysis

SPSS Exercise

Where I can find more exercises to master SPSS

www.pearsonhighered.com/george.

Statistics Help
What statistical tests should I run? What are the criteria?

<http://www.ats.ucla.edu/stat/spss/whatstat/whatstat.htm#lsampt>

SPSS-Help- Statistics Coach

SPSS Case Studies

Where I can find examples on statistical analysis and data interpretation examples?

SPSS-Help-Case Studies

UBC Statistical Consulting

Free

If you have questions about statistical analysis methodology, please visit the Department of Statistics' Statistical Consulting and Research Laboratory (SCARL) <http://www.stat.ubc.ca/SCARL/> website for information.

SPSS Consulting

One on One

<http://www.ats.ucla.edu/stat/spss/whatstat/whatstat.htm#lsampt>

SPSS-Help- Statistics Coach



Today's Agenda

1. Introduction (SPSS overview)
2. Interface and basic concepts
3. Data Entry
4. Data analysis- One Variable



Introduction: SPSS Overview

SPSS: Statistical Package for the Social Sciences

- A software package used for **quantitative** statistical analysis.
- Officially named "IBM SPSS Statistics".

SPSS vs Excel

- Geared to social research
- An easier and quicker access to basic function, Faster access to statistical tests



SPSS basic concepts and interface

Basic concept:

1. Basic types of data

Quantitative data

Qualitative data

2. Measurement of data

Nominal

Ordinal

Interval/Ratio



Why is this important for SPSS?

Many SPSS procedures depend on whether the data is qualitative or quantitative, as well as the measurement.

Basic types of data

Qualitative (Categorical)

Quantitative

Measurement

 Nominal

 Ordinal

Interval/Ratio

 Scale

Example

Nationality, Sex
Rating of a restaurant
Age Group
Age



SPSS Interface

Interface

- Windows:
 - data editor
 - Data view and variable view
 - statistics viewer
 - syntax editor



Variables

Rows represent cases

Data Editor- Data View

survey_sample.sav [DataSet1] - IBM SPSS Statistics Data Editor

Visible: 46 of 46 Variables

	id	wrkstat	marital	childs	age	educ	paeduc	maeduc	speduc	degree	sex	race	born	parborn	gbrborn	income	rincome	polviews	cappi
1	1	Working f...	Divorced	2	60	12	12	12	NAP	High school	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Moderate	F
2	2	Working p...	Never mar...	0	27	17	20	NAP	NAP	Junior coll...	Female	White	Yes	Both in U.S.	All in U.S.	\$15000 - ...	\$15000 - ...	Liberal	Op
3	3	Working f...	Married	2	36	12	12	12	16	High school	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Conservat...	
4	4	Working f...	Never mar...	0	21	13	NAP	12	NAP	High school	Male	White	Yes	Both in U.S.	1	\$15000 - ...	\$15000 - ...	Liberal	Op
5	5	Working f...	Never mar...	0	35	16	NAP	12	NAP	Bachelor	Female	White	Yes	Neither in...	4	\$25000 or...	\$25000 or...	Moderate	F
6	6	Working f...	Divorced	1	33	16	9	6	NAP	Bachelor	Male	White	Yes	Father only	3	\$20000 - ...	NAP	Moderate	F
7	7	Working f...	Separated	0	43	12	14	12	NAP	High school	Male	White	Yes	Both in U.S.	NAP	\$25000 or...	\$25000 or...	Moderate	F
8	8	Working f...	Never mar...	0	29	13	16	12	NAP	High school	Male	White	Yes	Both in U.S.	2	\$25000 or...	\$25000 or...	Moderate	F
9	9	Working p...	Married	2	39	18	16	12	13	Bachelor	Female	White	Yes	Both in U.S.	1	DK	DK	Slightly co...	F
10	10	Working f...	Divorced	0	45	15	16	12	NAP	Junior coll...	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Slightly co...	F
11	11	Unemploy...	Never mar...	0	29	12	12	12	NAP	High school	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Slightly lib...	F
12	12	Working f...	Married	1	41	15	NAP	8	14	High school	Female	Black	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Liberal	F
13	13	Working p...	Divorced	2	32	14	NAP	12	NAP	High school	Female	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$5000 TO...	Moderate	F
14	14	Working f...	Married	1	48	20	12	8	16	Bachelor	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Slightly lib...	F
15	15	Keeping h...	Never mar...	0	20	12	12	12	NAP	High school	Female	White	No	Both in U.S.	All in U.S.	\$25000 or...	NA	Moderate	F
16	16	Working f...	Married	5	43	16	6	6	12	Bachelor	Male	Other	No	NA	4	\$20000 - ...	\$6000 TO...	Extremely...	F
17	17	Working f...	Divorced	4	27	11	6	4	NAP	LT High sc...	Female	Other	Yes	Neither in...	4	\$10000 - ...	\$10000 - ...	Extremely...	F
18	18	Keeping h...	Widowed	7	34	7	DK	DK	NAP	LT High sc...	Female	Other	Yes	Both in U.S.	NAP	DK	NAP	Conservat...	F
19	19	Working f...	Separated	0	43	9	0	DK	NAP	LT High sc...	Male	Other	Yes	Both in U.S.	All in U.S.	LT \$1000	LT \$1000	Liberal	Op
20	20	Working f...	Married	1	28	16	16	16	16	Bachelor	Male	White	Yes	Father only	2	\$25000 or...	\$25000 or...	Conservat...	F
21	21	Working f...	Married	2	42	16	15	12	14	Bachelor	Male	White	Yes	Both in U.S.	All in U.S.	\$25000 or...	\$25000 or...	Conservat...	F

Data View Variable View



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Data Editor- Variable View

survey_sample.sav [DataSet1] - IBM SPSS Statistics Data Editor

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	id	Numeric	4	0	Respondent id...	None	None	8	Right	Scale	Input
2	wrkstat	Numeric	1	0	Labor force sta...	{0, NAP}...	0, 9	8	Right	Nominal	Input
3	marital	Numeric	1	0	Marital status	{1, Married}...	9	8	Right	Nominal	Input
4	childs	Numeric	1	0	Number of chil...	{8, Eight or...	9	8	Right	Scale	Input
5	age	Numeric	2	0	Age of respon...	{98, DK}...	0, 98, 99	8	Right	Scale	Input
6	educ	Numeric	2	0	Highest year o...	{97, NAP}...	97, 98, 99	8	Right	Scale	Input
7	paeduc	Numeric	2	0	Highest year s...	{97, NAP}...	97, 98, 99	8	Right	Scale	Input
8	maeduc	Numeric	2	0	Highest year s...	{97, NAP}...	97, 98, 99	8	Right	Scale	Input
9	speduc	Numeric	2	0	Highest year s...	{97, NAP}...	97, 98, 99	8	Right	Scale	Input
10	degree	Numeric	1	0	Highest degree	{0, LT High...	7, 8, 9	8	Right	Ordinal	Input
11	sex	Numeric	1	0	Gender	{1, Male}...	None	8	Right	Nominal	Input
12	race	Numeric	1	0	Race of respon...	{1, White}...	None	8	Right	Nominal	Input
13	born	Numeric	1	0	Born in this co...	{0, NAP}...	0, 8, 9	8	Right	Nominal	Input
14	parborn	Numeric	1	0	Parents born i...	{-1, NAP}...	-1, 9	8	Right	Nominal	Input
15	granborn	Numeric	1	0	How many gra...	{-1, NAP}...	-1, 8, 9	8	Right	Scale	Input
16	income	Numeric	2	0	Total family in...	{0, NAP}...	13 - 99, 0	8	Right	Ordinal	Input
17	rincome	Numeric	2	0	Respondent's i...	{0, NAP}...	13 - 99, 0	8	Right	Ordinal	Input
18	polviews	Numeric	1	0	Think of self a...	{0, NAP}...	0, 8, 9	8	Right	Ordinal	Input
19	cappun	Numeric	1	0	Favor or oppos...	{0, NAP}...	0, 8, 9	8	Right	Ordinal	Input
20	postlife	Numeric	1	0	Belief in life af...	{0, NAP}...	0, 8, 9	8	Right	Nominal	Input
21	happy	Numeric	1	0	General happi...	{0, NAP}...	0, 8, 9	8	Right	Ordinal	Input
22	hapmar	Numeric	1	0	Happiness of...	{0, NAP}...	0, 8, 9	8	Right	Ordinal	Input
23	ownpun	Numeric	1	0	Have own in ho...	{0, NAP}...	0, 8, 9	8	Right	Nominal	Input

Data View Variable View



Output Navigator

Output Viewer

balance1-output.spv [Document2] - IBM SPSS Statistics Viewer

/CRITERIA=CI (.95).

T-Test

[DataSet1] /Users/master/Documents/research commons/spss development/balance data.sa

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
score	standing on level ground	10	52.5000	7.79245	2.46419
	standing on a slope	10	39.8000	10.85050	3.43123

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
score	Equal variances assumed	3.181	.091	3.006	18	.008	12.70000	4.22440	3.82486	21.57514
	Equal variances not assumed			3.006	16.333	.008	12.70000	4.22440	3.75949	21.64051



Syntax Viewer

The screenshot shows the IBM SPSS Statistics Syntax Editor window. The title bar reads "Syntax1 - IBM SPSS Statistics Syntax Editor". The interface includes a toolbar with various icons for file operations, editing, and execution. On the left, a list of command categories is shown, with "FILTER" selected. The main editor area displays the following syntax code:

```
1  
2 DATASET ACTIVATE DataSet1.  
3 USE ALL.  
4 COMPUTE filter_$=(uniform(1)<=.20).  
5 VARIABLE LABELS filter_$ 'Approximately 20% of the cases (SAMPLE)'.  
6 FORMATS filter_$ (f1.0).  
7 FILTER BY filter_$.  
8 EXECUTE.  
9  
10 USE ALL.  
11 COMPUTE filter_$=(birth > 1984).  
12 VARIABLE LABELS filter_$ 'birth > 1984 (FILTER)'.  
13 VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.  
14 FORMATS filter_$ (f1.0).  
15 FILTER BY filter_$.  
16 EXECUTE.  
17  
18 DATASET COPY grades1.  
19 DATASET ACTIVATE grades1.  
20 FILTER OFF.  
21 USE ALL.  
22 SELECT IF (birth > 1984).  
23 EXECUTE.  
24 DATASET ACTIVATE DataSet1.  
25
```

IBM SPSS Statistics Processor is ready

Unicode:ON In 15 Col 19

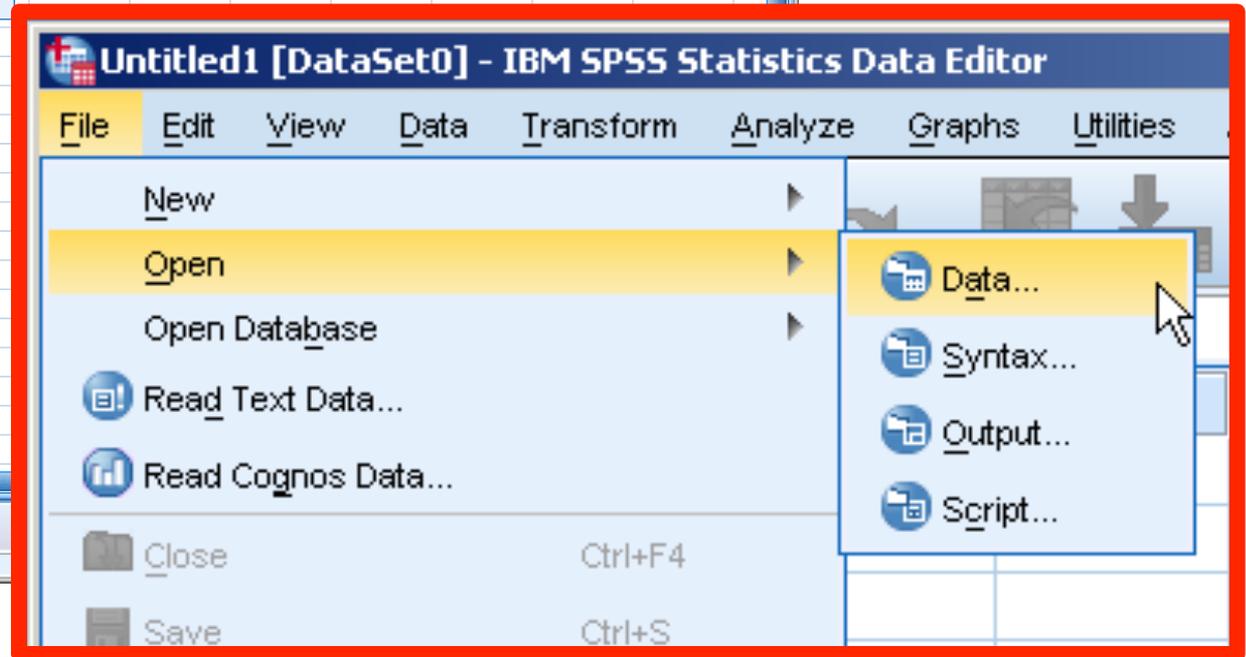
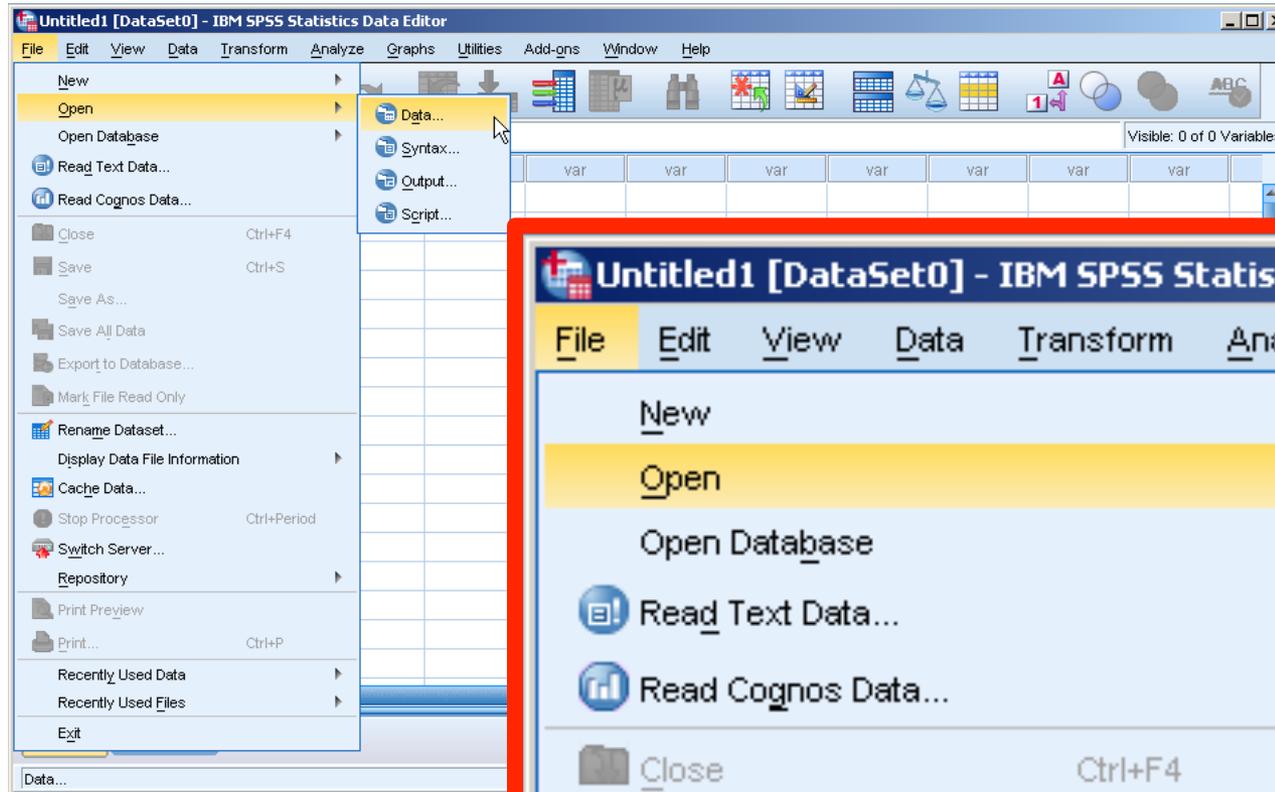


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Reading in Data: Different Formats

[File] -> [Open] -> [Data...]



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Demo & Exercise 1 –find a sample dataset and read it

Program Files-IBM-SPSS-Statistics-23-Samples-English-**adi**.sav

Objectives:

- ◇Get familiar with SPSS environment and know how to read it
- ◇Understand the difference between Variable Name, Variable Label, and Variable Value
- ◇Get a sense how the nominal, ordinal, and numerical scale variables are represented in SPSS
- ◇Get a sense how the data entry is in tune with the research design



Operations

Switch between Data View and Variable View

In Variable View, see the the difference between Variable Name, Variable Label, and Variable Label

Click  “Value Variables” See the difference in the data view

Questions:

- 1.What kind of research design (experimental, cross-sectional/survey) does this data represent? Why? What are the independent variable and dependent variables?
- 2.How many cases are there in this file?
- 3.What is the label of “smoker” ? How is it coded and what are the value labels?

Data entry

How data is stored- Codes

Is the data stored like this?

	id	wrkstat	marital	childs	age	educ	paeduc	maeduc	speduc	degree	sex	race
1	1	Working f...	Divorced	2	60	12	12	12	NAP	High school	Male	White
2	2	Working p...	Never mar...	0	27	17	20	NAP	NAP	Junior coll...	Female	White
3	3	Working f...	Married	2	36	12	12	12	16	High school	Male	White
4	4	Working f...	Never mar...	0	21	13	NAP	12	NAP	High school	Male	White
5	5	Working f...	Never mar...	0	35	16	NAP	12	NAP	Bachelor	Female	White
6	6	Working f...	Divorced	1	33	16	9	6	NAP	Bachelor	Male	White
7	7	Working f...	Separated	0	43	12	14	12	NAP	High school	Male	White
8	8	Working f...	Never mar...	0	29	13	16	12	NAP	High school	Male	White
9	9	Working p...	Married	2	39	18	16	12	13	Bachelor	Female	White
10	10	Working f...	Divorced	0	45	15	16	12	NAP	Junior coll...	Male	White
11	11	Unemploy...	Never mar...	0	29	12	12	12	NAP	High school	Male	White
12	12	Working f...	Married	1	41	15	NAP	8	14	High school	Female	Black
13	13	Working p...	Divorced	2	32	14	NAP	12	NAP	High school	Female	White
14	14	Working f...	Married	1	48	20	12	8	16	Bachelor	Male	White
15	15	Keeping h...	Never mar...	0	20	12	12	12	NAP	High school	Female	White



Data entry



How data is stored- Codes

	id	wrkstat	marital	childs	age	educ	paeduc	maeduc	speduc	degree	sex	race	born
1	1	1	3	2	60	12	12	12	97	1	1	1	1
2	2	2	5	0	27	17	20	97	97	2	2	1	1
3	3	1	1	2	36	12	12	12	16	1	1	1	1
4	4	1	5	0	21	13	97	12	97	1	1	1	1
5	5	1	5	0	35	16	97	12	97	3	2	1	1
6	6	1	3	1	33	16	9	6	97	3	1	1	1
7	7	1	4	0	43	12	14	12	97	1	1	1	1
8	8	1	5	0	29	13	16	12	97	1	1	1	1
9	9	2	1	2	39	18	16	12	13	3	2	1	1
10	10	1	3	0	45	15	16	12	97	2	1	1	1
11	11	4	5	0	29	12	12	12	97	1	1	1	1
12	12	1	1	1	41	15	97	8	14	1	2	2	1
13	13	2	3	2	32	14	97	12	97	1	2	1	1
14	14	1	1	1	48	20	12	8	16	3	1	1	1
15	15	7	5	0	20	12	12	12	97	1	2	1	2
16	16	1	1	5	43	16	6	6	12	3	1	3	2



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Data entry Demonstration

Scenario

A teacher wanted to see whether there was a difference in the amount of time boys and girls spent on their homework. He asked ten boys and ten girls aged 9 years to make a note of the number of minutes they spent studying over a one-week period.

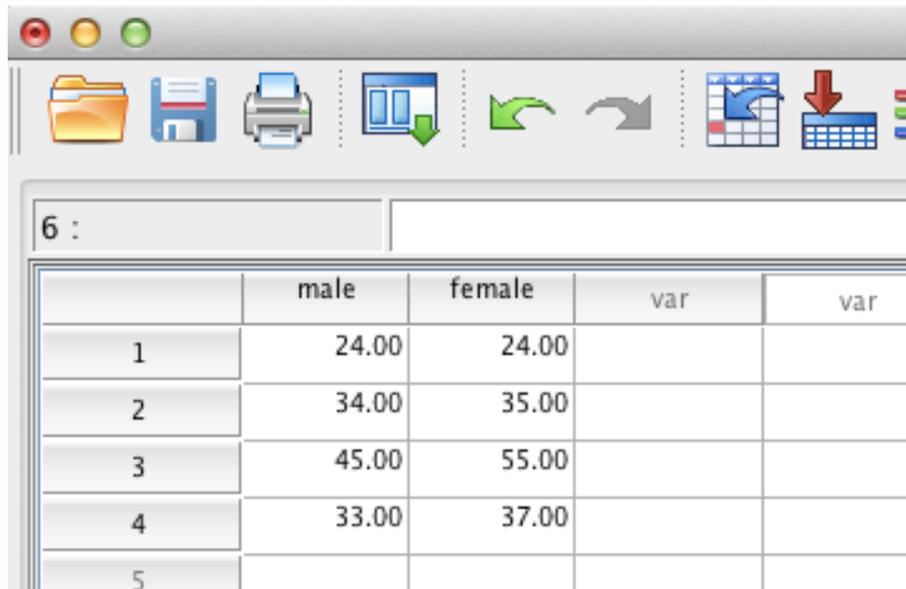
Steps:

Setting up variables —> Entering Data —> Saving your data



Things to keep in mind in data entry

1. For nominal data, you may need to use this a grouping variable when entering the data in SPSS



The screenshot shows a window titled '6 :'. Below the title bar is a toolbar with icons for file operations (folder, save, print), navigation (back, forward), and data entry (calendar, download). The main area contains a table with the following data:

	male	female	var	var
1	24.00	24.00		
2	34.00	35.00		
3	45.00	55.00		
4	33.00	37.00		
5				

Is this data entry correct?

Things to keep in mind in data entry

2. Before you create the data file, think carefully to ensure that the structure of the file allows all the analyses you desire. Understand the link between grouping variables and research designs (**independent design/repeated measures**).



Exercise 2 Data Entry

Scenario 1: A driving simulator was used to investigate the number of errors made during daytime and night-time driving tasks. The number of driving errors was recorded for each person. Ten people were given a daytime task and ten other people were given a night-time task

Scores of people driving in daytime task: 7 5 6 5 4 5 6 6 5 7

Scores of people driving in night-time task: 9 10 8 9 9 7 8 9 11 6



Scenario 2: A driving simulator was used to investigate the number of errors made during daytime and night-time driving tasks. Ten people were given two tasks of driving in daytime and in night-time. The number of driving errors were as follows:

Participants:	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
Daytime task:	7	9	6	5	8	6	9	6	5	7
Night-time:	8	10	8	7	8	10	11	7	8	7

Set up the appropriate variables and enter the data into SPSS



Independent design

	task	errors
1	1.00	7.00
2	1.00	5.00
3	1.00	6.00
4	1.00	5.00
5	1.00	4.00
6	1.00	5.00
7	1.00	6.00
8	1.00	6.00
9	1.00	5.00
10	1.00	7.00
11	2.00	9.00
12	2.00	10.00
13	2.00	8.00
14	2.00	9.00
15	2.00	9.00
16	2.00	7.00
17	2.00	8.00
18	2.00	9.00
19	2.00	11.00
20	2.00	6.00

	daytime	nighttime
1	7.00	8.00
2	9.00	10.00
3	6.00	8.00
4	5.00	7.00
5	8.00	8.00
6	6.00	10.00
7	9.00	11.00
8	6.00	7.00
9	5.00	8.00
10	7.00	7.00

Repeated measures/ related design



driving task-1.sav [DataSet6] – IBM SPSS Statistics Data Editor

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	task	Numeric	8	2	Task of driving...	None	None	8	Right	Nominal	Input
2	errors	Numeric	8	2	Numbers of dr...	None	None	8	Right	Scale	Input

Independent design – with grouping variables

Untitled5 [DataSet5] – IBM SPSS Statistics Data Editor

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	daytime	Numeric	8	2	errors of daytime	None	None	8	Right	Scale	Input
2	nighttime	Numeric	8	2	errors of night-time	None	None	8	Right	Scale	Input

Repeated measures/ related design without grouping variables



Other sources of data- import from Excel

File-open-data-select “Excel (*.xls, *.xlsx, *.xlsm)”

	A	B
1	Gender	Time
2	1	22
3	1	24
4	1	35
5	1	43
6	1	21
7	1	555
8	1	32
9	1	65
10	1	120
11	1	65
12	2	24
13	2	78
14	2	90
15	2	65
16	2	70
17	2	60
18	2	50
19	2	46
20	2	80
21	2	56



Survey Data- Find survey data on Abacus

Go to workshop - Finding Survey Data

Click to close this tab; Option-click to close all tabs except this one

- Licensed data (login required)
- Aboriginal Peoples
- Agriculture
- Archaeology
- Census of Population
- Classifications
- Crime and Justice
- Economic Behaviour
- Economics and Finance
- Education
- Elections
- Geography Reference
- Geospatial (GIS)
- Health
- Income
- Labour
- Linguistics
- Political Issues
- Population and Demography
- Public Opinion Polls
- Restricted Data Sets
- Social Indicators

UBC Library Data Services

Search Studies [Advanced Search](#) [Tips](#)

Sort By: Studies: **1809** | Downloads: **11924**

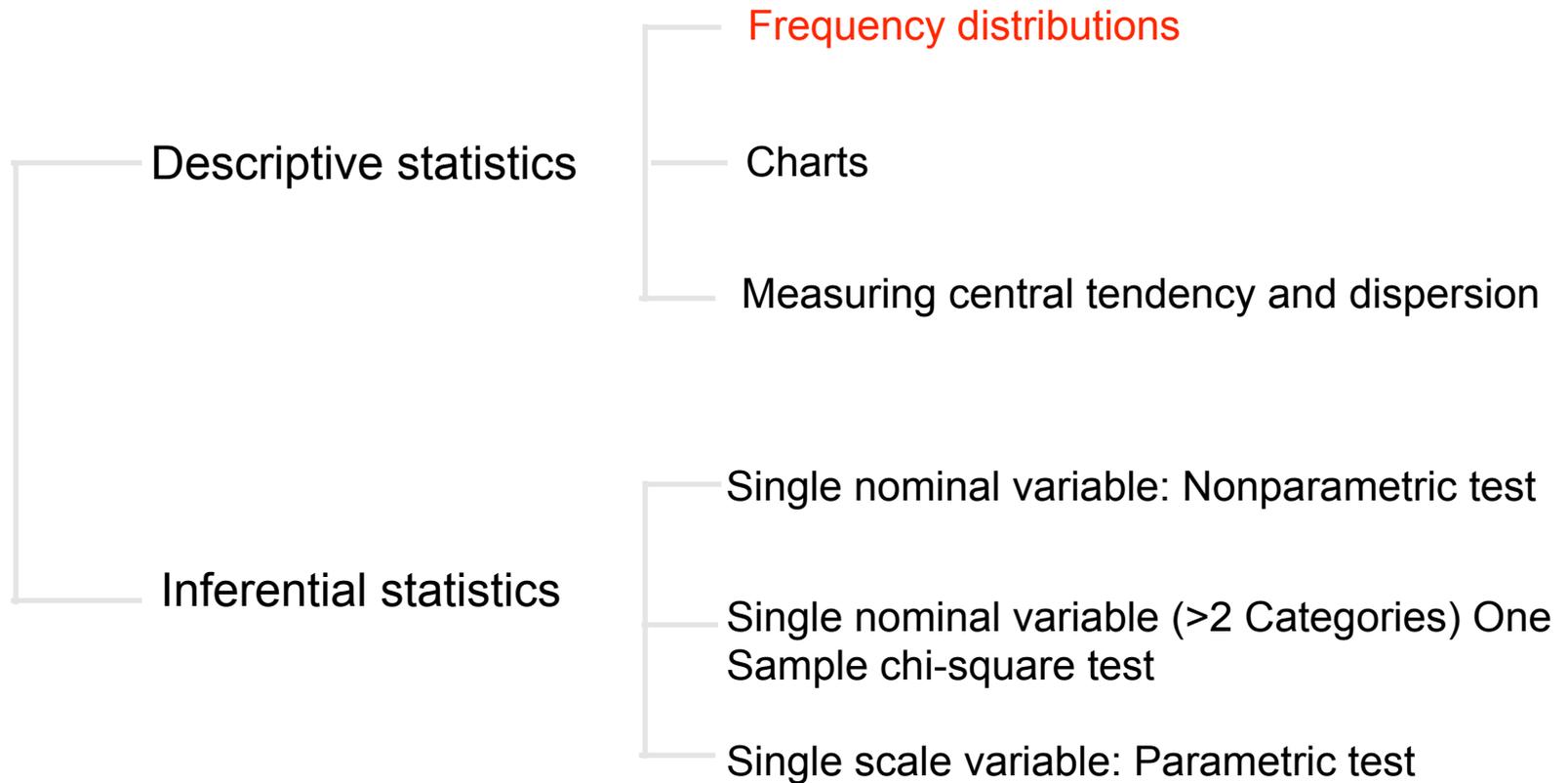
Canadian Business Patterns, 2012 Description: Canadian Business Patterns contains data that reflects counts of business locations (as of December 2008) and business establishments (prior to December 2009) by: 9 employment size ranges, including "indeterminate" (as of December 1997); g... Continue (+) Production Date:2012 Producer:Statistics Canada Distribution Date:February 05, 2013	hdl:11272/01BFC <input type="button" value="0 downloads"/> Last Released: Jan 3, 2014
Aeschylus. [Five Tragedies], 1960 Description: No abstract available. Production Date:1960 Producer:Aarhus Universitet Institut for Lingvistik Distribution Date:November 18, 2009	hdl:11272/05BOM <input type="button" value="0 downloads"/> Last Released: Nov 28, 2013
Annual estimates of employment, earnings and hours, 1991 - 2007 Description: This product presents a timely picture of employment, earnings and hours which is vital for the planning and decision-making purposes of Canada's businesses and governments. The tabulations consist of annual and monthly labour market infor... Continue (+) Production Date:2007 Producer:Statistics Canada Distribution Date:November 18, 2009	hdl:11272/05YFO <input type="button" value="0 downloads"/> Last Released: Jan 29, 2014
Gallup Polls, 1980 Description: No abstract available. The Roper Center's archive catalogue allows keyword searching to identify polls by	hdl:11272/06VVH <input type="button" value="0 downloads"/>



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One Variable

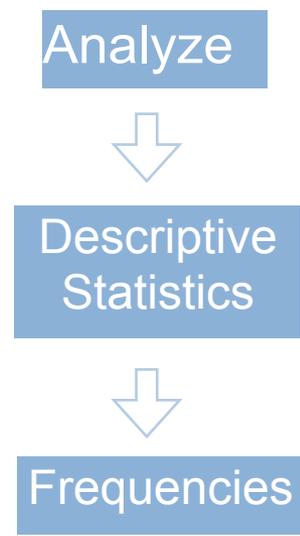




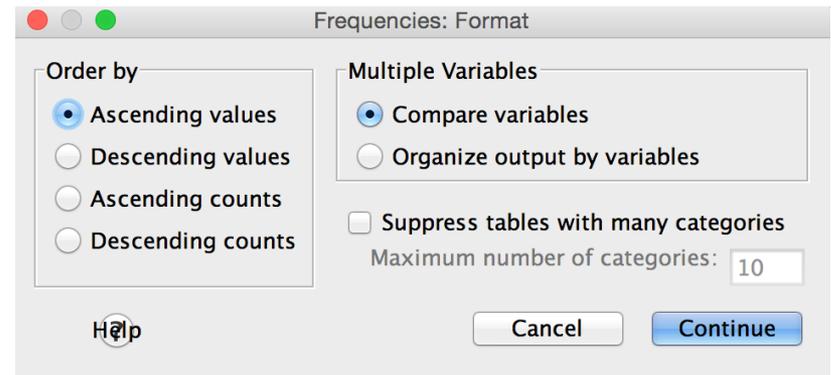
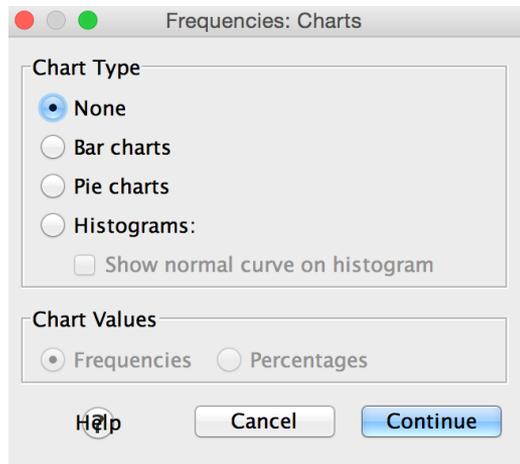
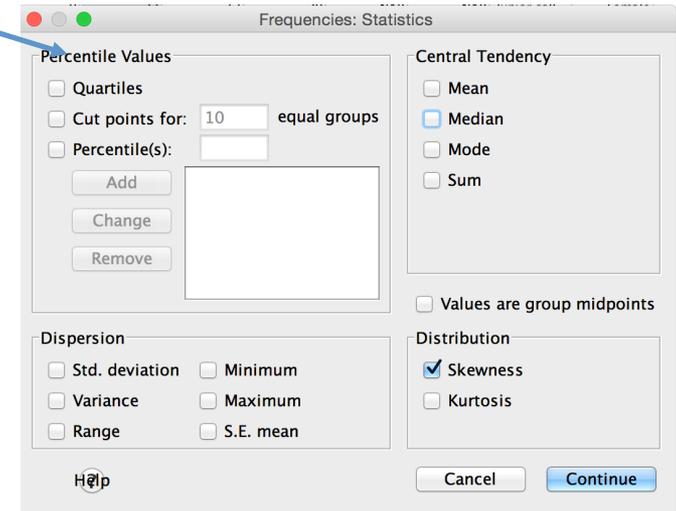
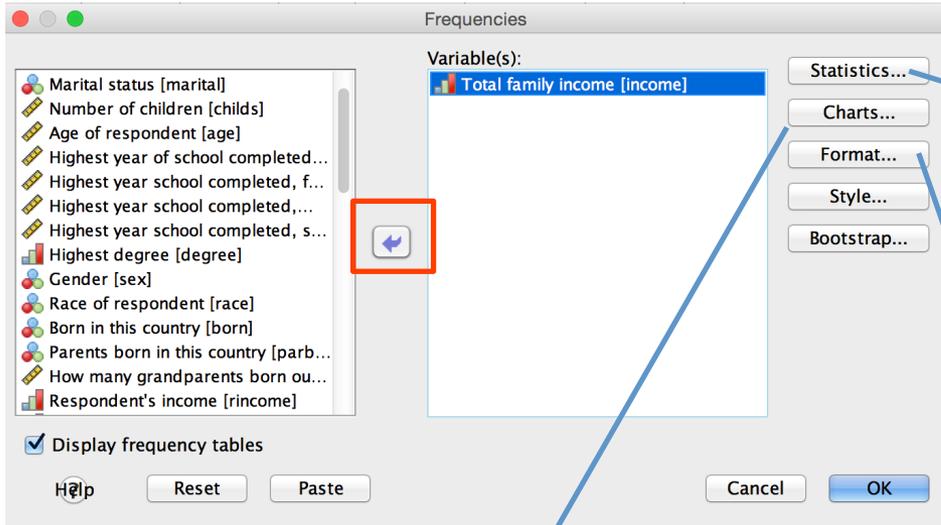
TASK: Generate a frequency table for “Total family income”



Name	Type	Width	Decimals	
1	id	Numeric	4	0
2	wrkstat	Numeric	1	0
3	marital	Numeric	1	0
4	childs	Numeric	1	0
5	age	Numeric	2	0
6	educ	Numeric	2	0
7	paeduc	Numeric	2	0
8	maeduc	Numeric	2	0
9	speduc	Numeric	2	0
10	degree	Numeric	1	0
11	sex	Numeric	1	0
12	race	Numeric	1	0
13	born	Numeric	1	0
14	parborn	Numeric	1	0
15	granborn	Numeric	1	0
16	income	Numeric	2	0
17	rincome	Numeric	2	0
18	polviews	Numeric	1	0
19	cappun	Numeric	1	0



Frequency distributions



```

GET
  FILE=' /Applications/IBM/SPSS/Statistics/22/Samples/English/survey_sample.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
FREQUENCIES VARIABLES=income
  /ORDER=ANALYSIS.

```

← Syntax

Test ran → Frequencies

[DataSet1] /Applications/IBM/SPSS/Statistics/22/Samples/English/survey_sample.sav

↙ Data set used

Statistics

Total family income

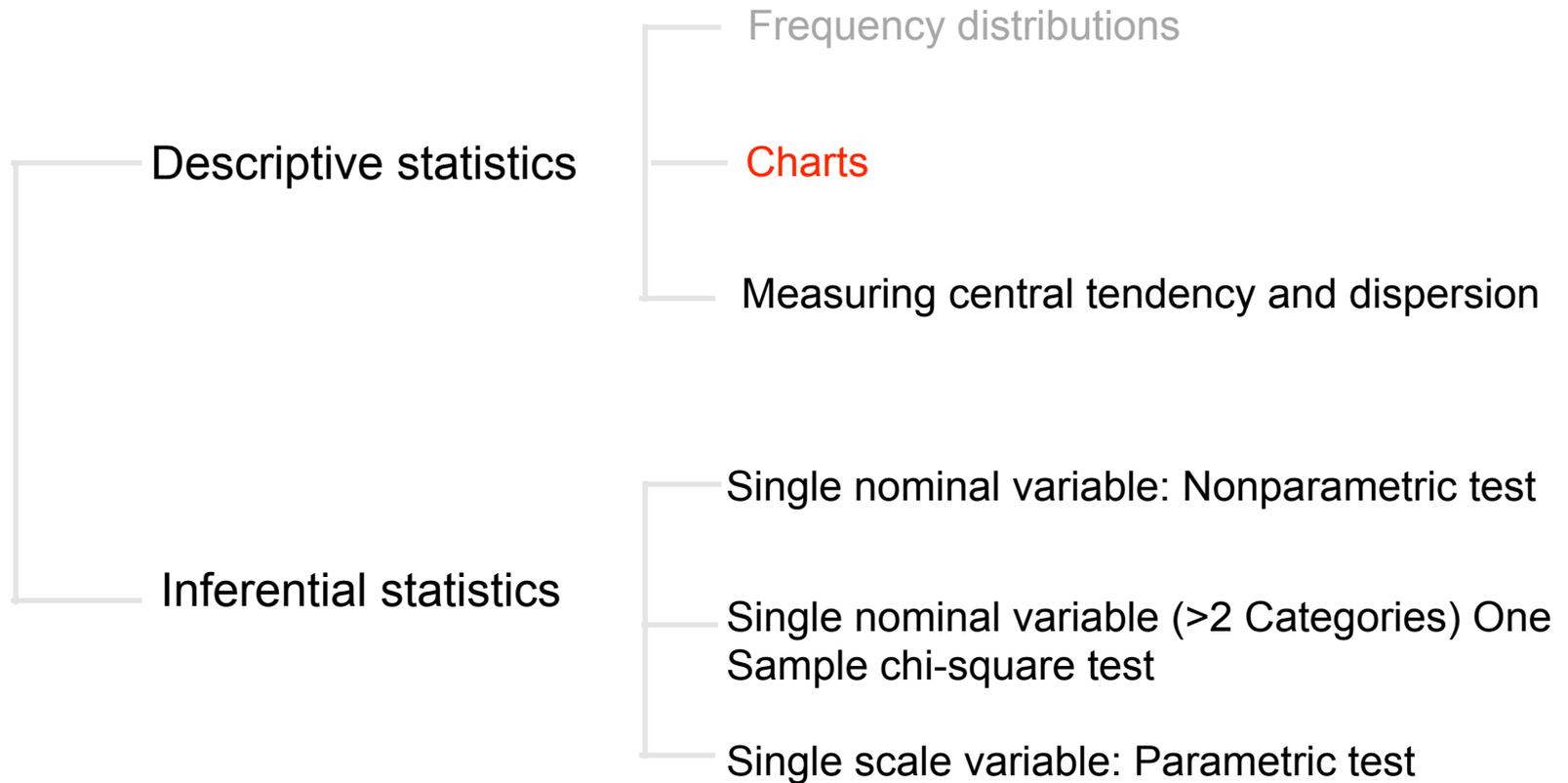
N	Valid	2503
	Missing	329

Total family income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LT \$1000	36	1.3	1.4	1.4
	\$1000 TO 2999	32	1.1	1.3	2.7
	\$3000 TO 3999	24	.8	1.0	3.7
	\$4000 TO 4999	32	1.1	1.3	5.0
	\$5000 TO 5999	35	1.2	1.4	6.4
	\$6000 TO 6999	33	1.2	1.3	7.7
	\$7000 TO 7999	47	1.7	1.9	9.5
	\$8000 TO 9999	59	2.1	2.4	11.9
	\$10000 - 14999	192	6.8	7.7	19.6
	\$15000 - 19999	179	6.3	7.2	26.7
	\$20000 - 24999	247	8.7	9.9	36.6
\$25000 or more	1587	56.0	63.4	100.0	
Total	2503	88.4	100.0		
Missing	REFUSED	196	6.9		
	DK	114	4.0		
	NA	19	.7		
	Total	329	11.6		
Total		2832	100.0		



One Variable





TASK: Build a Pie chart for “race” in 3 ways

The screenshot shows a software interface for creating a pie chart. It includes a 'Variables' list on the left, a 'Statistics' panel, a 'Choose from:' gallery, and a central 'Chart preview' area. Numbered callouts (1-6) highlight specific steps: 1. Selecting 'Pie/Polar' in the gallery; 2. Choosing a pie chart icon; 3. Selecting 'Total family income' in the variables list; 4. Selecting 'Percentage ()' in the statistics panel; 5. Clicking 'Apply'; 6. Clicking 'OK'.

Variables:

- Respondent id...
- Labor force sta...
- Marital status [...]
- Number of chil...
- Age of respond...
- Highest year of...
- Highest year sc...
- Highest year sc...
- Highest year sc...
- Highest degree...
- Gender [sex]

No categories (scale variable)

Statistics

Variable:

- Count
- Percentage ()
- Value
- Sum

Choose from:

- Bar
- Line
- Area
- Pie/Polar
- Scatter/Dot
- Histogram
- High-Low
- Boxplot
- Dual Axes

Chart preview uses example data

Count

Total family income

Element Properties... Options...

Help Cancel Apply

Help Reset Paste Cancel OK

Graphs



Chart Builder

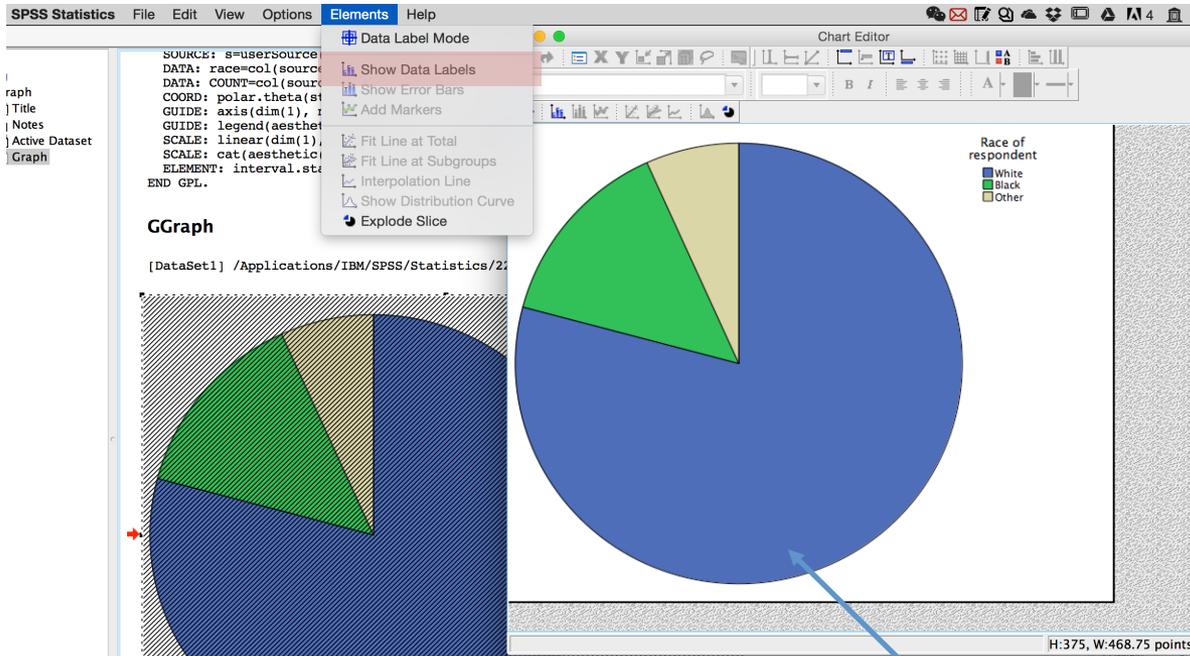


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TASK: Show percentage, edit graph



Double click the graph



Elements



Show Data Labels

Double click anywhere in the chart to bring up the Properties box



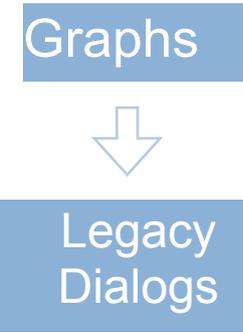


TASK: Build a Pie chart for “total family income” in 3 ways

The screenshot shows the SPSS Statistics Data Editor interface. The 'Graphs' menu is open, displaying various chart options. The 'Pie...' option is highlighted in red. The background shows a data table with columns for variables and their roles.

	Align	Measure	Role
Right	Scale	Input	
Right	Nominal	Input	

Legacy Dialogs			
r of chil...	{8, Eight or...	9	8
respon...	{98, DK}...	0, 98, 99	8
t year o...	{97, NAP}...	97, 98, 99	8
t year s...	{97, NAP}...	97, 98, 99	8
t year s...	{97, NAP}...	97, 98, 99	8
t year s...	{97, NAP}...	97, 98, 99	8
t degree	{0, LT High...	7, 8, 9	8
r	{1, Male}...	None	8
f respon...	{1, White}...	None	8
i this co...	{0, NAP}...	0, 8, 9	8

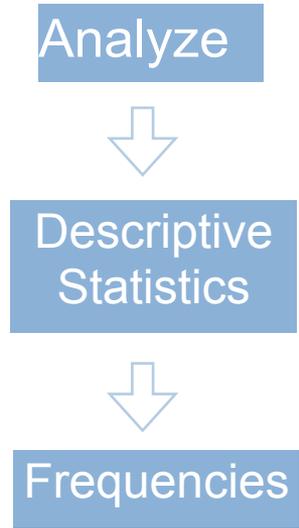




TASK: Build a Pie chart for “total family income” in 3 ways

The screenshot shows the SPSS Statistics interface. The 'Analyze' menu is open, and 'Descriptive Statistics' is selected. The 'Frequencies...' option is also visible. The data list on the left includes variables like 'id', 'wrkstat', 'marital', 'childs', 'age', 'educ', 'paeduc', 'maeduc', 'speduc', 'degree', 'sex', 'race', 'born', 'parborn', 'granborn', 'income', 'rincome', 'polviews', and 'cappun'.

Name	Type	Width	Decimals
1 id	Numeric	4	0
2 wrkstat	Numeric	1	0
3 marital	Numeric	1	0
4 childs	Numeric	1	0
5 age	Numeric	2	0
6 educ	Numeric	2	0
7 paeduc	Numeric	2	0
8 maeduc	Numeric	2	0
9 speduc	Numeric	2	0
10 degree	Numeric	1	0
11 sex	Numeric	1	0
12 race	Numeric	1	0
13 born	Numeric	1	0
14 parborn	Numeric	1	0
15 granborn	Numeric	1	0
16 income	Numeric	2	0
17 rincome	Numeric	2	0
18 polviews	Numeric	1	0
19 cappun	Numeric	1	0



Frequencies

Graphs

The screenshot shows the SPSS Statistics interface with the following menu paths highlighted:

- Analyze > Descriptive Statistics > Frequencies...
- Graphs > Legacy Dialogs > Pie...

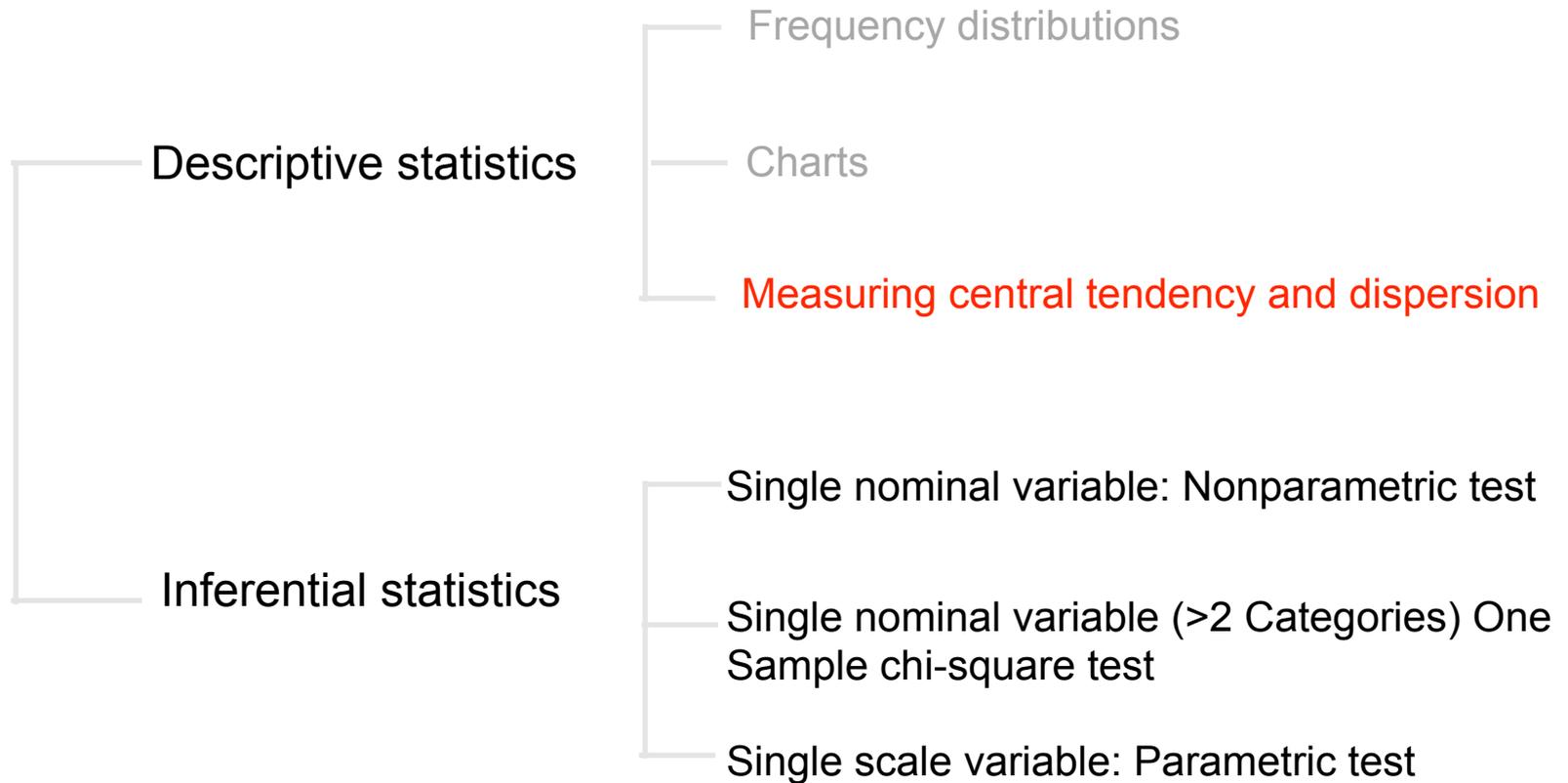
The main data editor window displays the following table:

	Name	Type	Width	Decimals
1	id	Numeric	4	0
2	wrkstat	Numeric	1	0
3	marital	Numeric	1	0
4	childs	Numeric	1	0
5	age	Numeric	2	0
6	educ	Numeric	2	0
7	paeduc	Numeric	2	0
8	maeduc	Numeric	2	0
9	speduc	Numeric	2	0
10	degree	Numeric	1	0

The Statistics Data Editor window shows the following table:

	Align	Measure	Role
Right	Scale	Input	
Right	Nominal	Input	

One Variable



Measuring central tendency and dispersion



TASK: Find descriptive statistics for “age”

Method 2

Method 1

The screenshot shows the SPSS 'Analyze' menu. The 'Descriptive Statistics' option is selected, and the 'Explore...' option is highlighted in red. A blue arrow points from the 'Method 2' label to the 'Explore...' option. The background shows a data table with columns for marital status, children, education, and degree.

The screenshot shows the SPSS toolbar. The 'Run Descriptives' icon (a grid with a magnifying glass) is highlighted with a red box. A blue arrow points from the 'Method 1' label to this icon.

Run descriptive statistics

	childs	age	educ	paeduc	maeduc	speduc
ced	2	60	12	12	12	NAP
r...	0	27	17	20	NAP	NAP
ied	2	36	12	12	12	16
r...	0	21	13	NAP	12	NAP

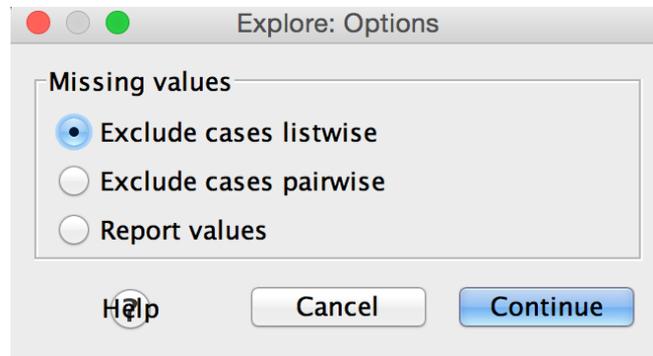
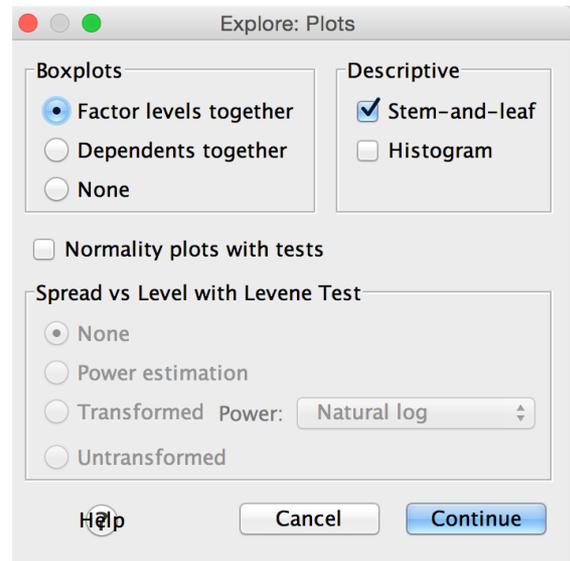
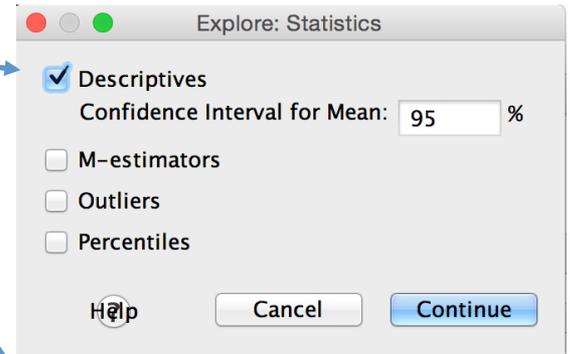
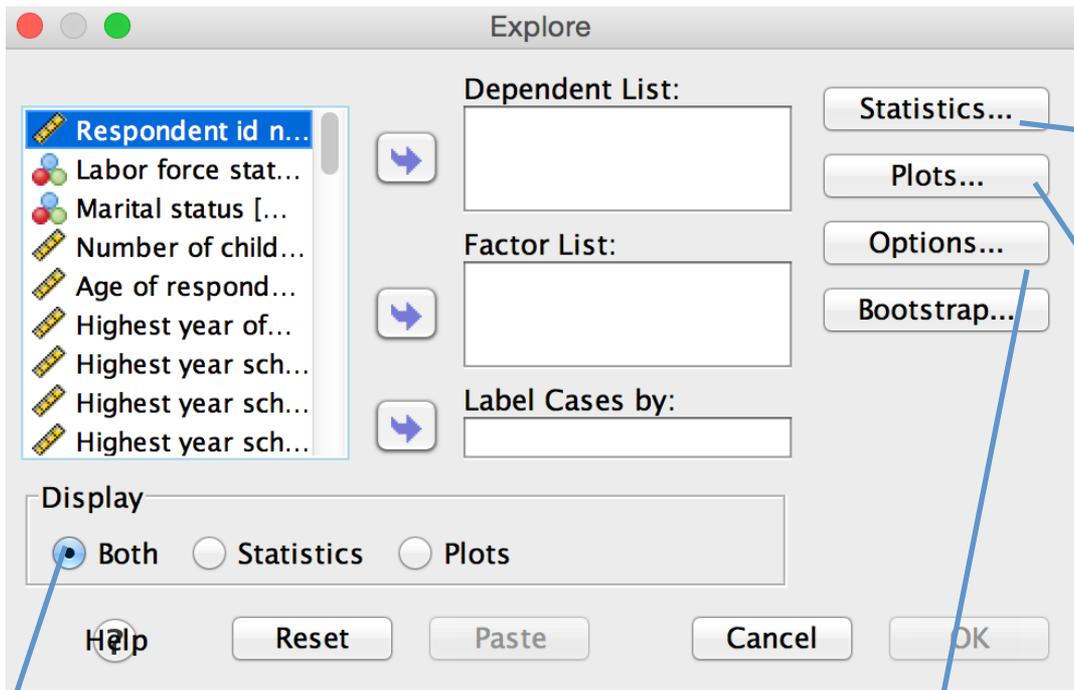
Method 3

EXPLORE the data to get more information.....



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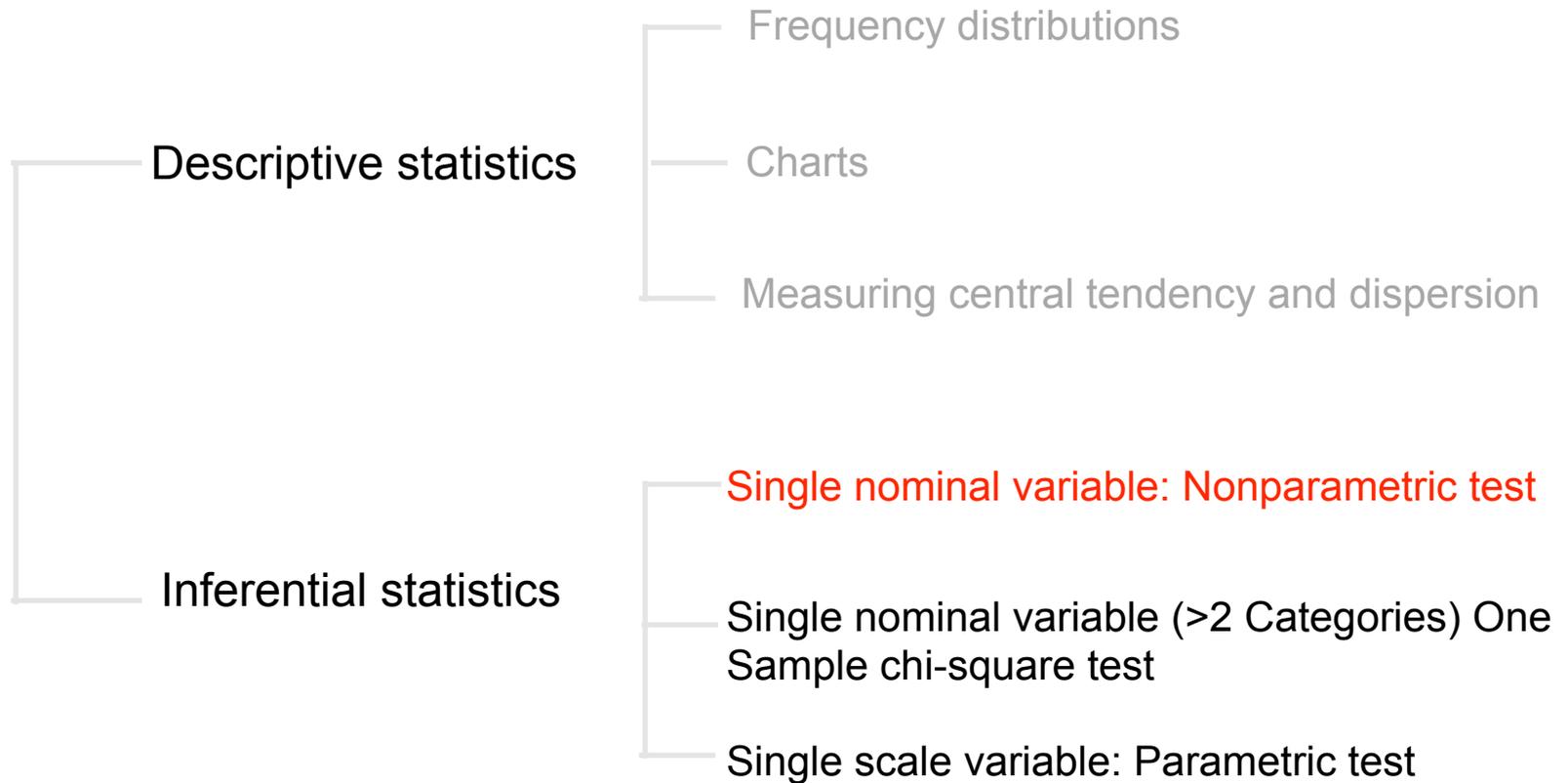
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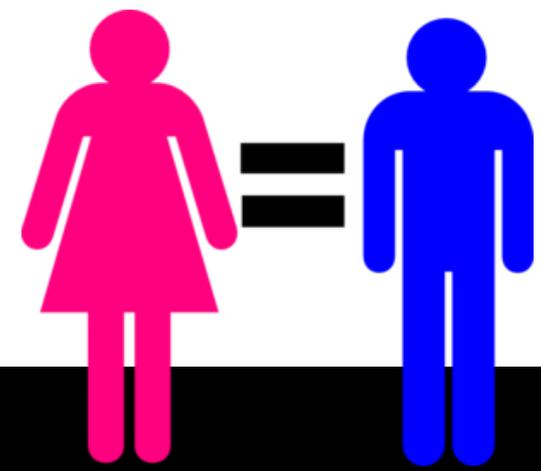
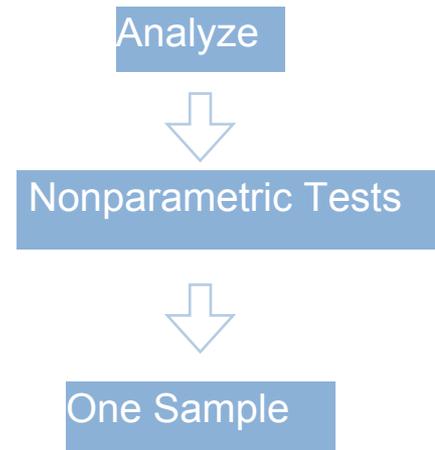
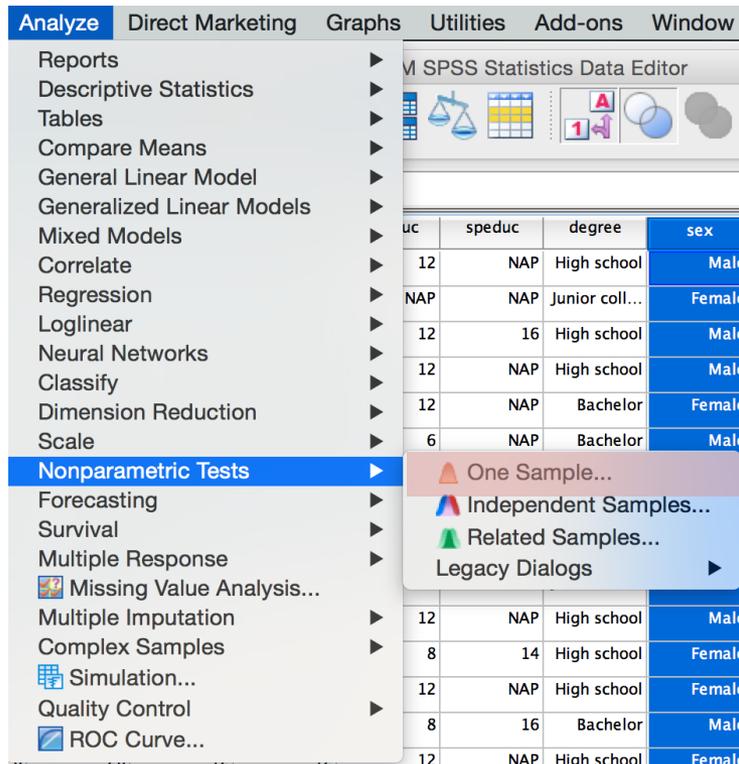
See central tendency and dispersion and stem-and-leaf and box plot



One Variable



 Test hypothesis: whether the proportion of men and women in our sample was 50 percent each



Objective Window

Objective Fields Settings

Identifies differences in single fields using one or more nonparametric tests. Nonparametric tests do not assume your data follow the normal distribution.

What is your objective?

Each objective corresponds to a distinct default configuration on the Settings Tab that you can further customize, if desired.

Automatically compare observed data to hypothesized

Test sequence for randomness

Customize analysis

Description

'Customize analysis' allows you fine-grained control over the tests performed and their options. The Wilcoxon Signed-Rank test is also available on the Settings tab.

Help Reset Paste Cancel Run

Objective Fields Settings

Use predefined roles

Use custom field assignments

Fields:

Sort: None

- Respondent id number
- Labor force status
- Marital status
- Number of children
- Age of respondent
- Highest year of school completed
- Highest year school completed, f...
- Highest year school completed,...
- Highest year school completed, s...
- Highest degree
- Race of respondent
- Born in this country
- Parents born in this country
- How many grandparents born ou...
- Total family income

All

Test Fields:

- Gender

Help Reset Paste Cancel Run

Field window

Input the variable to be tested here





➔ **Nonparametric Tests**

Name of the test Decision

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The categories defined by Gender = Male and Female occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.

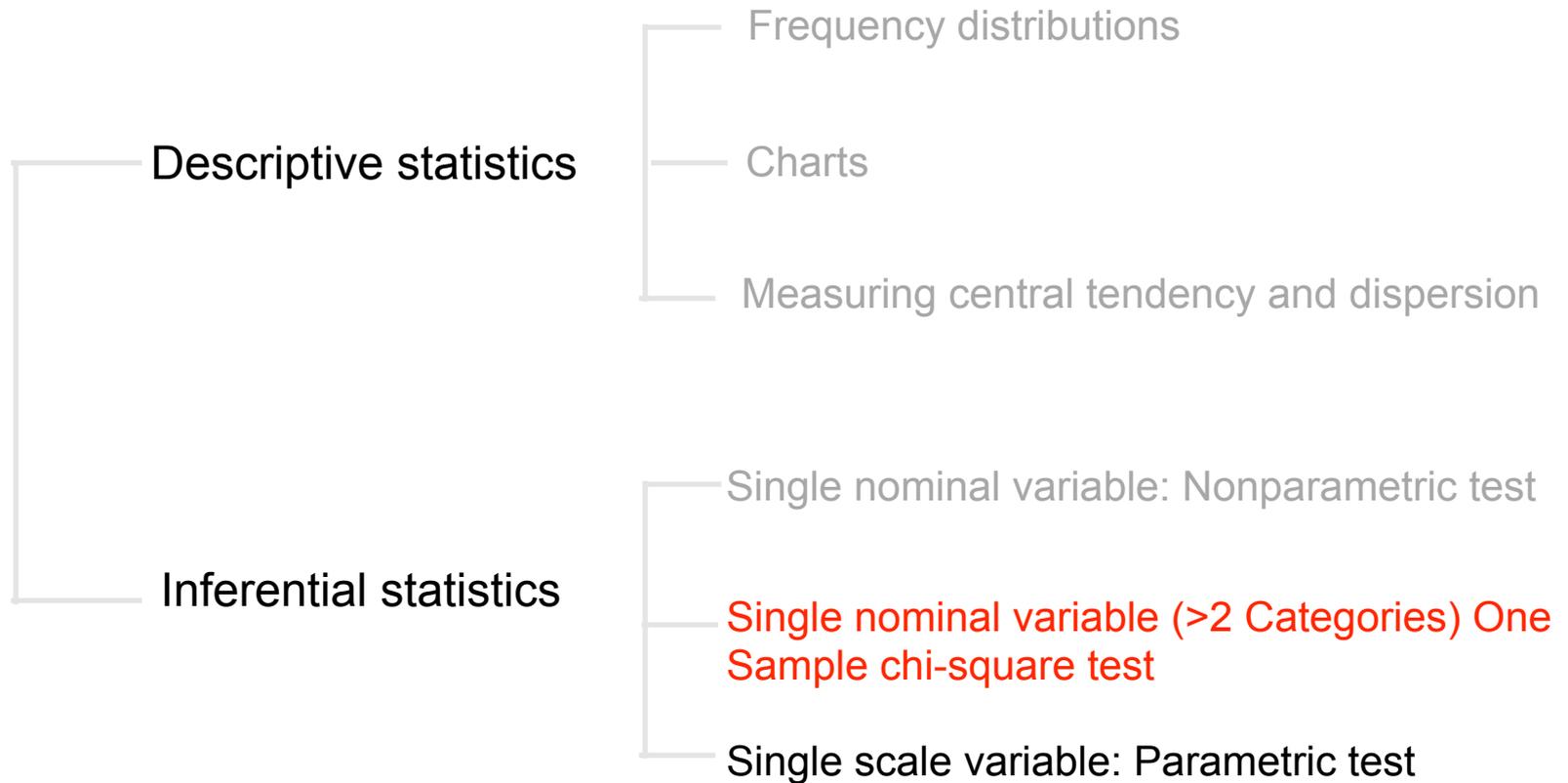
Asymptotic significances are displayed. The significance level is .05.

Null hypothesis

Significance



One Variable



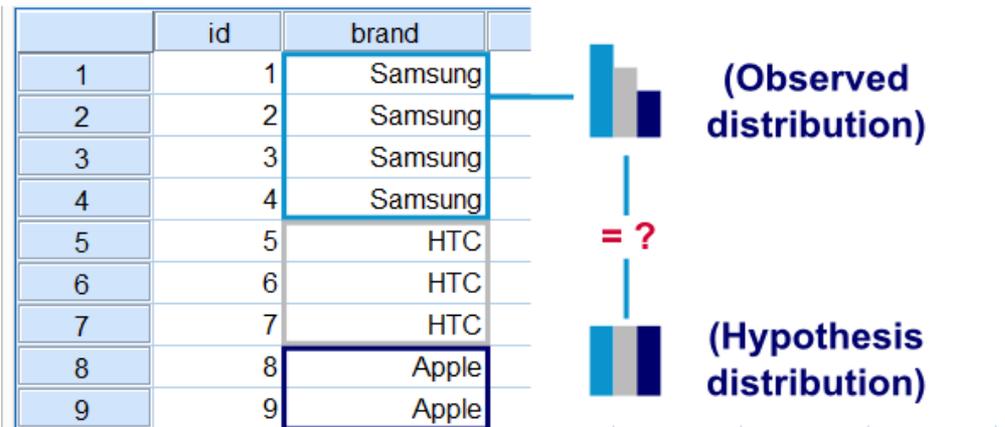
To test if a single categorical variable follows a hypothesized population distribution.



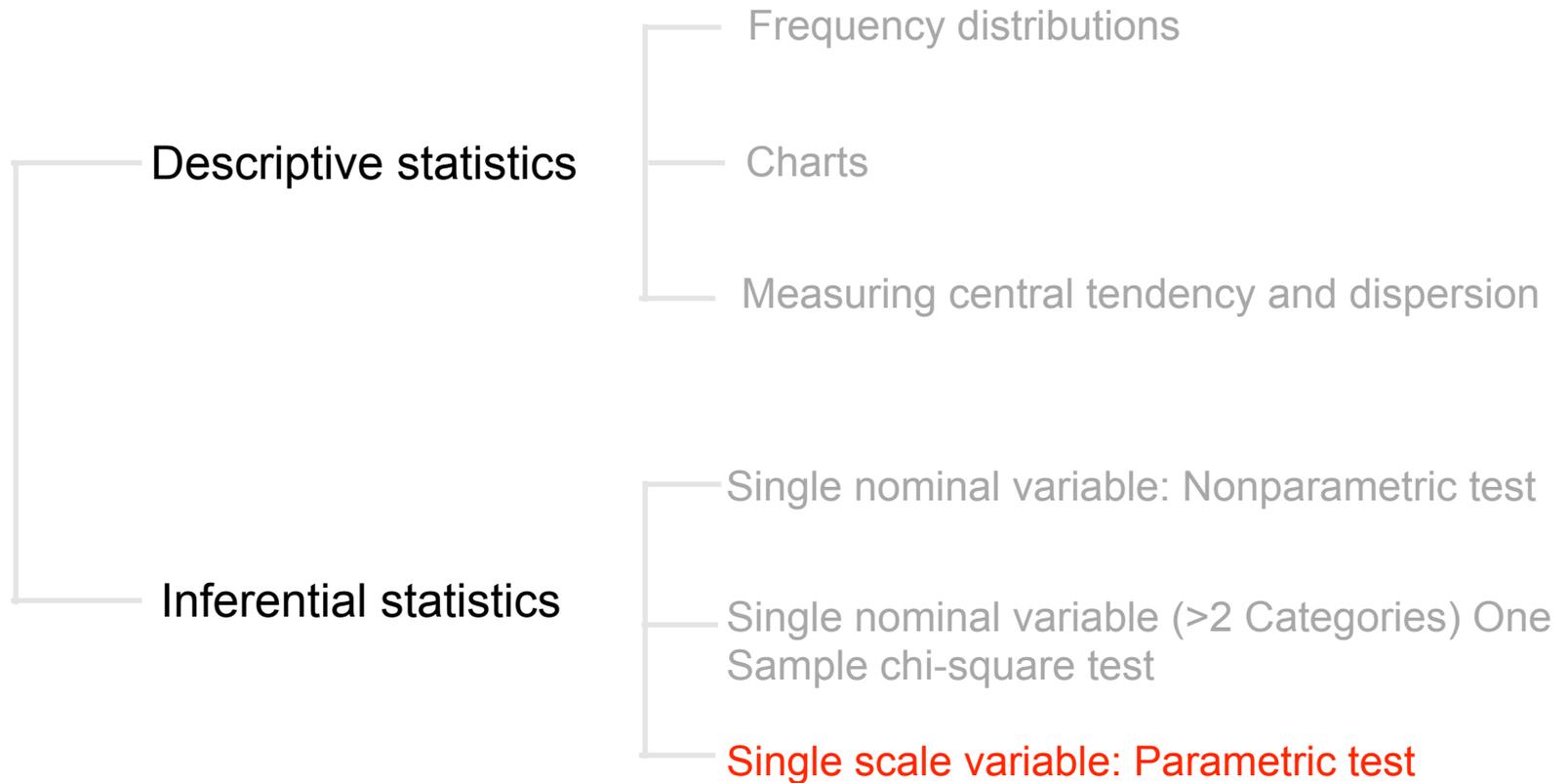
one sample chi square test

One Sample Chi-Square Test

1 categorical variable



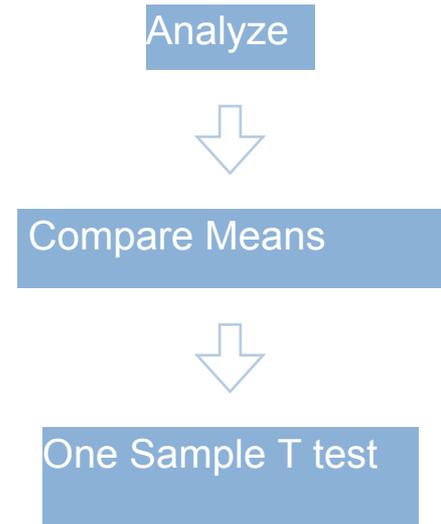
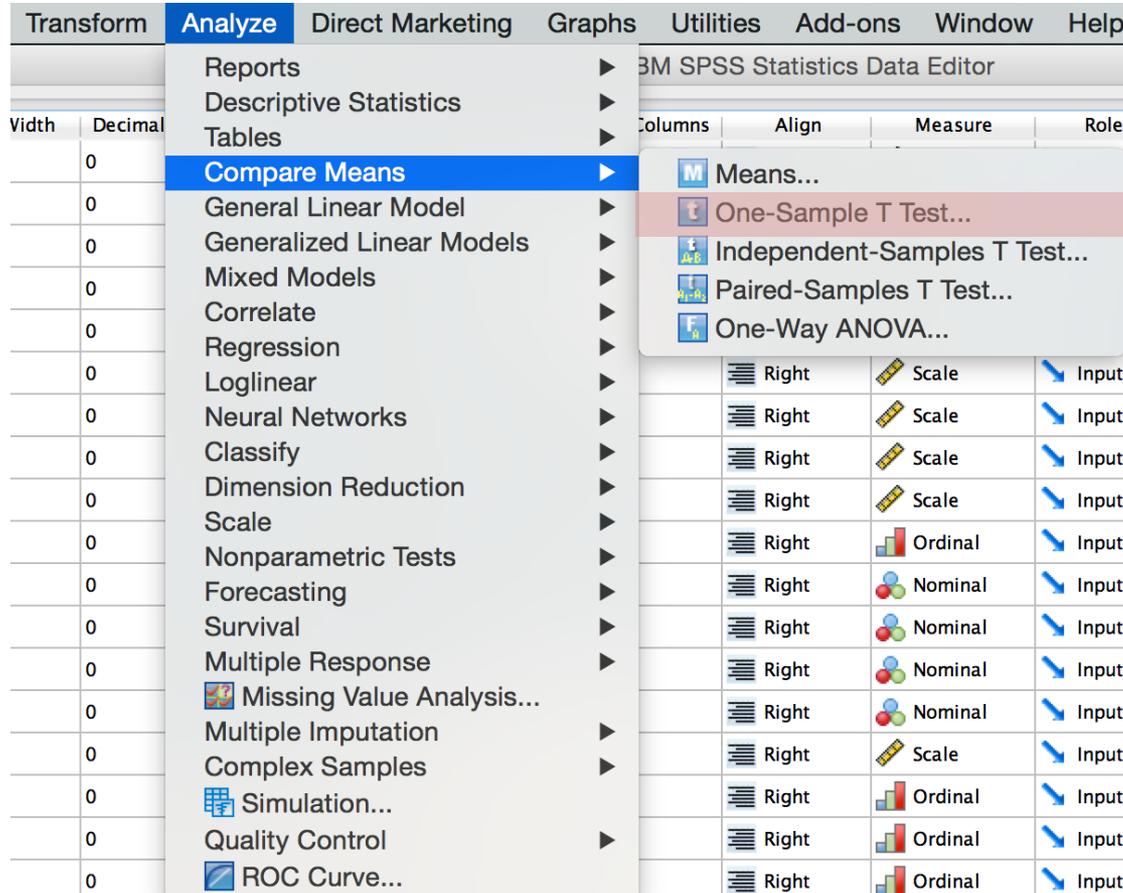
One Variable





TASK: compare “age” with 20

Single mean: Parametric test



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→ T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Age of respondent	2828	45.56	17.100	.322

One-Sample Test

	Test Value = 20					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Age of respondent	79.478	2827	.000	25.557	24.93	26.19



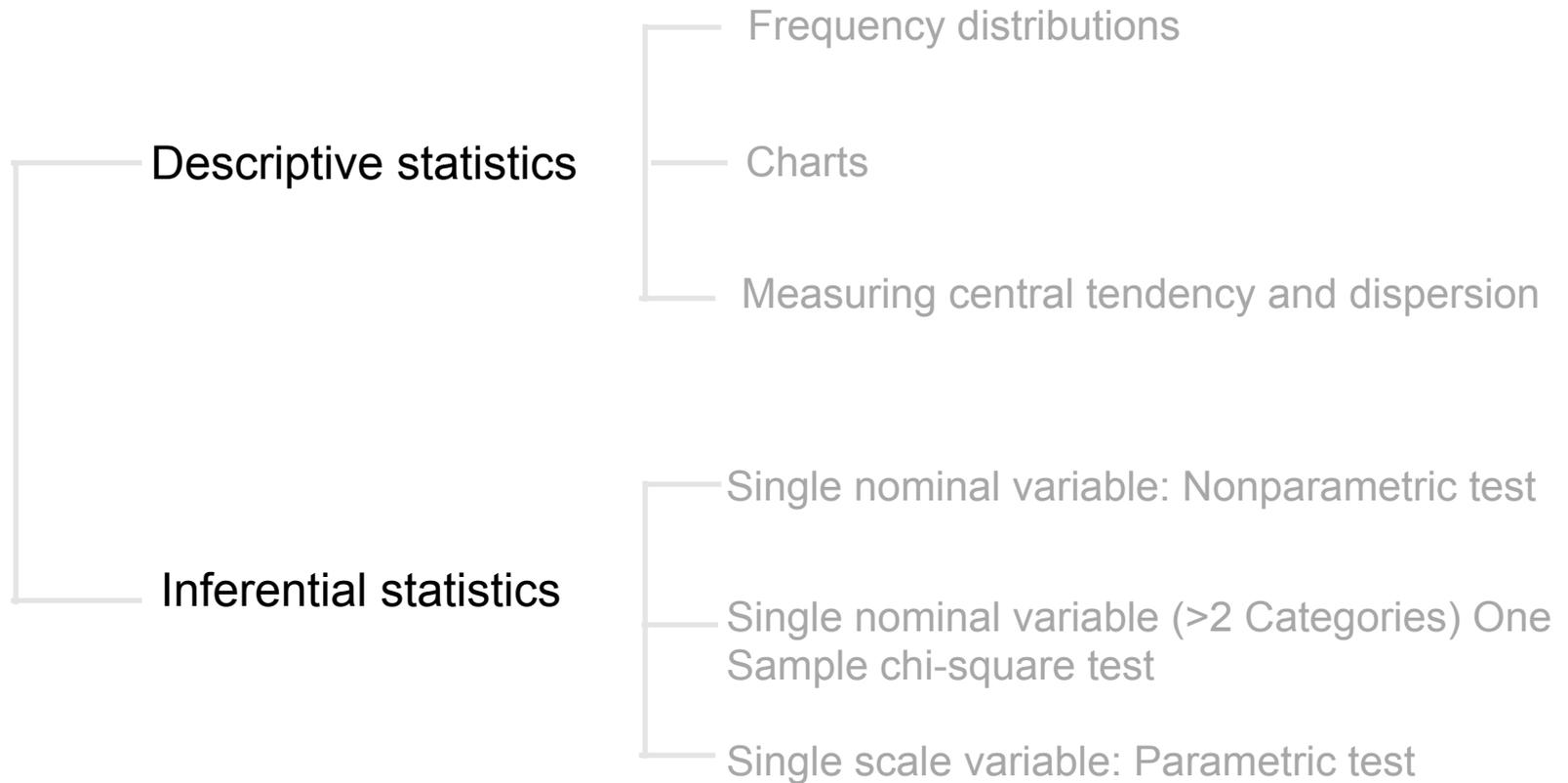


Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The categories of Marital status occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

One Variable



Let's do this

1. Before we run any statistical tests, we always first want to have a basic idea of what the data look like. A fast way for doing so is to look at the histogram for your variable.



Generate a histogram of “Labor force status”

2. Assume all requirements are met for One-Sample Chi-Square test



Run One Sample Chi-Square Test for “Labor force status”



Reference

Hinton, P. R. (2014). SPSS explained. London: Routledge.

Antonius, R. (2013). Interpreting quantitative data with SPSS. London: SAGE.



Please fill up our feedback form: [UBC Research Commons Feedback Form](#)

The screenshot shows the UBC Research Commons website. The top navigation bar includes the UBC logo, the slogan 'a place of mind', 'UBC LIBRARY', and 'Walter C. Koerner Library'. Below this is a secondary navigation bar with links for 'Library Home', 'Search Collections', 'Hours & Locations', 'Use The Library', 'Get Research Help', 'About Us', and 'LOGIN'. The main content area has a breadcrumb trail: 'Library Home » Hours & Locations » Koerner Library » Services » Research Commons'. On the left is a sidebar menu with expandable sections: 'Walter C. Koerner Library', 'Services', 'Borrower Services', 'Research Commons', 'FIREtalks', and 'Data Services'. Under 'Research Commons', the following items are listed: 'Consultation Request', 'Research Commons', 'Newsletter', 'Thesis Formatting', 'Citation Management', 'SPSS Support', 'NVivo Support', 'Feedback Form' (circled in red), 'cIRcle', 'Copyright', and 'Data Services'. The main content area features a 'Research Commons' header with sub-navigation tabs: 'Our Services', 'Consultations', 'About Us', 'The Team', and 'Related Services at UBC'. The 'Our Services' section is active, containing a paragraph about the services, a list of services, and a 'Thesis Formatting' subsection with a bulleted list of topics. A logo with the text 'Discover. Gather. Create. Share.' is also present.





Thank you!



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